

Dynamic Skill Formation in Vietnam:
Beyond a 'Skill Mismatch' Paradigm

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Signed Jmou (candidate) Date 23/3/2019

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Abbreviations

ADB	Asian Development Bank
AEC	ASEAN Economic Community
ALMP	Active Labour Market Policy
AmCham	American Chamber of Commerce
AQRF	ASEAN Qualifications Reference Framework
ASEAN	Association of Southeast Asian Nations
BOI	Thailand Board of Investment
CAQDAS	Computer-assisted Qualitative Data Analysis
CBT	Competency-based Training
CEPD	Council for Economic Planning and Development
CNC	Computer Numeric Control
CPTE	Council for Professional and Technical Education
CPV	Communist Party of Vietnam
DOIT	Department of Industry and Trade
DPI	Department of Planning and Investment
DVET	Directorate of Vocational Education and Training
EDB	Economic Development Board
EPB	Economic Planning Board
EPE	Export Processing Enterprise
ETF	European Training Foundation
EU	European Union
EuroCham	European Chamber of Commerce
FDI	Foreign Direct Investment
FEC	Future Economy Council
FIE	Foreign-invested Enterprise
FTA	Free Trade Agreement
GA	General Affairs
GDP	Gross Domestic Product
GDVT	General Department of Vocational Training
GER	Gross Enrolment Ratio
GRIPS	National Graduate Institute of Policy Studies
GSO	General Statistics Office
HR	Human Resource
HRD	Human Resource Development
HRDMP	Human Resource Development Master Plan
ILO	International Labour Organization
ISCED	International Standard Classification of Education

ISCO	International Standard Classification of Occupation
ITM	Industry Transformation Map
JBAV	Japan Business Association Vietnam
JETRO	Japan External Trade Organization
JICA	Japan International Cooperation Agency
LMI	Labour Market Intermediary
MOC	Ministry of Construction
MOET	Ministry of Education and Training
MOIT	Ministry of Industry and Trade
MOLISA	Ministry of Labour, Invalids and Social Affairs
MRA	Mutual Recognition Arrangement
NHO	Confederation of Norwegian Enterprises
NIEs	Newly Industrialised Economy
NIVET	National Institute of Vocational Education and Training
NIVT	National Institute of Vocational Training
NMC	National Manpower Council
NQF	National Qualification Framework
NSCTSD	National Steering Committee on Training towards Society's Demand
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
PISA	Programme for International Student Assessment
PPC	Provincial People's Committee
PR	Public Relations
R&D	Research and Development
SEDP	Socio-Economic Development Plan
SEDS	Socio-Economic Development Strategy
SME	Small and Medium Enterprise
SOE	State-owned Enterprise
SSC	Sector Skills Council
TNC	Transnational Corporation
TPP	Trans-Pacific Partnership
TVET	Technical and Vocational Education and Training
UKCES	UK Commission for Employment and Skills
UNCTAD	United Nations Conference for Trade and Development
UNESCO	United Nations Education, Scientific and Cultural Organization
UNIDO	United Nations Industrial Development Organization
VBF	Vietnam Business Forum
VCA	Vietnam Cooperative Alliance
VCCI	Vietnam Chamber of Commerce and Industry

VDF	Vietnam Development Forum
VGCL	Vietnam General Confederation of Labour
VINASME	Vietnam Association of Small and Medium Enterprises
VoC	Varieties of Capitalism
VQF	Vietnam Qualification Framework
WTO	World Trade Organization

Abstract

There are growing claims that an increasing skill mismatch, in terms of skill shortages and gaps, is impeding further economic growth and industrialisation in Vietnam. Previous studies often attributed it to the failure of supply-side initiatives to meet increasing skill demand. However, this supply-side approach, which emanates from human capital theory, provides only a partial view of Vietnam's skill formation model and its challenges.

This research investigated the perceptions of skill mismatch in the machine manufacturing sector, which is expected to lead higher value-added industrialisation, obtained through questionnaires and in-depth qualitative interviews with policymakers, educators, and employers. It found that employers are not uniformly concerned about large skill shortages and skill gaps because many of them do not require large numbers of skilled workers due to intensified supply chain competition, small domestic markets, and incremental technological progress.

In contrast, policymakers and educators often perceive large skill shortages and gaps, in particular for intermediate workers such as technicians. Accordingly, they are adopting the supply-side approach by suggesting that education and training, in particular TVET programs, should be improved in accordance with the perceived skill needs of employers. However, they confront two fundamental challenges in trying to deliver improvements to their skill formation system through a supply-side approach. Firstly, many employers have weak incentives to engage in TVET reform due to stagnant skill demand. Secondly, they struggle to determine current and future skill 'needs' precisely. In these conditions, imposing the supply-side approach amplifies mutual distrust between the supply and demand sides.

In order to overcome these two challenges and achieve further industrialisation, Vietnam needs an integrated skill formation strategy which stimulates the dynamism of skill demand, while promoting inclusive upskilling beyond employers' immediate skills needs. This requires active local initiatives focusing on sectors with high aspirations for ascending value chains and upskilling.

Chapter 1. Introduction

Vietnam has been achieving rapid economic growth since it opened up to the outside world in the early 1990s, and it had become a lower middle-income country by 2008 (Ohno 2014). The development of industry with a massive inflow of foreign direct investment (FDI) has enabled Vietnam to transform from a poor, agriculture-based country into an emerging economy with a high potential for industrial development. The industrial structure has been also changing gradually. Following the development of the light manufacturing industry, the machinery manufacturing industry, which includes the motorcycle, automobile, and electric and electronic sectors, has started growing gradually and is anticipated to lead industrialisation in Vietnam (McKinsey Global Institute 2012a; ILO and ADB 2014).

The Government of Vietnam aims to maintain a high growth rate and achieve the goal of becoming an ‘industrialised and modernised’ country (Government of Vietnam 2011e; Ohno 2014). However, there is no guarantee that Vietnam can achieve this goal soon. Some scholars have been warning that Vietnam will not be able to sustain the current high growth rate, which is the result of a one-time liberalisation effort and external forces such as increasing FDI inflow associated with global integration rather than internal value creation (Ohno 2010). In order to achieve further economic growth and industrialisation, Vietnam has to promote higher value-added industries. The development of a skilled workforce is regarded as one of the essential factors for upgrading the industrial structure, which also includes other elements such as the business environment and infrastructure (Ohno 2010; Perkins and Vu 2010; Tran 2013b).¹ Accordingly, the government has been

¹ However, Tran (2013b) mentioned that a lower middle income country such as Vietnam should focus on institutional reforms such as : (i) promoting development of factor markets and ensuring equal competition among economic actors for efficient use of capital, land and other resources, in order to avoid the early appearance of the middle income trap. On the other hand, he mentioned that upper middle-income countries such as the Association of Southeast Asian Nations (ASEAN) 4 (Indonesia, Malaysia, the Philippines, and Thailand) should strengthen research and development (R&D) capacity and the quality of human resources. In contrast, Ohno (2014) emphasizes the development of human resources is already necessary for Vietnam as a lower middle-income country.

paying close attention to the improvement of education and training programs as a supply source of skilled workers (Nguyen and Truong 2007; World Bank 2012c; OECD 2013b).

Vietnam has succeeded in supplying inexpensive and good quality elementary workers to industry, which predominantly concentrates on labour-intensive processes (Mori et al. 2009; World Bank 2013a). However, previous studies indicate that employers have been facing a serious lack of skilled workers at higher occupation levels such as manager, engineer, and technician (di Gropello 2010; Pompa 2013; World Bank 2013a; Goodwin et al. 2014).² Thus, these studies suggest that the government reform the education and training system, including higher education and technical and vocational education and training (TVET) programs.

In short, most previous studies claimed the existence of significant skill shortages and gaps. They ascribed these skill mismatches to insufficient performance on the supply side by education and training institutions as well as the government, which is responsible for skills policies. This argument is in line with the ‘supply-side approach’ to skill formation (Lloyd and Payne 2002; Desjardins and Rubenson 2011), which is based on two key premises. First, ‘skill supply will create its own demand’, according to human capital theory (Brown et al. 2001, p. 17; Lloyd and Payne 2002, p. 384). In other words, firms are supposed to recruit more skilled workers once they become available in the labour market. Second, skill demand is growing dynamically because many firms are introducing advanced technologies to increase higher value-added activities. In fact, many previous studies reported that this ‘skill-biased technological change’ is proceeding in Vietnam (ILO 2008b; World Bank 2008; ManpowerGroup 2011; World Bank 2013a; Goodwin et al. 2014).

However, there are several questions about whether the above supply-side approach argument properly reflects the situation of skill demand and supply in Vietnam. First, past studies on skill mismatch were mainly based on employer surveys (e.g. World Bank

² According to a survey conducted by the World Bank, more than 80 per cent of responding employers reported that job applicants for the position of professionals and technicians lack skills required for the jobs (World Bank 2013a, p. 54).

2013a; Goodwin et al. 2014). Such studies relied on the subjective impressions of company managers and often failed to provide compelling evidence on skill mismatch (Cappelli 2015; Felstead 2016). In addition, they neglected to examine the views of other key skill formation actors such as policymakers and educators.

Second, previous studies focused excessively on supply-side problems while not examining the demand-side issues. They took it for granted that firms will make rational and forward-looking decisions about skill development, in accordance with human capital theory (Becker 1993b,a). In addition, it is presumed that skill demand is increasing and changing dynamically due to technological progress. In other words, they disregard the ‘demand-side approach’ to skill formation which emphasises the necessity to not only improve skill supply but also stimulate skill demand in order to become a high-skill economy (Ashton et al. 1999; Lloyd and Payne 2002; Ashton and Sung 2015; Brown et al. 2015a).

Finally, current skill mismatch discussions in Vietnam concentrate on an economic aspect of skill formation. In particular, TVET programs are often required to ensure their ‘economic relevance’, which means that TVET institutions should provide skills required by employers (Almeida and Robalino 2012).³ Accordingly, extant studies on skill formation in Vietnam emphasised that TVET programs should be improved in accordance with industry skill needs (Pompa 2013; World Bank 2013a; ADB 2014; Goodwin et al. 2014).⁴ On the other hand, few studies have examined the social and institutional dimensions of skills formation in Vietnam. According to Brown (1999), skill formation is ‘the development of the social capacity for learning, innovation and productivity’ which enables a country to become an inclusive high-skills economy and society. In such an economy, where social justice and economic efficiency are integrated, all social groups can benefit from broad education and training and improve their overall quality of life beyond simple economic efficiency (Brown 1999; Brown et al. 2001; Payne

³ The World Bank (2013a, p. 8) calls it ‘job relevance’.

⁴ According to a survey conducted by the World Bank, around 40 per cent of firms reported that the quality of vocational training is an obstacle to the operation and growth of their business (World Bank 2013a, p. 52).

2002).⁵ Education and training reforms merely focusing on economic relevance may not enable Vietnam to achieve this inclusive upskilling, with the aim of benefiting the entire population in the long run.

In short, the current skill mismatch argument highlights a limited aspect of skill formation in Vietnam, namely employer perceptions and supply-side problems. Therefore, this research aims to provide a comprehensive picture of Vietnam's skill formation model and its challenges, analysing empirical data obtained through field interviews with key actors in the machine manufacturing industry based on the following three research questions.

- (i) How do employers, educators, and policymakers perceive skill mismatch in Vietnam?
- (ii) What are the mechanisms and challenges of the current Vietnam's skill formation system? Is it functioning adequately to coordinate skill demand and supply and enable the country to become an inclusive high-skill economy?
- (iii) If the current focus on supply-side solutions is inadequate, how can Vietnam reform its current skill formation system to achieve inclusive upskilling?

This thesis begins with literature reviews and moves to empirical research findings. Chapter 2 explores the underlying assumptions of the current skills mismatch discussions in both developed and developing countries. In particular, it focuses on two theoretical approaches to skill formation: (i) the supply-side approach, which originates from human capital theories; and (ii) the demand-side approach, which focuses on the political

⁵ Brown (1999, p. 238) indicated 7 characteristics of this high-skill economy or society: (i) an inclusive system of education and training which achieves comparatively high standards for all social groups irrespective of social background, gender, race or ethnicity; (ii) a systematic process of skills upgrading linked to learning, innovation and productivity; (iii) a high level of entrepreneurial and risk taking activities whether in terms of new business ventures or through innovation within existing enterprises linked to new technologies, R&D and the upgrading of skills; (iv) institutionally embedded relations of 'high' trust which encourages individual discretion and collective commitment; (v) a model of human capability based on an assertion that all have the potential to benefit from skills upgrading and lifelong learning; (vi) a system of occupational selection which values the diverse range of human talent, knowledge and creativity whether these are based on gender, social background, ethnicity, race or religion; (vii) a means of coordinating the supply and demand of labour, which includes a way of incorporating the increasing numbers of those with tertiary education into high skilled jobs.

economy of skill formation, including the social dimension. It examines how these two approaches influence skill mismatch discussions and policy responses.

Chapter 3 examines the skills mismatch discussion in Vietnam, reviewing existing literature and statistical data. In particular, it attempts to figure out the theoretical and empirical basis of the increasing claims of serious skill shortages and gaps. Then, it explores how current skill demand and supply coordination institutions work. Lastly, it examines the issues to be addressed by empirical research.

Chapter 4 explains the empirical research design and methodology. It explains why this research adopted a qualitative research strategy and a multiple case study research method and how the data was analysed. It also describes the outline of the research processes, including data collection and analysis, in order to ensure the internal and external validity of this study. Finally, it attempts to critically evaluate the design and methodology of this research.

The next four chapters present the results of the empirical research. Chapters 5 to 7 examine how three key actors of skill formation, namely policymakers, employers, and educators, perceive skill demand and supply in the machine manufacturing industry, which is expected to be a driving-force of higher value-added industrialisation in Vietnam. The analysis is based on qualitative interview data and supplementary administrative records obtained through questionnaires. In particular, these chapters attempt to examine: (i) to what extent key actors' perceptions are aligned with the prevalent assumption of increasing skill demand and large skill mismatch; and (ii) how their perceptions are reflected in the current skill formation strategies in Vietnam. Based on the findings in these three chapters, Chapter 8 attempts to identify what challenges key actors perceive in the current Vietnam's skill formation model. Then, it examines the feasibility of the countermeasures proposed by the government by comparing the key actors' perceptions.

Based on the empirical findings, Chapter 9 discusses the limitations of the existing theoretical approaches in explaining the challenges of Vietnam's skill formation model and providing solutions to achieve inclusive upskilling. Then, it explores which skill

formation strategies and demand-supply coordination institutions are viable in Vietnam. Finally, it presents the conclusion and implications for future research.

Chapter 2. The Underlying Assumptions of Current Skill Mismatch Discussions

2.1. Introduction

Skill mismatch is an important political, economic and social topic of discussion in various countries (e.g. ILO et al. 2014; OECD 2016a). In developing countries it often refers to the lack of a skilled labour force (Martinez-Fernandez and Powell 2010; Almeida et al. 2012a), while in developed countries, recent discussion on skill mismatch has focused on over-qualification as well as skill shortages and gaps (Cedefop 2010a; UKCES 2014; Lloyd and Payne 2016; Cedefop 2018a). In either case, it is said that skill mismatch leads to social and economic loss since it negatively affects productivity and the welfare of employees in the areas of job satisfaction and wages. (Cedefop 2010a; OECD 2012).

This chapter aims to unpack the underlying theories of the current skill mismatch discussion and their policy consequences. Section 2.2 reviews policy definitions of the terminology related to skill mismatch. Section 2.3 provides an overview of skill mismatch discussions in developed and developing countries. Section 2.4 examines what theories underlie the current skill mismatch discussion. Section 2.5 analyses policy consequences of selected theoretical approaches. Section 2.6 discusses the limitations of existing approaches, and the conclusion is presented in Section 2.7.

2.2. Policy Definitions of Skill Mismatch

There are numerous terms related to skill mismatch such as skill demand, skill need, skill supply, skill shortages, and skill gaps. This section reviews how previous research defined these terms and attempts to clarify what they mean in this research.

First of all, there is no consensus regarding the definition of ‘**skills**’ among researchers and policymakers (Clarke and Winch 2006; Green 2013). From the view point of training, human capital theory divides skills into two categories, ‘general’ and ‘specific’ skills

(Becker 1993b). It explains that training to acquire general skills should be funded by individuals or through public funds due to its transferrable nature, while training for specific skills should be provided by employers. On the other hand, research which attempts to measure individual skill levels often divides skills according to their nature. Packard and Nguyen (2014) and Valerio et al. (2014) grouped skills into three categories: (i) cognitive skills, which include numeracy, problem solving, verbal communication, and memory; (ii) behavioural/socio-emotional skills, which include teamwork, work effort, reliability, and discipline; and (iii) technical/job-relevant skills which are required for specific tasks at a specific type of job. Other studies call the above ‘behavioural/socio-emotional skills’ and ‘social skills’ (Brunello and Schlotter 2011; Deming 2015; Mýtna Kureková et al. 2016).⁶ The OECD (2017c) calls them ‘non-cognitive skills’, while Tan and Nam (2012) use the term ‘soft skills’. Moreover, some papers have combined cognitive and social skills into one category and labelled them ‘core skills’ (ILO 2008a) and ‘transversal skills’ (UNESCO 2015). In order to focus on the key properties of skills and keep the terms simple, this thesis uses three categories in discussing individuals’ abilities: (i) cognitive; (ii) social; and (iii) technical skills. In addition, it separates technical skills into ‘general’ and ‘specific’ in discussing training responsibilities.

‘**Skill demand**’ is defined as the skills which employers require of their current or potential employees (Ashton and Green 1996). A similar term is ‘skill needs’, but its definition may vary. Ashton and Green (1996) suggested that ‘skill needs’ be used for individuals who make the best self-enhancing use of the available technology. However, recent literature does not distinguish ‘skill needs’ from ‘skill demand’. Skill needs can be either individuals’ skill needs or employer skill needs (UKCES 2010b; Desjardins and Rubenson 2011; UKCES 2014). This thesis defines skill demand as the aggregation of employer skills needs, which indicate either skill sets required to carry out assigned jobs properly or people who have such skill sets.

⁶ They follow the definition of O*Net Online (National Center for O*NET Development 2018) . On the other hand, O*Net Online separates ‘cognitive skills’ into ‘cognitive abilities’, ‘basic skills’ and ‘complex problem-solving skills’.

‘Skill supply’ usually means the skills available in the market or the workforce (Ashton and Green 1996). Many previous studies used qualification supply as a proxy indicator of skill supply since qualifications reflect a certain range of skills, in particular those required for job entry (Felstead et al. 2007; OECD 2013a).⁷ Accordingly, in this thesis, skill supply means either people with sufficient skills to perform assigned jobs or those with qualifications corresponding to each occupation. It is, however, necessary to note that employers do not always regard qualifications as proof of skills because people with qualifications may not necessarily have sufficient ability to perform assigned jobs (Keep et al. 2006; Felstead et al. 2007; OECD 2013a). This issue is linked to the discussion about whether it is legitimate to measure skill mismatch by analysing education or qualification mismatch, as described later in this section.

‘Skill shortages’ mean ‘a situation in which the demand for a particular type of skill exceeds the supply of available people with that skill’ (Cedefop 2010a, p. 13). More precisely, skill shortages are the aggregation of job vacancies due to the unavailability of people who have the skills required for jobs offered by employers. Green et al. (1998) noted that skill shortages should not be equated to hard-to-fill vacancies because not all recruitment difficulties are caused by lack of skilled workers. Accordingly, UKCES (2010a,2014) has instead been using the term ‘skill shortage vacancies’, separating it from hard-to-fill vacancies, which occur when employers struggle to find appropriate candidates due to not only skill-related reasons but also non-skill related reasons such as a lack of applicants caused by uncompetitive wage rates, for example. Skill shortages can be caused by underinvestment in training or structural changes such as the adoption of new technologies which require specific skills not available in the labour market (Haskel and Martin 2001; Cedefop 2010a; Desjardins and Rubenson 2011). Underinvestment in training is often interpreted as an insufficient supply of qualifications or education

⁷ Felstead et al. (2007) regarded qualification as part of ‘broad skills’. OECD (2013a) mentioned that it is often difficult to define precise requirements at the individual skills level.

(Cedefop 2010a), even though there is an argument that qualifications are not always equivalent to skills as the latter half of this section describes.

While skill shortages indicate an imbalance of demand and supply in the labour markets, '**skill gaps**' represent skill mismatch within the internal labour markets of firms (Cedefop 2010a; UKCES 2010b). Skill gaps occur when employees are not fully proficient or competent in their jobs and do not satisfy their employer skill needs (UKCES 2010a). Green (2013) stated that skill gaps are relatively uncommon if employers are in a position to freely train or dismiss incompetent workers.

Skill shortages and gaps are not necessarily correlated. According to Cedefop (2010a), little evidence supports the overlap between skill gaps and skill shortages. For example, they cited the case that only 1 per cent of UK employers reported both skill shortages and gaps. In addition, small skill shortages do not guarantee a low level of skill gap because an educational qualification required for a certain position does not always cover all skills required for a job. The OECD (2013a) pointed out that individual workers may not satisfy employer skill needs even when skill supply and skill demand are balanced in terms of educational qualifications.

'**Skill mismatch**' indicates a broader concept of imbalance between skill demands and supply, which includes both skill shortages and gaps (Cedefop 2010a). In countries experiencing high growth, skill mismatch often means that demand exceeds supply. This situation is also expressed as 'skill deficit' (UKCES 2010a). In contrast, in more mature economies, skill mismatch sometimes indicates that skill supply exceeds skill demand. This includes 'over-qualification' (or over-education), which means that individuals have higher qualifications than needed for their current jobs, and 'over-skilling', which means that individuals have higher skill levels than required for their current jobs (Cedefop 2010b). The term 'skill underutilisation' is sometimes used instead of over-skilling.

'Skill mismatch' is often used to mean both 'qualification mismatch' and 'genuine skill mismatch', but some papers have attempted to distinguish between them. Desjardins and

Rubenson (2011) defined education or qualification mismatch as ‘the situation in which the educational qualifications held by a worker differ from those perceived to be required either by the employer or the worker to carry out adequately the tasks associated with his/her job’. On the other hand, they stated that skill mismatch is ‘a more direct concept based on whether workers have the actual skills needed to carry out successfully required job tasks’. The OECD (2013a) also described skill mismatch more precisely as the imbalance between a worker’s actual skills and to the skills needed for his or her specific job.

Some studies assert that qualification mismatch and skill mismatch are complementary indicators, even though they noted that it is important to distinguish between them depending on the assumptions and purpose of the research (Desjardins and Rubenson 2011). The OECD (2013a) stated that qualification mismatch should not be simply dismissed as a poor indicator for the following two reasons. First, it is possible to identify areas requiring policy intervention by analysing the causes of qualification mismatch such as the discrepancy between skills learned in schools and those required in real jobs. Second, while genuine skill mismatch may give a precise view of mismatch of specific or individual skills, it may provide only a partial view of mismatch between a worker and his or her job. On the other hand, analysis of qualification mismatch enables us to gain a broader view of mismatch since a qualification covers several different skill sets.

However, there is the opinion that treating education or qualification mismatch as a proxy indicator of skill mismatch is misguided. Cappelli (2015) asserted that education should not be regarded as the equivalent of skills because the knowledge, skills, and abilities used in work have only a partial overlap with what is taught in schools. Keep et al. (2006) questioned the effectiveness of skills policies based on a ‘stocktaking approach’, which uses international comparisons of stocks of qualifications as a proxy for relative skill levels. They pointed out that this approach was developed on the belief that people with a qualification will be able to perform their current and future jobs better than those without a qualification. Thus, it obscures the problems which stem from the scope and

quality of educational and training programs. Ashton and Green (1996) pointed out that people may take jobs for which their qualifications are not an entry requirement. In addition, they noted that the standards implied by qualifications may change over time and their credibility varies depending on which educational and training institutions issued them.

How skill mismatch is understood influences the focus and form of policy intervention. For example, the UK government massively increased the skill supply, in terms of people with qualifications, from the mid-1980s to the mid-2000s (Keep et al. 2006). This policy was developed on the assumption that skill mismatch hinders productivity growth and increasing the number of people with qualifications should reduce skill mismatch. However, Keep et al. (2006) pointed out that there was no significant change in productivity due to the lack of other factors such as investment, innovation, and product market strategies.

In summary, the term skill mismatch represents either a shortage or excess at the qualification or individual skill levels. In this thesis, 'skill mismatch' will be used in relation to both skill and qualification mismatch. This is mainly because this research intends to examine how employers value qualifications and what the roles of education and training institutions are in skill formation, even though it notes that there is an argument that qualifications are not always equivalent to skills.

2.3. Skill Mismatch Discussion in Emerging and Developed Economies

This section provides an overview of the skill mismatch discussion in developed and developing countries, with a focus on European and Asian countries. In developed countries, skill mismatch is discussed in the context of both skill shortages and gaps and over-qualification, while research on developing countries mainly highlights skill shortages and gaps.

Many studies in developed countries continue to indicate a lack of skilled workers (e.g. Cedefop 2010a; UKCES 2014). On the other hand, some studies show that skill shortages

and gaps are decreasing. For example, Keep et al. (2006) mentioned that according to the national skill survey in 2004, skill-shortage vacancies in England represented 0.8 per cent of employment and occurred in only 4 per cent of establishments surveyed. They also stated that skill gap incidences were also limited because 20 per cent of establishments, which covered only 7 per cent of the national workforce, reported skill gaps. In addition, UKCES (2014) reported in 2013 that 85 per cent of establishments surveyed considered their entire UK workforce to be fully proficient, while 15 per cent found some skill gaps.

Moreover, attention to over-qualification and skill underutilisation has been increasing recently (Cappelli 2015; Lloyd and Payne 2016; Cedefop 2018a,b). For instance, in analysing the UK 2006 Skill Survey, Felstead et al. (2007) stated that over-qualification has continued to grow since 2001 and reached 40 per cent of workers in 2006, while Sutherland (2012) pointed out that around 15 per cent of workers surveyed had jobs in which they did not fully utilise their skills. UKCES (2014) reported that 16 per cent of the total UK workforce was considered to be both over-skilled and over-qualified, according to their 2013 employer survey, while it also reported skill shortages and gaps. Some other developed countries also experience over-qualification. In the Organisation for Economic Co-operation and Development (OECD) countries, it was found that 21 per cent of workers are over-qualified while about 13 per cent are under-qualified on average (OECD 2013a).

Despite the trend of over-qualification, the qualification supply will likely keep increasing. For example, the share of workers with high qualifications is predicted to increase from 2010 to 2020 in nearly all European Union (EU) countries (Cedefop 2010b). This projection corresponds to the assumption that from 2010 to 2020, demand for highly-qualified people will rise by almost 16 million and for people with medium-level qualifications it will rise by more than 3.5 million. UKCES (2012) also predicted that both the demand and the supply for higher qualifications would increase from 2010 to 2020 in the UK, while the demand for workers with lower-level occupations such as plant and machine operators would decline.

In contrast to the increasing attention paid to over-qualification in developed countries, there is a prevalent notion that developing countries, in particular those which have started industrialisation by taking advantage of the large inflow of FDI, are facing serious skill shortages and skill gaps (World Bank 2012d).⁸ Liang (2013) reported skill shortages and gaps in one province in China. Martinez-Fernandez and Powell (2010) reported that shortages of middle managers and professionals such as IT and financial staff were evident in the Association of Southeast Asian Nations (ASEAN). Packard and Nguyen (2014) found that 76 per cent of employers were not satisfied with the skills of new graduates in Cambodia. According to a World Bank survey in Vietnam, many respondents reported that applicants for manager, professional (such as engineer), and technician positions do not have sufficient skills to meet employer requirements (World Bank 2013a). A similar claim of skill shortages and gaps can be seen in developing countries in Africa such as Ethiopia (Yamada et al. 2018).

Many studies have predicted that skill shortage and skill gaps will remain an important challenge in the coming decades since the demand for skilled workers will expand, even though a few studies indicated that over-qualification is emerging even in developing countries (Handel et al. 2016; McGuinness et al. 2017). For example, a survey conducted by Packard and Nguyen (2014) in Indonesia and the Philippines showed that the demand for an educated workforce and relevant skills will likely continue to increase because of economic transformation and global integration. Martinez-Fernandez and Choi (2012) stated that there will be rising demand for high and medium skilled workers in Cambodia, Pakistan, and Vietnam, although those countries are struggling to supply these workers. McKinsey Global Institute (2012b) predicted a potential shortage of 23 million workers with tertiary education and nearly 45 million workers with secondary or vocational education in South Asia and sub-Saharan Africa by 2030.

⁸ The conventional discussion framework of skill mismatch, which assumes that the majority of labour forces are in the formal sector, may not apply to low-income countries such as those in sub-Saharan Africa where most new entrants become part of the informal economy through self-employment. According to Johanson and Adams (2004, p. 3. 47), about 85 per cent of total employment is in the information economy in a typical African country except for South Africa and Mauritius.

These studies of skill formation in developing countries share two characteristics. For one thing, most of them recommend expanding the supply of skilled workers in order to catch up with increasing demand, which is also proposed for developed countries (McGuinness et al. 2017). Furthermore, most of them rely on data obtained through surveys of employer perceptions. This is probably because it is hard to obtain sufficient and precise employment data disaggregated by qualification and occupation and to clarify the linkage between them in developing countries, where statistical capacities, along with occupational and qualification standards are not fully developed yet (Fretwell et al. 2001; ETF 2012).

To sum up, extant studies have indicated skills mismatch in both developed and developing countries, but with a different focus. While those about developed countries have indicated concern about over-qualification, those about developing countries concentrate on skill shortages and gaps. However, regardless of this difference, previous literature recommends that both developed and developing countries increase the supply of skilled workers, expecting that the demand for skilled workers will increase due to industrialisation and technological development (Cedefop 2010b; Almeida and Robalino 2012; McKinsey Global Institute 2012b; UKCES 2012; World Bank 2013a).

2.4. Theories Underlying Skill Mismatch

Current theoretical discussions on skill mismatch can be roughly divided into two approaches from the viewpoints of its causes and corresponding policy focuses (Lloyd and Payne 2002, p. 6; Desjardins and Rubenson 2011, p. 375; Ashton and Sung 2015, p. 198). First, there is the theoretical approach, which ascribes skill mismatch to the supply-side, including education and training institutions, individuals, and governments (hereafter called the ‘supply-side approach’). This approach prioritises market mechanisms in line with neoclassical economics. The second approach attributes skill problems not only to the supply-side but also the demand side, with a focus on employer demand and skill utilisation (hereafter called the ‘demand-side approach’). The demand-

side approach also considers the political, social, institutional, and cultural aspects of skill formation. This section reviews how these two theoretical approaches explain the mechanisms of skill mismatch.

2.4.1. The Supply-Side Approach

The supply-side approach is based on neoclassical economic theories, including (i) human capital theory; (ii) market failure theory; and (iii) skill-biased technological change theory. Its theoretical framework is in line with what is called the ‘liberal approach’ (Ashton and Green 1996), ‘neoclassical approach’ (Ashton et al. 1999), the ‘neo-liberal approach’ (Brown et al. 2001), or the ‘free markets model’ (Ashton 2004), in the sense that all of them are associated with human capital theory.

2.4.1.1. Human Capital Theory

Human capital theory, which influences a wide range of skill formation discussions, examines the relationship between investment in education and economic development and has been used to justify investment in education and training for human capital development (Ashton and Green 1996). Becker (1993b) advocated the concept of human capital as a production factor, which is different from conventional inputs such as physical capital. He also argued that individuals and firms should invest in education and training, taking into account its costs and benefits.

This theory was built based on the basic neoclassical economics principle that both the labour and product markets are perfectly competitive (Becker 1993b). In this labour market, perfect information should be available for all actors such as employers, employees, and education and training institutions (Boeri and Ours 2008). Moreover, individuals and firms are forward-looking and make rational decisions in order to maximise their benefits (Becker 1993b,a). They should be willing to invest more in skills, aiming at higher profits, productivity, and welfare. In this market, wages are assumed to be equal to the marginal product, which facilitate the adjustment of demand and supply and enables them to reach equilibrium (Becker 1993b).

In the framework of human capital theory, skill mismatch is regarded as a temporal phenomenon (Cappelli 2015). It may happen when skill demand changes as the economy and technology change. However, the supply side should catch up with demand soon because individuals and firms will make rational decisions to invest in education and training in response to the signals given by the perfectly competitive market. Accordingly, human capital theory suggests that increasing the supply of skilled workers through investment in training and education contributes to economic growth and technological upgrading (Becker 1993b). In other words, this theory assumes that ‘skill supply will create its own demand’ (Brown et al. 2001, p. 17; Lloyd and Payne 2002, p. 384).

In relation to skill mismatch, one key element of human capital theory is optimal sharing of earnings and costs from education and training between firms and individuals. The theory divides training, which includes the on-the-job training and school education, into general and specific training (Becker 1993b). It states that trainees should bear the cost of general training, since they are the ones who benefit from it. On the other hand, firms should pay the costs of specific training because they will receive exclusive benefits from productivity improvement and there is no incentive for employees to invest in this training due to limited application outside the firm. Thus, skill mismatch should be temporal and reduced by adequate investment in training by firms and individuals in the long term, based on the assumption that individuals and firms are rational and forward-looking (OECD 2016b). According to this concept of economic rationality, which is based on cost and benefit analysis, many studies based on human capital theory have been trying to measure the rate of economic return from investment in education and training (Psacharopoulos 1988,1994).

In short, human capital theory attempts to explain how investing in education is associated with labour productivity, employment opportunity, and income. This theory, which assumes there is equilibrium between skill demand and supply, provided the foundation of the current policy discussion on skill mismatch. However, the theory’s various limitations have been pointed out as the analysis of labour markets and education and

training has become more sophisticated and as the complex aspects of skill formation have been realized in economic and social terms. Market failure theory was developed in response as was the demand-side approach which will be described in the latter part of this section.

2.4.1.2. Market Failure Theory

Market failure theory evolved to conceptualise skill formation in the context of imperfect markets based on human capital theory. According to this theory, skill mismatch is not always temporal but can be persistent in imperfect markets. This is mainly because skill supply does not automatically adjust to meet skill demand due to market failures, which occur when private costs and benefits differ from social costs and benefits (Booth et al. 1996). Accordingly, this theory aims to identify factors which impede individuals and firms from making adequate investments in education in labour or capital markets.

One important factor that causes market failure is imperfect information (OECD 2016b). Almeida and Robalino (2012) stated that people fail to make rational decisions in selecting appropriate education and jobs due to insufficient information.⁹ Furthermore, governments are assumed to have less information in amount and quality regarding skill and training needs than firms (ADB 2009; Almeida and Robalino 2012). Therefore, this theory warns that governments often fail to intervene appropriately in training programs operated by education and training institutions or firms. In short, this theory points out that asymmetric information between the demand side, namely employers, and the supply side, including governments, education and training institutions, and individuals causes skill shortages and gaps (World Bank 2013a).

Another notable example of market failure is ‘poaching externalities’, which suggest that firms can be discouraged from investing in employee training because trained people can be ‘poached’ from other firms (Stevens 1996). Human capital theory refuses the existence

⁹ Almeida and Robalino (2012, p. 17) also explained that people’s ‘decision-making failure’ may happen even in perfect labour and capital markets when: (i) people are not equipped with sufficient cognitive capacity to process complex problems; or (ii) they are not free from psychological factors which mislead their decisions. However, their solution is still the correction of market failure.

of poaching externalities. According to Becker (1993b), employees who receive specific training have less incentive to quit because the acquired skills can only be used at the firms which provide the training and they pay a premium on these skills. On the other hand, firms have no incentive to bear the cost of general training because employees receive the whole of the return to it and the skills acquired are transferrable to other firms. However, Stevens (1996) argued that poaching externalities exist because not all types of training can be clearly classified as general or specific. She explained that a number of firms invest in apparently general training and report poaching because a lot of training is transferable but not perfectly general in the imperfectly competitive labour market.¹⁰ According to her, this may cause firms to under-invest in training in terms of the number of trainees or content of training programs, and hence cause skill mismatch.

Furthermore, market failure theory explains that the scarcity of skilled workers not only causes skill shortages but also leads to low demand for skilled workers, which further discourages individuals from investing in skill acquisition. Booth et al. (1996) called this situation the ‘low-skill, bad-job trap’. Almeida and Robalino (2012) used the term ‘innovation externality’ to describe circumstances in which firms are not able to conduct innovation activities because of insufficient availability of skilled workers, while workers do not invest in skill development due to insufficient demand from innovative firms.¹¹

Finegold and Soskice (1988) called the above situation ‘low skill equilibrium’. In low skill equilibrium countries, the majority of firms require only low skilled workers because they focus on producing low-quality goods and services. The high skill equilibrium indicates the opposite situation that the majority of firms need high-skilled workers so

¹⁰ According to the survey conducted by the Training Agency in the UK, 38 per cent of firms who provided some training replied that loss of training staff to other employers was a serious drawback of training provision (Stevens 1996, p. 23). On the other hand, Keep (2006) argued that there is very little reliable data on either the scale of poaching or its impact on employer training decision.

¹¹ They also mentioned that vacancy externalities may occur at lower occupations when firms do not hire skilled workers since many of them are not available in the labour market and hence their wages are high (Almeida and Robalino 2012, p. 17).

that they can produce high-quality goods or services. However, their argument is different from market failure theory in two ways. First, there is no skill mismatch even in a low-skill economy.¹² Finegold and Soskice (1988) noted that the UK was stuck in low skill equilibrium because the average worker entered employment with a relatively lower level qualification and firms offered a lower quality and quantity of training than the countries in high skill equilibrium such as Germany. Moreover, they stated that the poor performance of education and training impeded firms from implementing efficient and flexible production operations in the UK. Second, the cause of low skill equilibrium is ascribed to national institutions, which shape incentives for education and training, rather than market failures. Institutions vary depending on endowment and history of countries' skill formation system.¹³ In summary, this low-high skill equilibrium theory argues that countries can be stuck in low skill equilibrium even if there is no skill mismatch, not explaining why skill mismatch occurs.

In short, market failure theory reinforces human capital theory's explanation of skill mismatch by adding explanations of factors which hinder firms and individuals from making rational decisions to invest in skill development, including asymmetric information and poaching externalities. However, this theory maintains the human capital theory principle that the market function is superior to government intervention. As a consequence, this theory is inclined to concentrate on supply-side problems, assuming that the demand side is making rational and forward-looking decisions on skill development (Lloyd and Payne 2002; Dobbins and Plows 2016).

¹² Almeida and Robalino (2012, p. 17) discussed how market failures cause skill mismatch, but also mentioned that economies can get stuck in a low-level equilibrium if firms carry out limited innovative activities and hire few high-skilled workers.

¹³ Hall and Soskice (2001) divided the types of institutions into two groups in their varieties of capitalism (VoC) approach: 'liberal market economies' include Australia, Canada, Ireland, New Zealand, the UK, and the United States, and 'coordinated market economies' include Austria, Belgium, Denmark, Finland, Iceland, Germany, Japan, the Netherlands, Norway, Sweden, and Switzerland. This distinction was made in reference to the way in which firms resolve coordination problems regarding industrial relations, vocational training and education, corporate governance, inter-firm relations, and employee capacity development. However, Witt and Redding (2013) pointed out that the typologies suggested by the VoC approach cannot properly categorise Asian countries because the Asian business system considerably varies from the Western one.

2.4.1.3. Skill-Biased Technological Change Theory

Extant studies on skill mismatch discussions often claim significant skill shortages and gaps based on two assumptions. For one thing, firms are forward-looking and rational enough to recruit skilled workers once they are available in the labour market (Brown et al. 2001; Lloyd and Payne 2002). Another assumption is that the demand for skilled workers is increasing due to industrial and technological development. For example, the prediction of increasing demand for higher qualified workers in Europe is assumed to be caused by ‘industrial structural changes, which, combined with skill-biased technological progress’, are supposed to increase the demand with higher qualifications (Cedefop 2010b, p. 12). The World Bank (2013a) predicted that skill demand is shifting from manual and elementary jobs to more skill-intensive non-manual jobs in Vietnam, as in other developing countries in Southeast Asia.

The above assumptions highlight the connection between the skill mismatch argument and the theory of ‘skill-biased technological change’, which means that the introduction of a new technology, a change in production methods, or a change in the organisation of work will increase the demand for more skilled labour relative to less-skilled labour at fixed relative wages and lead to rising earning inequality (Card and DiNardo 2002; Goldin and Katz 2008). In the framework of this theory, skill mismatch is inevitable to some extent and takes time to decrease because employer skill requirements change due to technological progress (Cedefop 2010a; OECD 2016c).

Subsequently, this theory leads to the conclusion that skill mismatch is caused by slow-moving skill supply caused by outdated education and training programs (Cedefop 2010a). For instance, Goldin and Katz (2008) argued that income inequality between university-graduated professionals and ordinary workers has been rising since the late twentieth century in the United States because education and training has not caught up with new skill demand created by technological development. In the case of developing countries, serious skill shortages are ascribed to the poor performance of TVET programs as well as higher education programs (Martinez-Fernandez and Powell 2010).

In short, the belief in skill-biased technological change is reinforcing the argument that skill shortages and gaps are caused by flaws at the supply-side. Furthermore, skill-biased technological change theory tends to be used to justify the logic that new technology increases the demand for higher skills and hence skill mismatch will increase in the future, as shown by the above research in developed and developing countries (Cedefop 2010b; World Bank 2013a). In developing countries in particular, trade liberalisation and increasing FDI inflow are often expected to drive skill-biased technological change by promoting imports of advanced technologies and enhancing domestic technological capacities (Almeida 2010; Srour et al. 2013).

2.4.2. The Demand-Side Approach

The demand-side approach emerged from research on the political economy of skill formation, which raises issues about not only economic competitiveness but also social purpose and social justice (Ashton et al. 1999; Brown 1999). According to this approach, the existence of persistent skill mismatch is inevitable, in particular in developing countries whose economies are in ‘a dynamic non-equilibrium process’ (Ashton and Green 1996, p. 35; Green 2013, p. 122). Ashton et al. (1999) stated that when the economy is changing rapidly it is difficult to envisage a close matching of skill demand and supply in the market-driven skill formation system, which is too slow to transform work force skills.

Here persistent skill mismatch is caused by not only market failures but also more fundamental issues stemming from the social and political context of skill formation. First, market-based adjustment mechanisms do not always function as the supply-side approach assumes. Green (2013) stated that skill mismatch may be persistent because the adjustment process of skill supply through the price mechanism may be very slow due to wage rigidity and deep uncertainties surrounding the labour market.

Second, individuals and firms are not as forward-looking as human capital theory assumes. They do not always invest in education and skills in prompt response to

technological changes or opportunities to move up value chains (Ashton and Green 1996; Payne and Keep 2011). This is in part because of the short-term nature of skill demand. Firms do not always require high skills, in particular when they are entrenched in the free market's bias towards short-term profits (Ashton and Green 1996). In certain conditions, it can be perfectly 'rational' for firms to pursue a low-skill strategy (Payne and Keep 2011). Furthermore, this approach criticises human capital theory for regarding human capital as a 'thing' and not considering the social context of skills and technology and upskilling aspirations (Ashton et al. 1999; Brown et al. 2001). Individuals do not always make 'rational' decisions based on a cost-benefit analysis when they undertake skill development. In reality, they make decisions with 'bounded rationality', biased by people surrounding them and in an uncertain learning environment (Green 2013). In addition, economic incentives only partially explain the motivation for skill acquisition. It is also affected by the social and cultural context surrounding individuals (Brown et al. 2001).

Finally, new technologies do not necessarily increase the demand for skilled workers. They may even replace skilled workers as has happened in the past (Ashton and Green 1996). This means that technological changes are not always skill-biased. Indeed, as Brown et al. (2001, p. 20) argued, 'a linear model, in which technological change requires more education and training, demands higher skills, and leads to high wages, does not automatically occur'. They presented the example that in the United States the real earning power of non-university graduates, who often engage in low-skilled work, actually declined, while that of university degree holders did not rise as much as expected.

The above analysis leads to the justification of policy intervention in the demand side as well as the supply side. Ashton and Green (1996) stated that the economy is said to be in high- or low- skills equilibrium when a majority of firms are following the high- or low- skills route. According to them, countries which simply rely on a market-driven skill formation system such as the UK have a high risk of being stuck on a low-skill route, while emerging economies on a high-skill route have been utilising policy interventions for both the supply and demand sides. Based on the analysis of Newly Industrialised

Economies (NIEs) skill formation models, Ashton et al. (1999) extracted the key factors which lead countries to a high-skill route and formed the ‘developmental skill-formation model’, which Section 2.5.2 explains in detail.

In short, skill mismatch is persistent and inevitable because the market-driven adjustment may not take place in a timely fashion in the framework of the demand-side approach. Furthermore, it may not enable countries to achieve upskilling. Therefore, government interventions are required on both the skill demand and supply sides, in particular in developing economies. This positive attitude toward direct government intervention distinguishes this approach from the supply-side approach.

2.5. Policy Directions of Two Theoretical Approaches

This section examines how the policy directions of the above two theoretical approaches differ and what approaches current developing countries are applying to their skill formation strategies.

2.5.1. The Supply-Side Approach

In human capital theory, the role of governments should be limited to removing factors which discourage firms and individuals from investing in education and training. This is because this theory assumes that skill demand and supply should be matched as far as market mechanisms function appropriately. In this sense, human capital theory shifts the policy focus towards investment by individuals because they are the ones who should invest in general training (Stevens 1996). Accordingly, Schultz (1961) listed some policy proposals to encourage individuals to invest in education and training such as: improvement of tax laws for exempting training and education costs; reduction of unemployment; free choice of professions; improvement of the capital market for training funds; labour mobility; and provision of equal training and education opportunities to people at all levels. In short, those policies aim to make markets perfectly competitive.

Market failure theory accepts policy interventions in broader areas than human capital theory. However, it still does not encourage government to coordinate skill demand and supply but focuses only on correcting market failures. Booth et al. (1996) mentioned that the role of policies should be limited to identifying uncompensated costs and benefits in education and training and developing measures that make up for missing compensation. According to the supply-side approach, state-led skill development initiatives often fail to result in upskilling in a country (Crouch et al. 1999). Previous literature listed four main reasons for government failure (Booth et al. 1996; Finegold 1996): (i) government officials may work in their self-interest; (ii) government cannot understand skill needs better than firms; (iii) government support for training is expensive; and (iv) politicians and civil servants tend to put a high priority on short-term results.

In particular, many economists associated with international financial institutions, such as the World Bank, do not support active government intervention in skill development, including the provision of skill training such as public TVET programs (Ashton et al. 1999). They argue that that government involvement in skill development is inefficient from the viewpoint of rates of return. Psacharopoulos (1988,1994) concluded that investment in general education had a better rate of return than vocational education and training at the secondary education stage. This implied that despite the high investment costs of TVET programs, which include expensive machines and equipment, TVET institutions often could not fulfil the skill needs of industry.¹⁴ On the other hand, some of international financial institution researchers recognise the benefits of public TVET programs. Johanson and Adams (2004) proposed balancing the expansion of primary education with public TVET, reflecting the situation that people who have graduated with a primary education cannot find sufficient job opportunities. However, it is likely that this idea has not yet convinced mainstream economists given that the World Bank indicated that TVET has still mixed results and prioritised firms training initiatives in its recent flagship report (World Bank 2012d). Almeida and Robalino (2012) also mentioned that

¹⁴ Tan and Nam (2012) also mentioned that pre-employment TVET programs are often more costly than general education programs.

returns to pre-employment TVET can be positive, but they are not significantly higher than those for general education.

In consequence, policy proposals related to market failure theories often concentrate on four measures: (i) improvement of the labour market information system; (ii) promotion of firm training initiatives; (iii) improvement of TVET programs in accordance with employer skill needs as a secondary measure to firm initiatives priority; and (iv) improvement of stakeholder coordination.

First, market failure theory asserts that the role of government is to ensure that the markets transmit appropriate signals to firms and individuals (World Bank 2012d). To this end, the most justifiable policy intervention is the improvement of the labour market information system which collects and analyses macro-level data about skill demand and supply (ILO 2008a; Almeida and Robalino 2012; World Bank 2013a; Packard and Nguyen 2014; ETF et al. 2016). Furthermore, many OECD countries have been trying to forecast employment trends mainly by occupation in five to ten year terms (OECD 2010). Following this trend, governments of some developing countries are trying to forecast future skill demand with assistance from international organisations. For example, Vietnam has tried to construct an econometric employment project model and forecast employment demands from 2010 to 2020 by industrial sector and main occupation, with technical assistance from the International Labour Organization (ILO) (ILO 2011).

Second, firm training initiatives, such as on-the-job training, are regarded as a more effective and efficient means for skill upgrading than government-led training initiatives (Almeida and Cho 2012). This is because firms are supposed to know their skill and training needs much better than governments (see Section 2.4.1). According to Almeida and Cho (2012), on-the-job training is positively associated with increases in individual wages as well as firms' productivity growth. In addition, a substantial proportion of worker skills is developed through post-school training such as on-the-job training (Almeida and Robalino 2012).

The supply-side approach proposes four main policy measures to promote internal training at firms (Booth et al. 1996; Almeida et al. 2012b).¹⁵ (1) It suggests that a number of market failures can be adjusted through ‘training vouchers’ which are financially supported by the government, assuming that this subsidy program would encourage both firms and individuals to provide more training for employees. (2) It proposes an ‘accreditation system’ for employer-led training initiatives as a means to solve the problem of imperfect information about training quality and employer skill levels. In order to operate these programs, it is necessary to establish national or international qualification systems. (3) It assumes that ‘apprenticeship contracts’ would enable individuals to improve their skills through a combination of on-the-job training and off-the-job vocational training in TVET institutions. With these contracts, employers would agree to send their employees to off-the-job vocational training because they could pay them a lower salary during the apprenticeship period. (4) It suggests that governments provide firms and individuals with financial incentives such as loans for education and training, conditional loan guarantees, research and development (R&D) subsidies, and training subsidies which can be also linked to unemployment benefits and other welfare payments. Almeida and Cho (2012) recommend making payback clauses for internal training agreements in order to mitigate poaching externalities. On the other hand, national training funds based on a levy-grant mechanism such as Singapore’s Skill Development Fund are often described as a ‘mixed blessing’ measure because they may discourage employment and the quality and efficiency of training programs are low.¹⁶ However, firms are not always eager to provide training for their employees. Firms in developed countries are becoming less motivated to provide internal training (White House 2015; The Economist 2017b).¹⁷ Furthermore, it is likely that fewer firms provide

¹⁵ The measures proposed by Almeida et al. (2012b) also cover policies to improve pre-employment TVET programs.

¹⁶ Some papers such as ADB (2014) still recommend introducing a levy-based training fund in countries which do not have sufficient funds for skill development, although these papers realise its disadvantages.

¹⁷ For example, in the United States, the share of the country’s workers receiving either paid-for or on-the-job training decreased between 1996 and 2008; the former dropped from: 19.4 per cent to 11.2 per cent, while the latter dropped from 13.1 per cent to 8.4 per cent. (White House 2015). In the UK, the average

internal training in developing countries. As Almeida and Cho (2012) found, the share of firms providing job training is strongly correlated with the level of GDP per capita.

Third, public TVET programs are still recognised as a significant skill development path for many young people in developing countries (Almeida and Robalino 2012), in part because not all employers are actively providing internal training as described above. As basic education expands throughout the world, governments are required to offer multiple pathways for school-to-work transitions, including pre-employment TVET. This is in part because secondary and tertiary education systems have started facing capacity constraints in absorbing basic education graduates (Tan and Nam 2012).

However, market failure literature emphasises that governments should foster the ‘economic relevance’ of TVET programs, which means that students should acquire the skills required by employers and obtain jobs after graduation (Almeida and Robalino 2012). Accordingly, it recommends that TVET programs should be designed and implemented in accordance with industry or employer skill needs, calling this concept ‘demand-driven’ or ‘demand-led’ TVET programs (ADB 2009, p. 15; Martinez-Fernandez and Choi 2012, p. 14; Tan and Nam 2012, p. 85; World Bank 2013b, p. 14). Interestingly, the skill formation process in NIEs is considered a successful case of ‘demand-driven’ TVET from the view point of market failure theory (Tan and Nam 2012; Sparreboom and Staneva 2014), while the demand-side approach regards them as successful cases of integrated interventions on both the demand and supply sides (see Section 2.5.2).

The final measure is to improve coordination among stakeholders. Booth et al. (1996) explained that social partnerships among governments, employers, and employees can mitigate market failures and help employers and employees internalise the benefits and costs of training. Finegold and Soskice (1988) suggested that the quality of training and employment should be ensured in partnerships between educational and training

amount of training received by workers was almost halved to just 0.69 hours a week between 1997 and 2009 (The Economist 2017b).

institutions, employers, and government. Based on his research on low and high skill equilibriums, Finegold (1999) developed his perspective on the institutional conditions for high skills, in particular for technological innovation, as 'self-sustaining high-skill ecosystems'. Examining cases of biomedical and computer hardware and software clusters in Northern and Southern California, he identified four elements required to create and sustain a high-skill ecosystem. First, catalysts which encourage the development of high-skill firms are needed. They can be government funds for basic research and start-up business run by university scientists or students. Second, this system requires providers such as research universities which supply competent scientists or researchers or venture capitalists which provide sufficient funding for start-up enterprises. The third element is a supporting environment. This includes physical infrastructure for efficient logistics and laboratory activities as well as a regulatory environment friendly to entrepreneurs. The final element is interdependence. This means that firms, educational and training institutions, and individuals have strong network through which they can exchange information and seek collaborative business partners. It is not articulated who should lead this network or coordination institutions, but employers are likely expected to lead it, given that government upskilling initiatives often result in failures and firms know their skill and training needs much better than governments do (Finegold and Soskice 1988; Finegold 1999).

In summary, the policy proposals under the supply-side approach are developed based on the assumption that firms and individuals should make rational decisions to invest in upskilling if market failures are removed. Thus, governments should focus on developing labour market information systems and promoting firm and individual investments in training. Government intervention in TVET programs is also justified, but on the condition that training programs are formed in accordance with employer skill needs. While their policy proposals concentrate on the supply side, demand-side issues are

basically left untouched (Brown et al. 2001; Lloyd and Payne 2002; Payne and Keep 2011; Ashton and Sung 2015).¹⁸

2.5.2. The Demand-Side Approach

The demand-side approach expects government to play an important role in a country's upskilling, in contrast to the supply-side approach described in the previous section. This approach also recognises the potential for government failure. However, it does not deem the correction of market failures to be sufficient because skill formation is a more complex process than the supply-side approach assumes due to social and political factors (Brown 1999; Brown et al. 2001). In addition, supply-side market reform strategies are said to be vulnerable to fluctuations in skill demand (Brown et al. 2001).

One distinctive characteristic of this approach is the important role given to government interventions in skill demand through industrial policies (Ashton et al. 1999; Lloyd and Payne 2002; Ashton and Sung 2015; Brown et al. 2015a). Ashton et al. (1999) stated that governments can influence skill demand through industrial policies as well as the skill supply, criticising the conservative market failure approach for ignoring the effects of this policy option. In addition, they pointed out that government intervention can contribute to decreasing skill mismatch not only through supplying skills currently required by industry but also by producing skills which will be demanded in the future. They assume that governments can anticipate future demand when it has economies of scale, well-educated civil servants, and industrial policies which influence skill demand. They argue that while political elites sometimes fail to develop effective policies, these policymakers can learn how to design better ones. From the viewpoint of industrial policy formulation in developing countries, Ohno (2010, p. 13) also explained that government officials can

¹⁸ Almeida and Cho (2012) proposed policies to support those firms to increase competitiveness, promote innovation, and integrate into the global market in order to promote internal training in firms which believe that the expected return from job training is lower than other investments. These policies are similar to those proposed by the demand-side approach which the next section explains, but at the same time they demonstrate the ambiguity of the effect of these policies.

gradually learn how to formulate effective industrial policies, calling this process ‘dynamic capacity development’ (also see Section 2.6.4).

In particular, the demand-side approach suggests that government intervention can be superior to the market adjustment process in developing economies. Ashton et al. (1999) formulated the ‘developmental skill formation model’ by analysing skill formation processes in NIEs, including Singapore, Taiwan, and South Korea.¹⁹ This model consists of four key elements.

First, governments have a perceptible influence on employer skill demand through trade and industrial policies. In other words, political elites have significant influence over the direction of economic development. For example, in Singapore the Ministry of Trade and Industry developed the country’s vision of industrial development with assistance from the Economic Development Board (EDB). In addition, the EDB promoted strategic industries by attracting FDI to targeted sectors. Taking advantage of economies of scale and well-educated civil servants, governments can also anticipate future demands, in part because they have strong influence on the skill demand. This idea is the opposite of the concept of government failure explained by the supply-side approach.

Second, governments have a range of mechanisms for ensuring an appropriate skill supply. The governments of NIEs have strong centralised control over the education and training system. For example, the Singaporean government has executed strong supervision of all levels of schools from primary schools to universities. In Korea, the government established public vocational training institutions. This exercise of firm control has enabled those governments to make important changes in education and training programs and systems and rapidly respond to the changing requirements of the economy.

¹⁹ They also studied Hong Kong but found that its skill formation model deviates from the other three countries, mainly due to the absence of ‘politico-economic strategy’, which means integrated development strategies including industrial and skills policies (Ashton et al. 1999, p. 141).

Third, education and training policies are connected with the formulation of economic policies at the highest and most strategic levels. In order to do this, there should be a mechanism to link trade and industrial policies with education and training provision. For instance, in Taiwan, the Council for Economic Planning and Development (CEPD) was responsible to ensure that the education and training system supplied skilled workers who met the requirements of the economy, while the Industrial Development Board played a role in defining skill demands. In case of Singapore, the Council for Professional and Technical Education (CPTE) played an important role in institutionalising the link between trade and industrial policies and the education and training system.²⁰ This Council disaggregated the overall target formed by the Ministry of Trade and Industry and the EDB into specific targets for universities and TVET institutions.

Finally, education and training systems are linked with skill demand and change according to the stages of economic growth. In order to achieve this target, governments need to be relatively independent from certain economic interest groups such as employer organisations and trade unions during the economic development process. In both Singapore and Taiwan, the governments tried to relocate and replace companies which relied on labour-intensive production with those producing higher value-added goods and service. Since such strategies create a conflict of interest with large sections of capital, the political elite had to carefully manage it. Furthermore, governments need to adjust education and training systems in accordance with economic development. For example, in Taiwan, the progress of industrialisation and the resulting skill needs prompted the government to adjust the ratio of vocational schools to academic schools and initiate a guided expansion of higher education.

Brown et al. (2001) suggested that instead of the direct intervention in the supply and demand sides practiced in NIEs, governments assume two main roles. For one thing, a key issue for skill formation is how to manage the competing interests of skill formation stakeholders, including government, employers and trade unions. Therefore, in order to

²⁰ The CPTE was later renamed the National Manpower Council (NMC) (World Bank 2012b).

resolve this conflict of interest, governments should facilitate social partnerships for skill upgrading rather than directing stakeholders. Bosch and Charest (2008) also mentioned that governments can lead their social partners when partnerships are still immature. Another role of government is to develop a vision for industrial development. It should not be top-down but bottom-up by involving necessary stakeholders such as employer organisations and trade unions (Brown et al. 2001).

Another update in the demand-side approach is regarding the integration of skill and industrial policies for increasing higher-value added production activities and skill upgrading (e.g. Froy 2013; Sissons and Jones 2016).²¹ Ashton and Sung (2015) proposed a sectoral approach to skill development and skill policies as a means to not only upgrade skills but also to improve the competitive position of the national economy through moving up value chains. Since skill requirements vary considerably by industrial sector, they regarded the sector sphere as the glue to connect demand-side and supply-side policies. This sectoral approach is assumed to enable countries to improve skill supply more strategically and effectively.

In order to deliver this sectoral approach, Ashton and Sung (2015) indicated the necessity to establish a sectoral body to coordinate and articulate a stakeholders forum where upskilling strategies are formulated. According to them, this sectoral body should be able to promote high-skilled business models and value chain improvement as well as upskilling and change the relevant regulatory environment, unlike existing sectoral bodies in developed countries such as the UK and Canada.

In short, the demand-side approach emphasises that integrated skills and industrial policies are required in order to lead countries to becoming higher value-added and higher-skill economies. Furthermore, skill demand and supply policies should be integrated through social partnerships and formed by industrial sector. However, this

²¹ Finegold and Soskice (1988) stated that training policy should be considered part of a wider industrial strategy in order to promote high skill demands from firms. So, their approach in part overlaps with demand-side approaches. However, Finegold (1996), one of the authors, indicated that government interventions often fail, as shown in Section 2.5.1.

approach relies on the analysis of developed countries and NIEs, which are no longer developing countries. It has not yet been examined to what extent their policy proposals are applicable to currently developing countries.

2.5.3. Skill Formation Strategies in Developing Countries

Policymakers in many developing countries have recently started paying closer attention to skill mismatch (see Section 2.3). In particular, the supply-side approach has been penetrating into developing countries, given that some countries across Asia and Africa have been trying to improve TVET programs in accordance with employer skill needs (Rahman et al. 2012; Tan and Nam 2012; Liang 2013; Boahin and Hofman 2014; Yamada et al. 2018). This approach has been promoted through development cooperation or research projects assisted by international organisations such as the World Bank and the OECD (ADB 2009; World Bank 2013b; Carbonnier et al. 2014).²² This indicates that human capital theory is seen to have general applicability to both developed and developing countries because of its conformity to the universal laws of economic development (Brown et al. 2001). Schultz (1961) also proposed that development assistance agencies such as the World Bank assist developing countries in investing more in human capital in order to help them efficiently utilise superior production techniques.

On the other hand, developing countries are not completely abandoning demand-side policies. For example, countries such as China, Malaysia, Thailand, and Vietnam have been issuing industrial strategies in order to increase higher value-added industries (Ohno 2014; BOI 2017, p. 3; European Union Chamber of Commerce in China 2017). These strategies often state that human resource development is essential to achieve industrial upgrading. In addition, many developing countries maintain public TVET programs as a

²² Carbonnier et al. (2014, p. 5) stated that World Bank and OECD are taking the 'instrumental approach' to education which pays attention to economic return on investment, which is identical with the supply-side approach called in this thesis. On the other hand, they explained that UNESCO considers education as a human right. ILO is in the middle, due to its tripartite governance structure. In Vietnam, the author found that World Bank's approach is more influential for skills policy formulation than UNESCO's. However, they noted the classification is simplistic, given that there is a diversity of opinions even inside those organisations. For example, Justin Lin, the former Chief Economist of the World Bank, seems to favour industrial policies (Lin and Monga 2013).

means to directly influence the skill supply. This indicates that developing country governments do not believe that they can achieve the goal of becoming a higher value-added economy by complete reliance on the supply-side approach.

This ambivalence between ideologies and practice in developing countries may imply two issues in current theoretical approaches on skill mismatch. First, policymakers in developing countries may perceive that the supply-side approach is theoretically convincing, but they cannot address all the real constraints within its framework. In other words, the supply-side approach mainly explains what happens in developed countries, which Lin and Monga (2013) claimed is a problem for neoclassical economics in general. Second, despite the fact that the developmental skill formation model is part of the demand-side approach, it is less prevalent among developing country policymakers than the supply-side approach. This may be in part because some influential multilateral and bilateral aid organisations have adopted the supply-side approach for their technical assistance projects, as explained above. Moreover, the analysis of the demand-side approach is limited to developed countries or NIEs. Currently developing countries in Asia and Africa are not covered by this approach.

In summary, at the ideological level, many developing countries appear to be adopting the supply-side approach, which mainly focuses on the improvement of education and training programs in accordance with employer skill needs. However, in practice, some of them maintain policy measures to influence skill demand. On the other hand, few of them implement integrated skill formation strategies which explicitly intervene in both the supply and demand sides. This may mean that both theoretical approaches have neither fully explained upskilling constraints in developing countries nor provided viable solutions.

2.6. Limitations of Existing Theories

This section discusses limitations of the above two existing approaches, in particular in developing countries such as Vietnam, focusing on four issues: (i) reliance on firm skill

development initiatives; (ii) the relationship between individuals' rational decisions and employers' needs; (iii) availability of skill needs information for improving TVET programs; and (iv) effectiveness of demand-side interventions.

2.6.1. Firm Skill Development Initiatives

The supply-side approach relies on firm and individual training initiatives, which it considers superior to government intervention in skill supply (Ashton 2004).²³ However, firms are not always eager to provide training for their employees (see Section 2.5.1). This is said to be because of market failures in the framework of the supply-side approach, but it may be caused by more structural issues deeply ingrained in capitalism today such as rapid globalisation. For one thing, internal company training is declining as the demand for outside talent increases (Cappelli 2012). In particular, rapid globalisation has enabled transnational corporations (TNCs) to source human resources from various places and has given rise to a 'global auction for jobs' (Brown et al. 2011). Moreover, while human capital theory divided skills into general and specific (see Section 2.2), 'generalisation' of specific skills is proceeding rapidly due to highly competitive markets and transformation of 'knowledge work' into 'working knowledge' through the digitalisation of knowledge into software packages. Brown et al. (2010) called this new wave of knowledge standardisation 'digital Taylorism', in comparison with 'mechanical Taylorism' characterised by the Fordist production line. In other words, skills are getting more transferable and less company-specific. As a result, firms may be less motivated to provide internal training. This generalisation of skills may be also accelerated by TNCs' global human resource management practices through global skill webs, which enable them to locate production wherever there is a good education and business infrastructure (Ashton et al. 2010). Lastly, while large companies may have the capacity to provide sufficient internal training or cooperate with TVET institutions, small and medium size enterprises (SMEs) may not be able to afford to conduct the same activities. The OECD

²³ Ashton (2004) regarded this as a characteristic of the 'free-market' model, which is equivalent to the supply-side approach.

(2012) reported that participation in training activities is 50 per cent lower in SMEs than in large firms in OECD member states. It can be inferred that the ratio may be lower in developing countries, where local SMEs tend to have lower internal training capacity than foreign-invested enterprises (FIEs) (e.g. Cox and Warner 2013).

Therefore, few firms would make a ‘rational and forward decision’ to invest in internal training in order to climb up value chains as assumed in the supply-side approach. Cappelli (2012, p. 86) pointed out that ‘only theorists believe that individual businesses always do what is in their best interest’. While reducing their internal training, firms may require education and training institutions to provide young people with training for a higher level and wider range of skills. In particular, TVET institutions may be requested to provide their students with training for not only general skills but also specific skills under the guise of ‘economic relevance’ emphasised by the supply side approach (see Section 2.5.1). In fact, human capital theory implicitly explains the possibility of this phenomenon. As Becker (1993b, p. 51) explains, ‘schools and firms are often substitute sources of training’. This implies that providers of training for specific skills can be shifted from firms to schools over time. In short, increasing employer claims of skills problems may reflect the underlying shift in training responsibility and costs from employers to education and training institutions and students (Grugulis et al. 2004; Cappelli 2015).

2.6.2. Individuals’ ‘Rational Decisions’ and Employers Needs

According to the supply-side approach, individuals are also supposed to make rational and forward-looking decisions in order to maximise their benefits, unless there are market failures such as imperfect information (see Section 2.4.1). In this approach, a rational decision means choosing education and career paths according to job availability and employer skill needs (Almeida and Robalino 2012; Musset and Kurekova 2018).

However, individuals can rarely make ‘rational decisions’ in the sense of neoclassical economics. Green (2013) stated that they make learning decisions with uncertainty on the

learning outcome. More fundamentally, individuals may not choose their education and career paths merely based on economic rationality, because the main purpose of education is not to help students to acquire a job in a certain sector of the economy but to increase the ability to acquire knowledge and culture for enjoying a good life (Piketty 2014). This means that individuals' decision-making processes are not fully explained by the supply-side approach, in particular because the meaning of rationality may differ between individuals and employers. This issue is also applicable to the demand-side approach. It has provided useful insights and a general framework of the social process of individuals' skill development or the demand for learning, but has not developed system-wise analyses and predictions that can be tested by empirical research (Green 2013).

2.6.3. Skill Needs Information for Improving TVET Programs

In the supply-side approach, skill needs information is essential to delivering TVET programs in accordance with employer skill needs as seen Section 2.5.1. Accordingly, the development of a labour market information system is regarded as one of the main roles of governments in skill development (ILO 2008a; Almeida and Robalino 2012; Packard and Nguyen 2014; ETF et al. 2016). In order to deliver such programs, government and TVET institutions require information on both current and future demand since it often takes a few years or more to provide comprehensive training programs. This requires labour market information systems to be able to forecast future skill needs, as some developed countries have been attempting to do (OECD 2010; ILO 2017b).

However, this kind of skill forecast or anticipation cannot be so precise because there are always unpredictable economic and social factors (Teitelbaum 2014). Furthermore, a macro-level labour market forecast may provide useful indications of the overall labour market trend, but often do not provide reliable information at the specific occupation level (OECD 2010). It should be even more difficult for developing countries to precisely and comprehensively forecast future skill demand because their governments have limited administrative capacity and their economic and social situations may be more unstable and unpredictable than in developed countries (ETF 2012) .

An alternative method is to acquire current and future skill needs information from employers (ETF 2012; OECD 2017b). This is because in the supply-side approach, they are supposed to understand their skill and training needs much better than governments (ADB 2009; Almeida and Robalino 2012; Kis 2017). However, few studies comprehensively examine how accurately and comprehensively firms can assess their current and future skill needs.

2.6.4. Demand-Side Interventions

The supply-side approach does not encourage governments to intervene in the demand-side through industrial policies, expecting that such intervention will result in another government failure. However, the attempt to determine whether the market or the government is more successful is rather ideological and impractical since no country can completely rely on either the market or the government in order to achieve economic development and industrialisation (Wade 1990; Ohno 2014). In reality, a number of countries pursue various kinds of industrial policies (Lin and Monga 2013). Aghion et al. (2015) argued that sectoral state aid such as tax holidays and subsidies tends to foster productivity growth when it targets more competitive sectors with a large number of firms. Thus, the question should not be whether any government should use industrial policy but rather how to use industrial policy in the best way (Rodrik 2010; Stiglitz et al. 2013; Aghion et al. 2015).²⁴

As a modern form of industrial policy, Ohno (2014) proposed a ‘proactive industrial policy’, which pays more attention to the process of policy-making. He defined seven conditions for it: (i) market-driven development under globalisation; (ii) a strong state; (iii) retaining sufficient policy instruments for latecomer industrialisation; (iv) dynamic capability development, which means that government may experience failures but they can learn from them; (v) internalisation of knowledge, skills, and technology; (vi)

²⁴ However, there is still some persistent opposition to industrial policies. The Economist (2011) pointed out that modern industrial policies still requires ‘disinterested and benevolent policymakers’, but it has not yet been clarified how those policymakers can be created.

effective public-private partnerships; and (vii) sharing deep knowledge of the industry. In this concept, industrial policies are developed through consensus between governments and firms.

The above argument to reconsider the effects of industrial policies in the current economic context reinforces the demand-side approach in which governments are encouraged to not only improve skill supply but also stimulate skill demand (see Section 2.5.2). However, the demand-side approach has not yet provided concrete policy measures to tackle the demand-side (Lloyd and Payne 2002). In particular, it has not taken into account currently developing countries' social and economic contexts, which are different from those of developed countries and NIEs. For example, new global trade orders such as the World Trade Organisation (WTO) and various free trade agreements (FTA) have narrowed their policy options, whereas NIEs had more ways of intervening in the demand side in their developmental stages (Ohno 2009). Another question is about an institution to coordinate the integration of skills and industrial policies. Ashton and Sung (2015) stated that sectoral bodies led by employers should facilitate stakeholder dialogues to formulate sectoral skill strategies. However, employer-led organisations are often incapable of doing so in developing countries (Ohno 2014). In NIEs, the governments took the lead in coordinating the demand and supply sides (Ashton et al. 1999), but that may have been because those countries are relatively small in terms of population and land area. The demand-side approach has not yet provided clear answers to those questions. In short, it has not examined whether its developmental skill-formation model and sectoral skill development approach are applicable to currently developing countries and, if not, how they should be modified.

2.7. Conclusion

This chapter reviewed two theoretical approaches which underlie the current skill mismatch landscape, focusing on their understanding of its causes and policies required to adjust it.

The supply-side approach, which evolved based on human capital theory, explains that skill mismatch can be persistent if there are market failures which hinder skill supply from responding to skill demand. Furthermore, existing research on this approach often reports that skill shortages and gaps are expanding since skill demand is increasing due to technological progress. These mismatches are often attributed to the insufficient performance of educational and training institutions, which are not producing sufficiently skilled workers in accordance with industry needs (Brown et al. 2001). Therefore, this approach suggests that governments correct these market failures by making up for the uncompensated benefits and costs of training and improving education and training programs in accordance with employer skill needs. This reflects their assumption that firms and individuals can make rational decisions to invest in training in the perfectly competitive labour and capital markets, while governments often fail to act in the public interest.

In contrast, the demand-side approach considers skill mismatch to be inevitable because the market adjustment takes too long or never happens. Furthermore, this approach points out demand-side problems with upskilling. For one thing, technological development does not automatically increase the demand for skilled workers. In addition, firms are not always eager to recruit skilled workers and invest in internal training. Therefore, this approach suggests that the government intervene in both the supply and demand sides in order to adjust skill mismatch and achieve upskilling. In particular, it emphasises the necessity of active government leadership to adjust skill mismatch and achieve upskilling in developing countries where the economy and society are rapidly changing. This approach also recognises the potential for government failures, but it argues that governments can gradually develop the capacity to formulate effective policies.

In developing countries, the supply-side approach is becoming a prevalent ideology, in part because it has been incorporated into policy advising, research, and technical assistance projects implemented by international organisations. Accordingly, many developing countries are attempting to improve education and training programs in

accordance with industry skill needs. However, in practice, developing country governments are not completely abandoning the demand-side policy measures, namely industrial policies. This is probably because they realise that firms do not necessarily aim to climb up value chains and help countries achieve upskilling.

This ambivalence between ideologies and practices indicates existing theoretical approaches have neither fully explained what challenges developing countries face in their skill formation systems nor provided viable solutions to overcome these challenges and achieve upskilling. For example, contrary to the assumption of the supply-side approach, firms may be becoming more reluctant to contribute to a nation's skill development, regarding education and training as the responsibilities of government and education and training institutions. In addition, it is still uncertain how governments and educational institutions can determine employer training needs and incorporate them into institutional reforms. Furthermore, it is yet to be clarified to what extent demand-side approach solutions such as the developmental skill-formation model and sectoral skill development approach can be utilised in currently developing countries, which face different socio-economic and institutional contexts from NIEs and developed countries.

The next chapter examines the applicability of the existing theoretical approaches to skill formation in current developing countries, focusing on Vietnam which is a fast-growing developing country in the Southeast Asia and said to face increasing skill mismatch.

Chapter 3. Skill Mismatch in Vietnam

3.1. Introduction

The previous chapter explained that many developing countries are adopting the supply-side approach for skill formation, but they are not totally abandoning demand-side policies, namely industrial policies. This suggests that the supply-side approach does not fully explain skill formation challenges in developing countries. In addition, this problem also applies to the demand-side approach, which is founded on the experience of NIEs. Therefore, developing countries typically modify their use of these skill formation approaches according to their economic, social, and institutional contexts.

This chapter examines Vietnam's skill formation model and what theories and concepts underlie current policy discussions, reviewing existing literature and data. Section 3.2 provides an overview of institutions related to skill formation. Section 3.3 explores the status of industrialisation and its impact on skill demand. Section 3.4 provides an overview of skill supply and the current education and training system. Section 3.5 gives an outline of the current skill mismatch discussion. Section 3.6 examines the mechanisms for coordinating skill demand and supply. Section 3.7 presents the conclusion and implications for empirical research.

3.2. Institutions Related to Skill Formation

A nation's skill formation institutions are affected by various factors, including political and state systems and intermediary organisations which can lead collective actions for upskilling, such as employer and employee organisations (Crouch et al. 1999; Lloyd and Payne 2002; Thelen 2009). Therefore, this section describes the characteristics of these institutional factors related to skill formation.

Vietnam is a one-party socialist state under the absolute power and comprehensive control of the Communist Party of Vietnam (CPV) (Truong and Rowley 2013; Vu 2016).

Important political decisions are usually made by the CPV and implemented by the government whose core members, such as the Prime Minister and the Deputy Prime Ministers, are appointed by the CPV. Recently, the National Assembly has appeared to have greater influence on policy making, but candidates for the chamber are mainly selected by the CPV and it barely functions as a check on the power of the government (Vu 2016).

Although decentralisation formally started in Vietnam in 1986 with the *Doi Moi* (renovation) policy, Vietnam is still a highly centralised state. The central government has been transferring some fiscal and administrative authority, including licensing and management of FDI projects, to provincial governments (Malesky 2004).²⁵ However, political decentralisation has lagged behind. This decentralisation has not been accompanied by institutional autonomy and the necessary financial resources (Vu 2016). This implies that key policies related to economic, industrial, and skill development and their accompanying budgets are usually determined by the central government. On the other hand, this does not necessarily mean that a single strong leader dictates the policy formulation process. Political decisions are still made based on consensus and checked and balanced horizontally (across ministries and departments), vertically (between central and local levels), and geographically (North, South, Central, and remote areas) (Ohno 2010). However, other stakeholders, such as the business community, are usually not involved in this consensus-building process, unlike in some advanced ASEAN countries, such as Malaysia and Singapore (Ohno 2014).

Vietnam is a socialist, or communist, state, but its labour market policies are not necessarily as overly protective as would be expected from such a regime. *The Global Competitiveness Report* issued by the World Economic Forum mentioned that Vietnam's labour market is sufficiently flexible in a region where many countries have poorly functioning labour markets, ranking it 49th out of 144 countries in 2014 and 57th out of

²⁵ However, nationally important FDI projects are subject to comments from relevant ministries and the approval of the Prime Minister (Vu 2016).

137 countries in 2017 in its labour market efficiency indicator (World Economic Forum 2014, p. 30; 2017, p. 331).²⁶ Furthermore, only 2.7 per cent of surveyed business executives selected ‘restrictive labour regulations’ as the most problematic factor for doing business, while more of them indicated ‘access to finance’ (12.3 per cent) and ‘inadequately educated workforce’ (10.4 per cent) as bigger problems (World Economic Forum 2017, p. 308). Schmillen and Packard (2016) reported the following characteristics of Vietnam’s labour market policies: (i) the country’s current minimum wage system was introduced in 2006 and has continued to increase moderately,²⁷ (ii) the government tightened rules on hiring and dismissals with the new Labour Code and Trade Union Law in 2012, but many workers remain outside the regulated labour market and the institutions related to industrial relations are still weak; and (iii) few Active Labour Market Policies (ALMP), including for training and employment generation, have been implemented because the government has not been able to raise sufficient funds from the unemployment insurance tax and other possible revenue sources.²⁸ The above findings may suggest that the government does not intend to excessively regulate the labour market and even appears to be inclined to pursue a free-market model.

Intermediary organisations, which collectively represent the voices of workers or employers, are important elements of skill formation institutions (Lloyd and Payne 2002; Thelen 2004). Trade unions play an important role in promoting on- and off-the-job training and improving job design (Streeck 1989; Lloyd and Payne 2016). Active

²⁶ The labour market efficiency indicator is computed based on answers from business executives to relevant questions regarding wage determination and hiring and firing practices, among others (World Economic Forum 2017, p. 347).

²⁷ According to (ILO 2014, p. 3), Vietnam’s minimum monthly wage rates ranged from USD90 to USD128, which were much less than the lowest relevant minimum wage in China (USD156). It has been gradually increasing and will range from VND2,920,000 (USD 125) to VND4,180,000 (USD 180) in 2019 (Vietnam Briefing 2018), but will still be lower than in advanced ASEAN countries, such as Malaysia (USD229.11 – 249.03) and Thailand (USD276-295) (ASEAN Briefing 2018).

²⁸ Another possible funding source is a mechanism similar to Singapore’s Skill Development Fund (see Section 2.5.1) and Malaysia’s Human Resources Development Fund (Mori 2006), which are both funded by a levy on employers. However, Vietnam has not yet established an equivalent mechanism (Franz 2007; JICA 2014b).

employer organisations are needed in order to encourage firms to be involved in skill development activities, as seen in the German Dual Training system apprenticeship model (Crouch et al. 1999; Brown et al. 2001).

In Vietnam, trade unions, as a key actor of industrial relations institutions, are weak. Despite relatively high unionisation among wage employees, trade unions fail to effectively protect workers' rights (Clarke et al. 2007; Schmillen and Packard 2016).²⁹ In Vietnam, all trade unions belong to the Vietnam General Confederation of Labour (VGCL), which operates under the leadership of the CPV. However, the VGCL and its affiliated trade unions have little ability to stand up to employers on behalf of their members. Increasing inflow of FDI has expanded the demand for production workers, in particular in the manufacturing sector, and promoted the movement of labour from agriculture to industry (see Section 3.3.2). On the other hand, it has heightened the tension between workers who ask for higher wages due to rising living costs in urban areas and employers who are reluctant to raise wages due to high levels of competition, particularly in the export market. However, the existing trade unions continue to rely on the legalistic framework from the state-socialist era and have failed to adapt to this new market economy driven by the FDI Sector (Clarke et al. 2007). As a result, Vietnamese workers have become less dependent on official institutional channels for improving working conditions. This has led to increasing informal wildcat strikes in Vietnam, which reached almost 900 in 2011, representing an increase from around 100 in the 1990s (Clarke et al. 2007; Do and van Den Broek 2013; Schmillen and Packard 2016).

Extant literature concentrates on the ability of trade unions to conduct industrial relations, while little research has been done regarding their skill formation abilities and activities, such as demanding increases in training opportunities during contract negotiations. However, it can be inferred that they are not yet playing a significant role in upskilling,

²⁹ The unionisation rate of wage employment is 76 percent in the public sector. It is 33 percent in the private sector, but still significantly higher than the overall rates in most other countries in the East Asia and Pacific region (Schmillen and Packard 2016).

given their general inability to represent workers and lead collective bargaining with employers, as seen above.

Employer organisations also seem to face capacity constraints. The main employer organisations in Vietnam also seem to be under strong government supervision rather than independently working for employers' interests. Three employer organisations, including the Vietnam Chamber of Commerce and Industry (VCCI), the Vietnam Cooperative Alliance (VCA), and the Vietnam Association of Small and Medium Enterprises (VINASME), are included in some aspects of the official consultation process in policy formulation (Edwards and Pham 2017). However, these organisations appear to be incapable of representing employers because they are ruled by the government (Nguyen 2014). For example, the VCCI, the largest nationwide business association, is often criticised for not representing the voices of its member firms, since it is more like a semi-governmental organisation (Truong and Rowley 2013; Edwards and Pham 2017).³⁰ Accordingly, there are few examples in existing literature of associations conducting collective actions for upskilling in cooperation with trade unions or education and training institutions.

Foreign chambers of commerce and emerging non-state-led business associations seem to represent employers' voices more proactively. The Vietnam Business Forum (VBF), which is mainly led by major foreign chambers of commerce representing American, European, Oceanian, and Asian FIEs, has been facilitating policy dialogues about improving the business environment with high-level government officials since 1997 (VBF 2018).³¹ In addition, some emerging business associations led by Vietnamese private SMEs in Ho Chi Minh City have started becoming involved in regional policy making processes (Nguyen 2014).

³⁰ The VCCI is affiliated with the Vietnam Father Front, which is a liaison body between the non-governmental organisations and the Communist Party of Vietnam (Truong and Rowley 2013).

³¹ The VBF also includes VCCI as a consortium member.

On the other hand, these organisations also face some limitations and constraints. Foreign chambers of commerce are to be mainly led by large TNCs, while it is uncertain to what extent they represent the voices of small and medium FIEs. Emerging business associations led by local SMEs are still only semi-autonomous entities rather than independent social actors which fully represent member firm interests because they are subject to close monitoring by local authorities (Nguyen 2014). Furthermore, those organisations appear to mainly focus on the improvement of the investment climate and labour market flexibility rather than skill formation. While they often stress the lack of skilled workers, few of them are facilitating upskilling in cooperating with other key actors, such as the government, education and training institutions (also see Sections 3.5 and 3.6.3).

In short, Vietnam's skill formation institutions have the following two characteristics. First, the policy-making authorities are highly centralised within the central government. Although there is the potential of further decentralisation in the future, it is not clear how and when it will occur. The second characteristic is the weakness of intermediary organisations, such as trade unions and employer organisations. Accordingly, tripartite consultation among the government, employer organisations, and trade unions is limited mainly to national negotiations on the minimum wage and has failed to deliver collective bargaining in Vietnam (Truong and Rowley 2013; Edwards and Pham 2017). Therefore, it is inferred that both employer organisations and trade unions are not functioning as catalysts of upskilling. This means that firms are not being pressured by employer and worker organisations to promote internal skill upgrading. In addition, these intermediary organisations are unlikely to have significant influence on the skill policy formulation process, which is mainly dominated by the central government.

3.3. Industrialisation and Skill Demand

Vietnam has opened up the country and adopted an export-oriented growth strategy since the launch of the Doi Moi policy in 1986 (Nguyen and Truong 2007; Ohno 2010). Since then, it has achieved rapid economic growth, as the average gross domestic product

(GDP) growth rate was 7.6 per cent in the period from 1991 to 2000 and 6.6 per cent from 2001 to 2010 (also see Figure 3.1).³² This section examines the progress of industrialisation which has led this economic growth and its impact on skill demand by reviewing employment data.

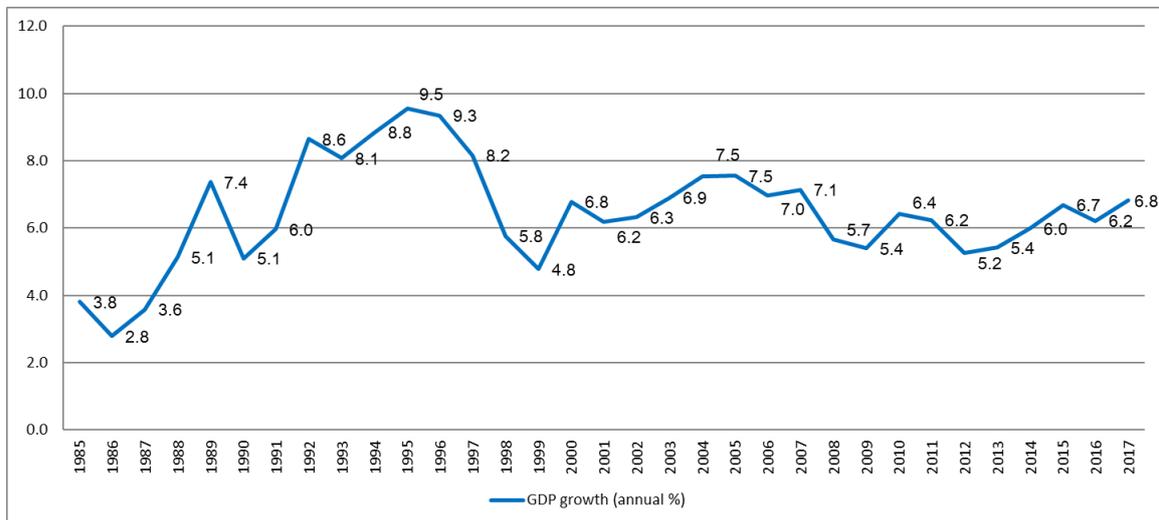


Figure 3.1. Annual GDP Growth Rate in Vietnam

Source: Date retrieved from World Development Indicator (World Bank 2018b).

3.3.1. Progress of Industrialisation

Industrial growth has been a key factor for economic growth and income increase through job creation (World Bank 2012c).³³ Looking at the breakdown of value-added growth by sector, the industrial sector has been steadily growing. It achieved a high growth rate in the 1990s (see Figure 3.2), increasing by an average of 11.3 per cent in the period from 1991 to 2000 and 7.5 per cent in the period from 2001 to 2010.³⁴

³² The average GDP growth rate is estimated by the author based on data retrieved from the World Bank (2018b). According to the Socio-economic Development Strategy (SEDS), the average GDP growth from 2001 to 2010 was 7.26 per cent per year (Government of Vietnam 2011e).

³³ Vietnam also has achieved balanced growth in both the industrial and service sectors, both of which account for about 40 per cent of annual output (McKinsey Global Institute 2012a).

³⁴ The industrial sector includes mining and quarrying, manufacturing, electricity, gas, water supply, and construction. The figures are based on the author's calculation based on the World Development Indicators (World Bank 2018b).

The manufacturing sector is an important driving force of economic growth and industrialisation (Athukorala and Tran 2012). Taking advantage of FDI from export-oriented firms, this sector grew at an average of 10.8 per cent from 1991 to 2000 and 10.5 per cent in the period from 2001 to 2010, in line with the growth of industrial value added (Manning 2010; Ohno 2010; Perkins and Vu 2010).³⁵ In particular, several sub-sectors such as automobiles, electrical equipment, and garments are growing faster than other industrial sectors (McKinsey Global Institute 2012a). The manufacturing sector grew faster than the service sector, whose value added increased at an average of 7.2 per cent in the period from 1991 to 2000 and 7.3 per cent in the period from 2001 to 2010.³⁶

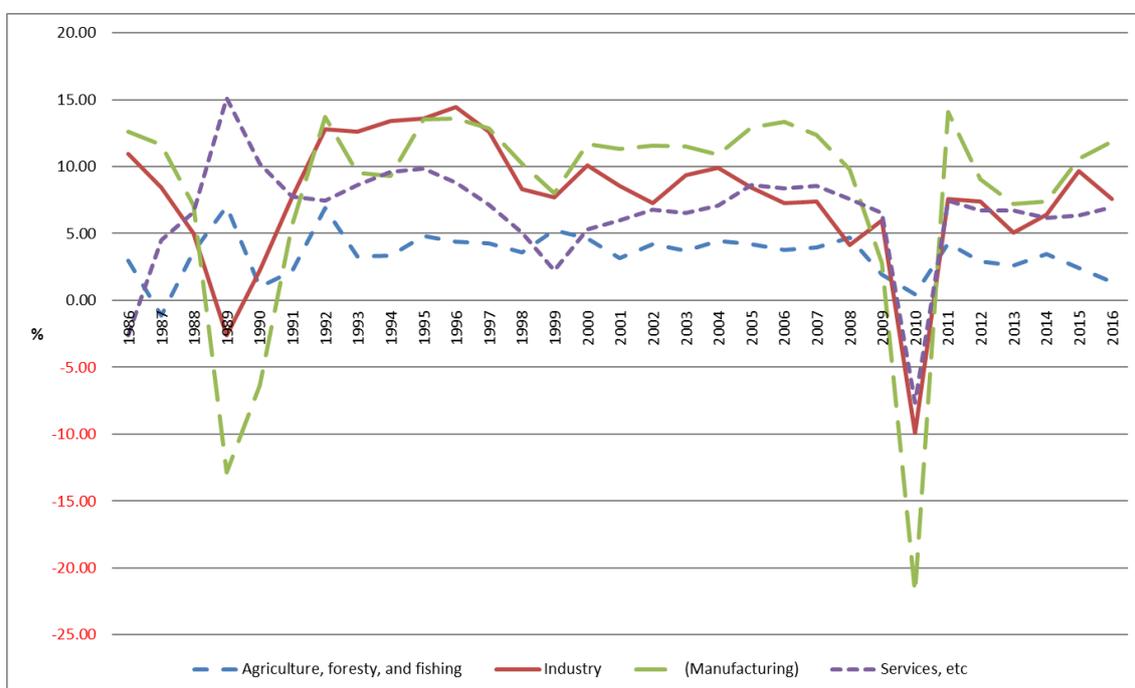


Figure 3.2. Value-Added Growth Rate by Economic Sectors (1986-2016)

Source: Data retrieved from World Development Indicators (World Bank 2018b).

³⁵ The figures have been calculated by the author based on the World Development Indicators (World Bank 2018b). According to World Bank (2016, p. 25), the labour-intensive manufacturing sector has accounted for 58 percent of all FDI inflow since 1988.

³⁶ Growth has slowed in both sectors since 2008 mainly due to the global recession (ILO 2011).

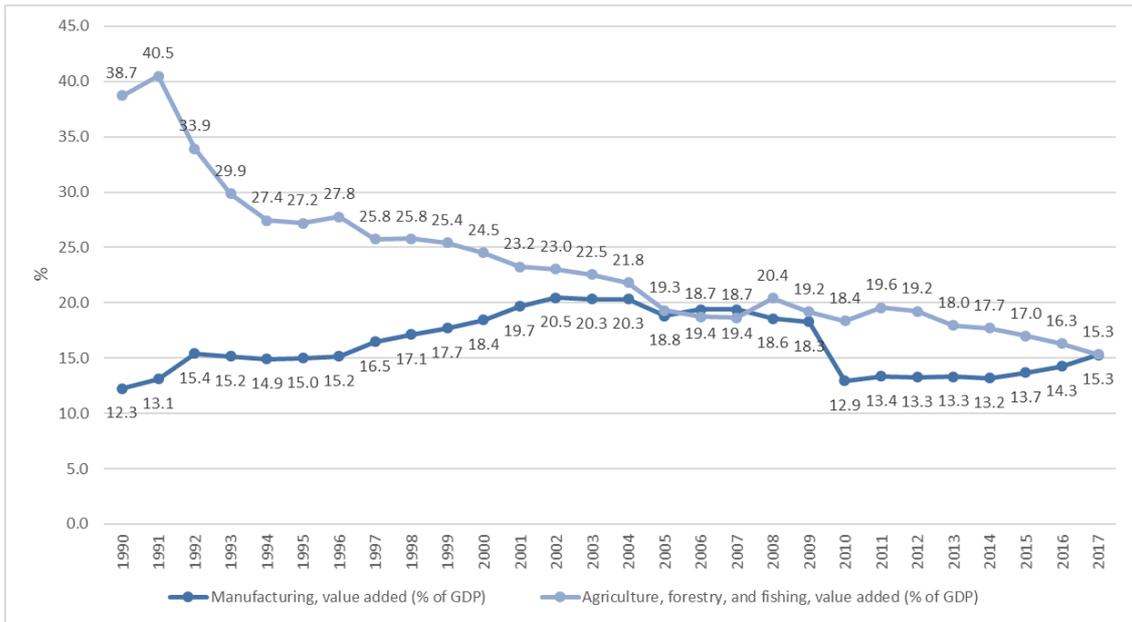


Figure 3.3. Manufacturing Value-Added and Agricultural Value-Added Share of GDP (1990-2017)

Source: Data retrieved from World Development Indicators (World Bank 2018b).

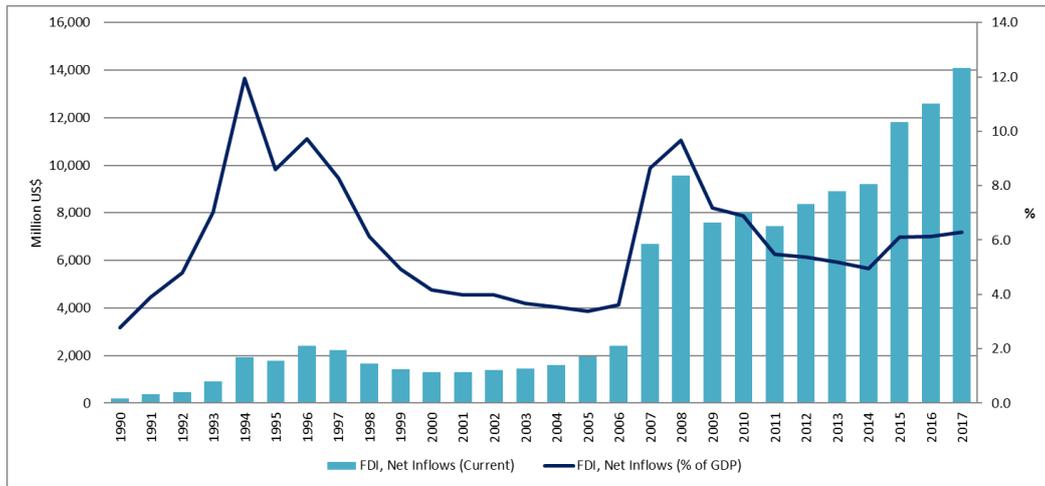


Figure 3.4. FDI Inflow to Vietnam (1990-2017)

Source: Data retrieved from World Development Indicators (World Bank 2018b).

The growth of the manufacturing sector has been accelerating the transformation from an agriculture-based economy to an industrialised economy (McKinsey Global Institute 2012a). The manufacturing value-added share of GDP steadily increased from the early 1990s to the mid-2000s and it overtook agricultural, forestry, and fishery value-added in

2007, reflecting FDI inflows which started increasing drastically in 2007 and reached about USD9.7 billion in 2008 (see Figures 3.3. and 3.4).³⁷

On the other hand, manufacturing sector value creation is still low because it relies largely on labour intensive and low value-added processes. Even though the share of manufacturing value-added in GDP has increased significantly since the mid-2000s, it is still lower than advanced ASEAN countries, where the shares are around or over 20 per cent (Figure 3.5).

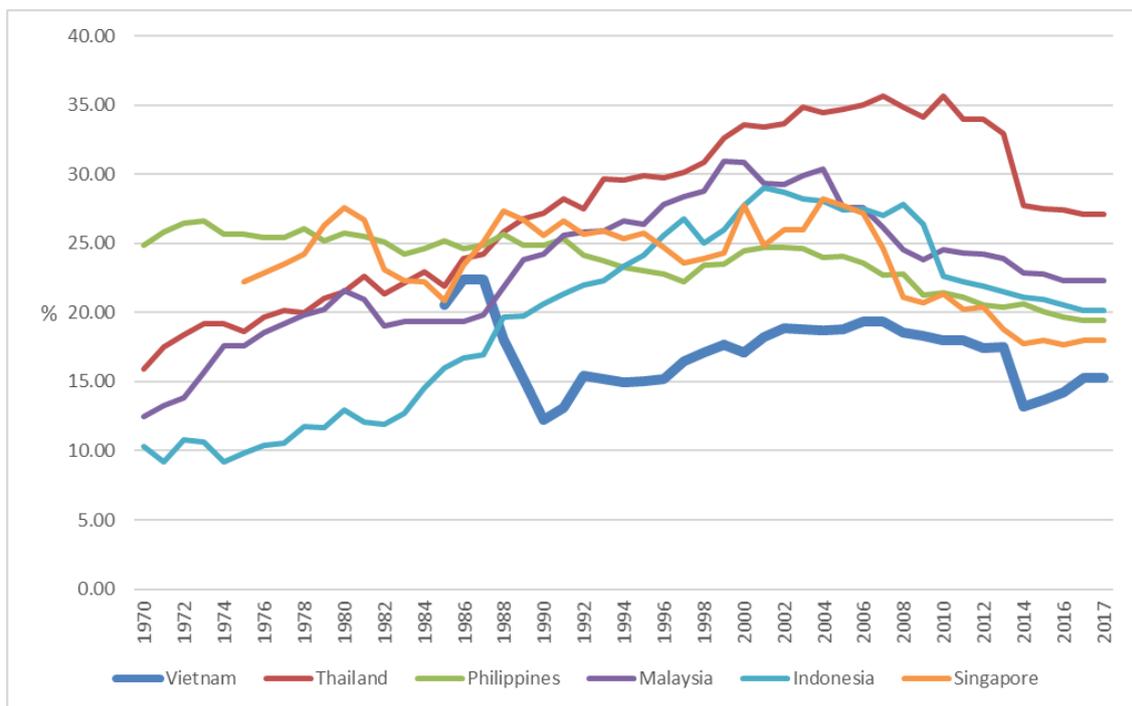


Figure 3.5. Manufacturing Value-Added Share in GDP in ASEAN Countries (1970-2017)

Source: Data retrieved from World Development Indicators (World Bank 2018b).

Several factors may be slowing down growth in manufacturing value-added. For one thing, most foreign-invested enterprises' (FIE) focus on simple assembly, even in the machine industry which has the potential to increase high-value added production (Vind 2008; McKinsey Global Institute 2012a). In addition, many assemblers need to import

³⁷ The manufacturing value-added share of GDP was higher than the agricultural, forestry, and fishery value added in 2006 and 2007, but it was lower until it caught up with the latter again in 2017. See Figure 3.3

parts, materials, and equipment due to weak domestic supporting industries (Mori 2006; VDF 2007; Vind 2008; Ohno 2010; Anwar and Nguyen 2014; Newman et al. 2015).

3.3.2. Transformation of Employment Structure and Skill Demand

Rapid economic growth has been increasing labour force demand. Since 1990, the size of the total labour force and the currently employed population has been steadily increasing and has reached over 50 million people, although the growth rates have been slowing down (Figure 3.6).

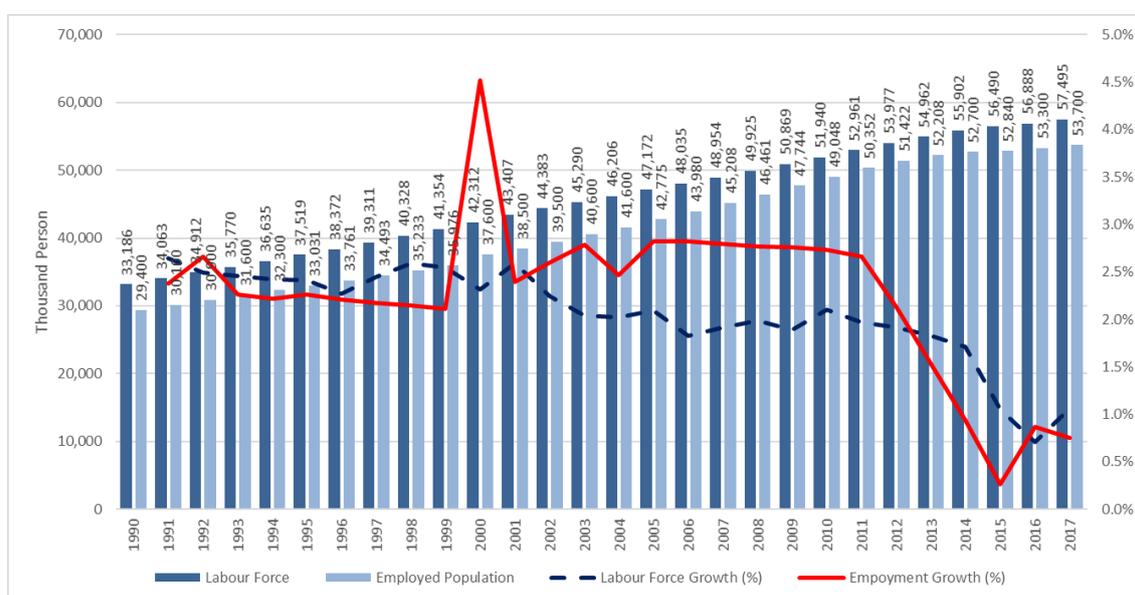


Figure 3.6. Labour Force in Vietnam (1990-2017)

Source: Labour force data retrieved from World Development Indicator (World Bank 2018b) and employed population from ADB's Statistical Data System (ADB 2018).

Economic growth has not only been expanding the labour force size but also changing the employment structure in Vietnam (ILO and ADB 2014). The share of employment in the agricultural sector was 70 per cent in 1996, but it declined to 40.9 per cent in 2017 (see Figure 3.7). In contrast, the industrial sector has been absorbing more workers

(Manning 2010).³⁸ Its employment share has increased from 10.6 per cent in 1996 to 25.1 per cent in 2017.³⁹

Manufacturing sector employment has also been expanding, taking advantage of the abundance of diligent low-wage workers such as production-line operators (see Figure 3.7). In the 1990s, employment growth in the manufacturing sector was rather sluggish. Jenkins (2004) explained that in this period fewer workers were required because increasing capital investment improved the productivity of existing workers. However, in the 2000s, this sector started absorbing more workers (see Figure 3.7). The employment elasticity of the manufacturing sector reached 0.66 from 2000-2007, compared to 0.22-29 in the 1990s (Jenkins 2004; Manning 2010).

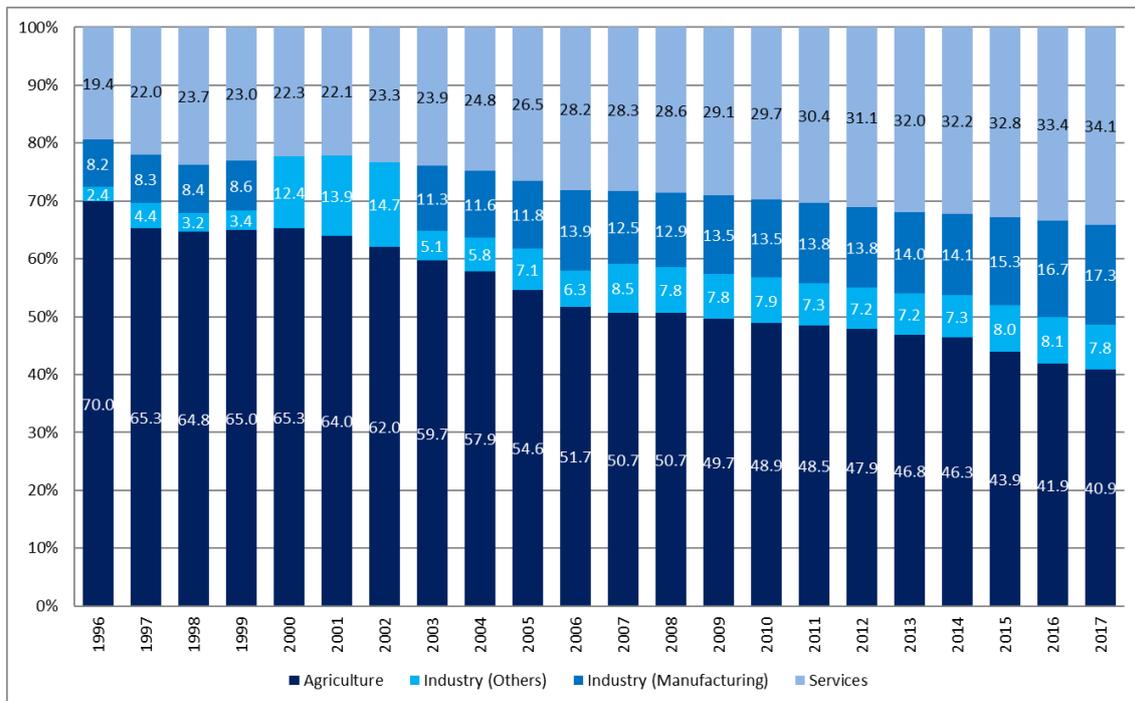


Figure 3.7. Transition of Employment by Economic Sector in Vietnam (1996-2017)

Note: Data for employment in the manufacturing sector is not available from 2000 to 2002. Therefore, it is included into ‘Industry (Others)’ during that period.

³⁸ Industry includes the manufacturing and mining industries.

³⁹ The share of service sector employment has been also growing stably.

Source: World Development Indicators (World Bank 2018b). The employment share of the manufacturing sector is estimated by the author, in reference to ADB Statistical Database System (ADB 2018).

In particular, employment has been expanding rapidly in FIEs. Although their share of total employment is still small, FIEs accounted for nearly 20 per cent of all new jobs in 2000 and 2007 (Manning 2010).⁴⁰ Their average employment growth from 2000 to 2015 was 14.3 per cent, which is much higher than the state (1.2 per cent) and local private sectors (2.3 per cent), even though the employment share of the foreign sector is only 3.9 per cent (Table 3.1). In addition, Friedman (2004) stated that FIEs are contributing to skill upgrading by employing educated workers and providing better in-house training for their employees.

Table 3.1. Employment Population by Ownership of Employer (2000-2015)

Unit: Thousand Persons

Year	Total	State	Share (%)	Growth (%)	Non-state	Share (%)	Growth (%)	Foreign invested	Share (%)	Growth (%)
2000	37,075	4,358	11.8%	-	32,359	87.3%	-	359	1.0%	-
2001	38,180	4,474	11.7%	2.7%	33,357	87.4%	3.1%	349	0.9%	-2.6%
2002	39,276	4,634	11.8%	3.6%	34,217	87.1%	2.6%	426	1.1%	22.0%
2003	40,404	4,919	12.2%	6.2%	34,732	86.0%	1.5%	753	1.9%	76.9%
2004	41,579	5,031	12.1%	2.3%	35,633	85.7%	2.6%	915	2.2%	21.4%
2005	42,775	4,967	11.6%	-1.3%	36,695	85.8%	3.0%	1,113	2.6%	21.6%
2006	43,980	4,916	11.2%	-1.0%	37,742	85.8%	2.9%	1,322	3.0%	18.8%
2007	45,208	4,988	11.0%	1.5%	38,657	85.5%	2.4%	1,562	3.5%	18.2%
2008	46,461	5,059	10.9%	1.4%	39,707	85.5%	2.7%	1,694	3.6%	8.5%
2009	47,744	5,041	10.6%	-0.4%	41,178	86.2%	3.7%	1,525	3.2%	-10.0%
2010	49,049	5,107	10.4%	1.3%	42,215	86.1%	2.5%	1,727	3.5%	13.2%
2011	50,352	5,251	10.4%	2.8%	43,401	86.2%	2.8%	1,700	3.4%	-1.5%
2012	51,422	5,354	10.4%	2.0%	44,365	86.3%	2.2%	1,703	3.3%	0.2%
2013	52,208	5,330	10.2%	-0.4%	45,092	86.4%	1.6%	1,786	3.4%	4.8%
2014	52,745	5,474	10.4%	2.7%	45,214	85.7%	0.3%	2,057	3.9%	15.2%
2015	52,840	5,186	9.8%	-5.3%	45,451	86.0%	0.5%	2,203	4.2%	7.1%
Average				1.2%			2.3%			14.3%

Source: GSO (2018b).

However, this employment growth does not necessarily mean that the proportion of skilled workers has been increasing. According to the labour force survey conducted by

⁴⁰ FIEs accounted for 3.9 per cent of total employment in 2014. The non-state sector accounted for 85.7 per cent and the state sector for 10.4 per cent (GSO 2015, p.6).

the General Statistics Office (GSO) in 2016, 39.8 per cent of total employees were classified as elementary workers, most of whom are unskilled (see Table 3.2).⁴¹ In contrast, the proportion of skilled occupations is still a small part of total employment, even though it has increased since 2001.⁴² Technicians and associate professionals were 3.2 per cent of the total employment population. Professionals, who include engineers, accounted for 6.5 per cent. However, this figure may include some workers who are classified as ‘professionals’ but are actually doing ‘non-professional’ jobs with low management authority, such as ‘sales executives’.⁴³

Table 3.2. Employment by Occupation in Vietnam (2001-2015)

	2001	2006	2007	2009	2010	2011	2012	2013	2014	2015
Leaders, managers and administrators of branches, levels and organizations	0.4	3.2	0.6	1	0.9	1.1	1.0	1.1	1.1	1.1
Professionals	2.8	3.9	4.5	4.6	5.1	5.3	5.5	5.7	6.1	6.5
Technicians and associate professionals ^a	2.7	2.7	2.9	3.8	3.7	3.5	3.4	3.3	3.1	3.2
Clerks	0.9	1	1.2	1.6	1.4	1.5	1.6	1.7	1.7	1.8
Service workers and market sales workers	8.4	6.4	7.3	15.6	14.6	15.0	16.0	16.2	16.1	16.5
Skilled agricultural, forestry and fishery workers	11.4	4.6	5.7	14.8	15.5	14.1	12.7	12.0	12.2	10.3
Craft and related workers	10.5	12.1	12.5	12.5	12.6	12.1	11.8	12.0	12.0	12.0
Plant and machine operator and assemblers	3.3	3.6	3.3	6.7	7.0	7.0	7.3	7.0	7.4	8.5
Elementary occupations ^b	58.5	62.5	61.7	39.4	39.1	40.4	40.6	41.1	40.3	39.8

Note

^a Called 'Mid-level professionals' in 2009 survey result.

^b Called 'Unskilled occupations' in 2009 survey result.

Source: GSO (2012,2014,2015,2016) and OECD (2013b, p. 4).

How does this occupational structure affect educational qualification demand? In order to examine this, it is necessary to clarify the link between educational qualifications and occupations. This thesis focuses on the machine manufacturing industry, which includes the automobile, motorcycle, and electric and electronics sectors, since it is growing faster than other industries and has the potential to be a driving force of industrialisation in

⁴¹ Considering that production line operators are often upper secondary graduates and they are classified with people without technical qualifications in Table 3.4, production line operators in manufacturing firms are likely included in the elementary occupation group in Vietnam.

⁴² The disaggregated employment data by sector has not been published, but (World Bank 2008) reported that the growth rate of skilled workers was slower in the service sector than other sectors in the period from 1998 to 2004.

⁴³ The situation that working conditions and jobs of professional employees are becoming closer to those of traditional working class employees can be also seen in developed countries (e.g. Livingstone and Watts 2018).

Vietnam, as seen in the previous section. As shown in Figure 3.8, the share of the machinery and transport equipment industry in total manufacturing value-added has been increasing since 2011.

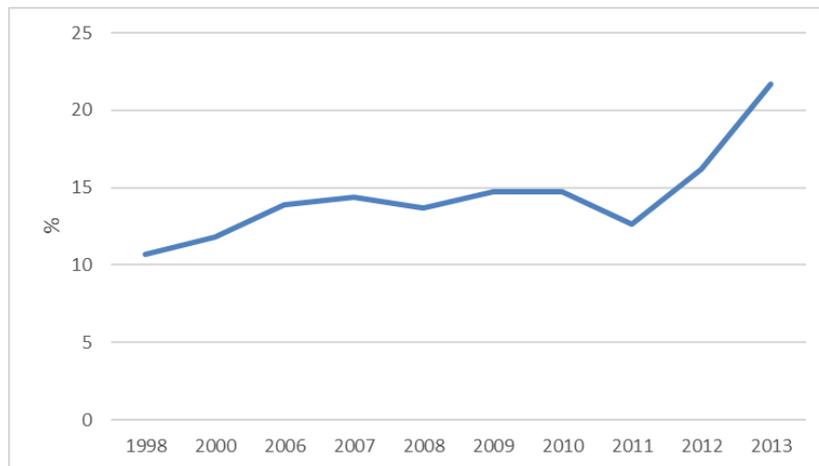


Figure 3.8. The Share of Machinery and Transport Equipment Industry in Manufacturing Value-added (1998-2013)

Note: Machinery and transport equipment correspond to ISIC divisions 29, 30, 32, 34, and 35.

Source: World Development Indicators (World Bank 2018b).

As shown in Figure 3.9, the occupational structure in the machine manufacturing sector generally consists of four layers (Mori 2013b; JICA 2014b): (i) design engineers, classified as ‘professionals’ according to the International Standard Classification of Occupations (ISCO-08) (ILO 2012); (ii) production engineers, also classified as ‘professionals’ or ‘associate professionals’; (iii) ‘technicians’ and supervisors/production line leaders, classified as ‘craft and related trade workers’ or ‘plant and machine operators and assemblers’; and (iv) production line operators, some of whom are classified as ‘plant and machine operators and assemblers’ while others may be treated as ‘elementary occupations’ in Vietnam (ILO 2012). This thesis categorises the above occupation groups (i) and (ii) as ‘professional staff;’ group (iii) as ‘intermediate workers or occupations; and group (iv) as ‘elementary workers or occupations’.⁴⁴

⁴⁴ Professional occupations fall into Skill Level 4, intermediate occupations into Skill Level 4, and elementary occupations into Skill Levels 3 or 2 of the International Standard Classification of Occupations

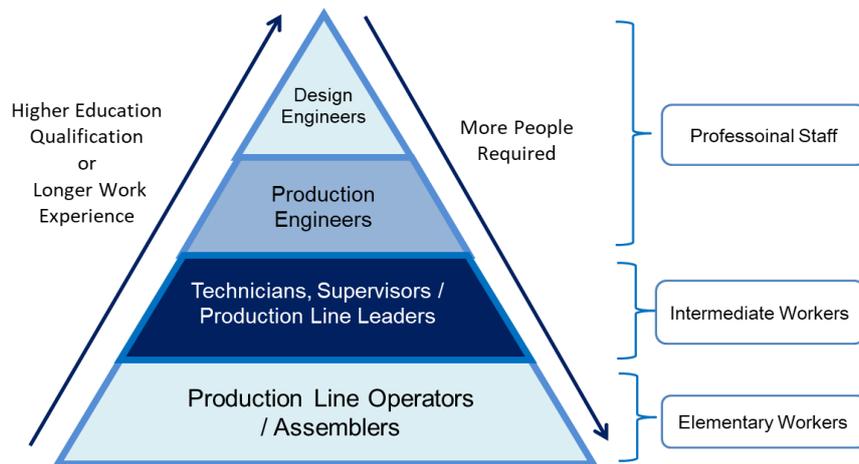


Figure 3.9. Occupational Structure in Machine Manufacturing Industry

Source: Modified based on Mori (2013b); JICA (2014b).

In general, more people are needed in lower occupations, while fewer people are usually employed in higher-level occupations which require higher qualifications (Mori 2013b). There is no disaggregated employment data for the manufacturing sector or the machine manufacturing industry in Vietnam, but Figure 3.10, which extracts employment in professional occupations possibly relevant to this sector such as engineers, technicians, and machine operators, provides a rough picture of the current occupational structure in the Vietnamese manufacturing sector. Although it is an approximation and may include irrelevant occupations (e.g. sales and marketing executives), this implies that the majority of workers are at the elementary level.⁴⁵

2008 (ISCO-08) (see ILO 2012). ‘Intermediate occupation’ as defined by this thesis falls into ‘technicians’ as classified by Vietnamese statistical standards, but may also include some ‘plant and machine operators and assemblers.’ (see GSO 2015).

⁴⁵ The population of professionals is larger than that of technicians and associate professionals, in part because they include non-manufacturing-related occupations such as sales and marketing, administrative, and accounting roles.

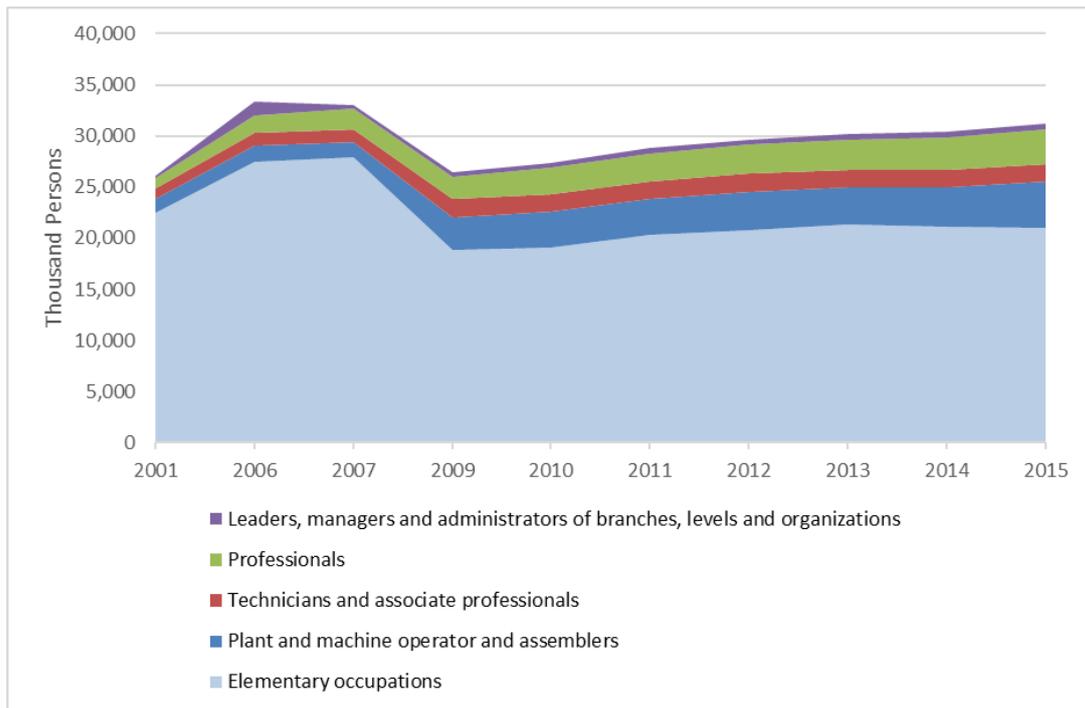


Figure 3.10. Employed Population in Selected Occupations (2001-2015)

Source: Author's estimation based on GSO (2012); OECD (2013b); GSO (2014,2015); ADB (2018); GSO (2018a).

In Vietnam's machine manufacturing industry, there is a clear linkage between occupation and educational qualifications at professional and elementary levels (see Section 3.4.1 for the details of the Vietnamese education system). Design and production engineers usually require a university degree, even though production engineers can sometimes be graduates hired after completing a three-year professional college course diploma (Vind 2008; Mori 2013b; Nguyen et al. 2015). According to the World Bank's analysis, almost 80 per cent of professionals hold university degrees and another 10 per cent a professional college diploma (World Bank 2012a,2013a). This rate is higher in Vietnam than other advanced ASEAN countries (see Figure 3.11).

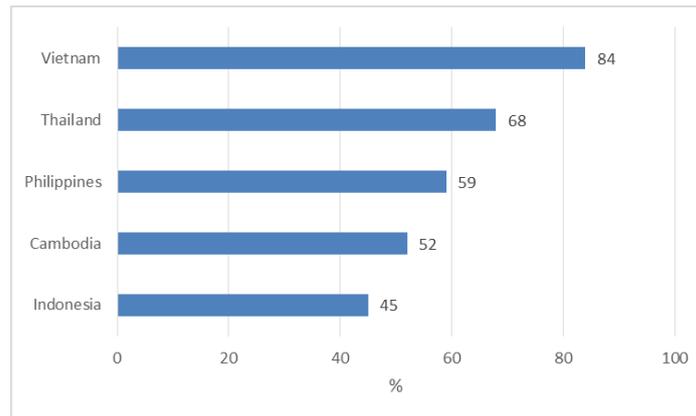


Figure 3.11. The Percentage of Tertiary Graduates Employed as Professionals or Managers

Note: Vietnam in 2005, Cambodia in 2007, Mongolia in 2009, and China in 2003.

Source: Drafted in reference to World Bank (2012a, pp. 202-203).

Most production line operators in the machine manufacturing industry appear to be upper secondary graduates (Vind 2008; Mori 2013b). While there may be a small number of lower secondary graduates, it is becoming difficult for them to acquire jobs in this occupation (Vind 2008; ActionAid and Oxfam 2012; Baulch et al. 2012; World Bank 2013a). Machine operators may require a vocational secondary certificate or a vocational college diploma. The World Bank (2013a) reported that 30 per cent of machine operators have completed vocational training, although some are professional college graduates. In addition, simple processing operators can be upper secondary graduates.

On the other hand, intermediate worker qualification requirements are mixed, probably because many of them are internally promoted from lower occupations (see Table 3.3). Most supervisors and line leaders, who work in assembly factories and tend to be upper secondary graduates, are promoted from production line operator roles, (Vind 2008). Machine operators, who are usually vocational training course graduates but may also be professional college graduates, also tend to be promoted to technicians (see Section 3.4.1) for the Vietnamese education system. According to the World Bank (2013a), almost half of technicians hold a vocational education and training certificate or diploma, while another 30 per cent of them have higher education degrees. Nguyen et al. (2015, p. 2)

indicated that technicians and associate professionals are relatively under-educated in Vietnam. This may be because some firms recruit vocational secondary graduates (ISCED 3-4) as technicians, although the International Standard Classification of Occupation (ISCO) assumes that technicians require tertiary education (ISCED 5) (ILO 2012).⁴⁶

Table 3.3. Standard Educational Qualification Requirement by Occupation

Occupations	Required Qualification
Design Engineers	University degree
Production Engineers	Mainly university degree, but professional college diploma is accepted by some firms
Technicians / Machine Operators	Vocational college diploma / Vocational secondary certificate / Professional college diploma
Supervisors / Line leaders in assemblers	Upper secondary certificate
Unskilled Production Line Operators	Upper secondary certificate

Source: Drafted by the author based on Vind (2008); ActionAid and Oxfam (2012); Baulch et al. (2012); Mori (2013b); World Bank (2013a)

Employment statistics show that the majority of employees do not have qualifications higher than upper secondary certificates (see Table 3.4). In 2015, 80.1 per cent of workers did not have any higher education or vocational training certificates.⁴⁷ In addition, the amount of graduates from vocational training courses (vocational primary, secondary, and college courses) slightly declined from 5.3 per cent in 2007 to 5.0 per cent in 2015 (see Section 3.4.1 for the details of the Vietnamese education and training system). In contrast, those with a university or higher degree increased from 4.9 per cent in 2007 to 8.5 per cent in 2015.

⁴⁶ ISCED stands for International Standard Classification of Education (UNESCO Institute for Statistics 2012)

⁴⁷ This group of workers includes primary school graduates, those who did not finish primary school, lower secondary graduates, and upper secondary graduates. In 2012, primary school graduates accounted for 24.51 per cent, unfinished primary school workers for 15.45 per cent, lower secondary graduates for 30.73 per cent, and upper secondary graduates for 12.38 per cent of workers in this group (NIVT 2014).

Table 3.4. Highest Qualification Attained in Employed Population in Vietnam (2007-2015)

	2007	2009	2010	2011	2012	2013	2014	2015
No technical training or qualification	82.5	82.6	85.4	84.6	83.4	82.1	81.8	80.1
Vocational training ^a	5.3	6.2	3.8	4.0	4.7	5.3	4.9	5.0
Mid-term professional training ^b	5.5	4.3	3.4	3.7	3.6	3.7	3.7	3.9
College ^c	1.9	1.7	1.7	1.7	1.9	2.0	2.1	2.5
University and over ^d	4.9	5.2	5.7	6.1	6.4	6.9	7.6	8.5

Note

^a This includes graduates from vocational primary, secondary, and college courses. It is called 'Long-term vocational training' in GSO Statistic

^b This means graduates from professional secondary courses. It is called 'Long-term vocational training' in GSO Statistical Database.

^c This means graduates from professional college courses.

^d Called 'Graduate and above' in GSO Statistical Database.

Source: GSO (2012,2014,2016,2018d).

Although the number of people who completed higher education or vocational education accounts for a small fraction of the employed population, it seems that the industrial sector is gradually absorbing more educated workers. The World Bank (2008) reported that the share of workers with college diplomas and university degrees had also increased in the manufacturing, construction, and utility sectors between 1998 and 2004, even though it was still only 12 per cent of the total in 2004.⁴⁸ Within the manufacturing sector, the printing and publishing, machinery equipment and electronics industries had the highest rate of workers with tertiary degrees in 2004, at 30 per cent (World Bank 2008).

In summary, unskilled workers who completed only general education still account for a large proportion of employees, despite rapid economic development and industrialisation. Firms in the industrial sector appear to be hiring more educated workers, but this has not transformed the overall occupational and qualification structure. In particular, it is notable that the proportion of intermediate workers and vocational training graduates has stagnated in the past decade. While employment data may not necessarily represent the entirety of skill demand, the above data indicate that the demand for skilled workers did not increase greatly in the past (Nguyen et al. 2015).

⁴⁸ The education and training, service, and public administration sectors accounted for about 75 per cent of workers with higher education in 2004 (World Bank 2008, p. 108).

3.3.3. *Expectation for Skill-Biased Technological Changes*

Even though skilled workers currently account for a small fraction of the employed population, there is official optimism that skill demand is growing. Past studies often reported that firms will require more skilled workers, including managers, engineers, and technicians, assuming that Vietnam is experiencing skill-biased technological changes (ILO 2008b; World Bank 2008; ManpowerGroup 2011; Pompa 2013; World Bank 2013a; Goodwin et al. 2014).⁴⁹ In particular, FIEs are regarded as a driver of technological development and upskilling (World Bank 2012a).

However, there is no guarantee that skill demand will grow in the future. For example, the ILO (2011) predicted that even though the employment of professional staff and intermediate workers will increase faster than for elementary workers, the share of these skilled workers remains small (see Tables 3.5 and 3.6). The proportion of technicians and associate professionals is expected to increase from 3.9 per cent in 2011 to 5.0 per cent in 2020. The share of professionals is predicted to increase from 4.8 per cent in 2011 to 6.0 per cent in 2020.

Table 3.5. Employment Projection by Occupation (Growth Rates) (2008-2020)

	Unit:%				
	2008-09	2009-10	2010-11	2011-15	2015-20
1 Leaders	1.1	4.6	5.6	5.9	3.4
2 Professionals	0.7	4.6	5.3	5.3	3.6
3 Technicians and associate professionals	1.2	4.6	5.3	5.2	3.8
4 Clerical supportworkers	1.4	4.1	5.2	5.4	3.2
5 Personal care workers, protective workers, skilled sellers	3.2	4.2	4.8	4.9	4.3
6 Skilled agricultural, forestry and fishery workers	0.6	0.3	-0.3	-0.5	-1.3
7 Skilled handicraft and related trades workers	5.2	2.9	3.9	3.1	3.0
8 Plant and machine operators, and assemblers	2.6	1.8	2.7	2.0	1.9
9 Elementary occupations	1.1	0.8	0.5	0.4	-0.3
Total	1.9	2.0	2.2	2.1	1.6

Source: ILO (2011).

⁴⁹ Past literature on skill formation tended to assume that developing economies experience skill-biased technological change (e.g. Sparreboom and Staneva 2014).

Table 3.6. Employment Projection by Occupation (2011-2020)

	Unit: Thousands Persons					
	2011		2015		2020	
1 Leaders	513	1.0%	649	1.2%	769	1.3%
2 Professionals	2,403	4.8%	2,968	5.5%	3,561	6.0%
3 Technicians and associate professionals	1,974	3.9%	2,433	4.5%	2,942	5.0%
4 Clerical supportworkers	866	1.7%	1,076	2.0%	1,262	2.1%
5 Personal care workers, protective workers, skilled sellers	8,156	16.3%	9,912	18.2%	12,302	20.8%
6 Skilled agricultural, forestry and fishery workers	7,164	14.3%	7,028	12.9%	6,589	11.2%
7 Skilled handicraft and related trades workers	6,353	12.7%	7,179	13.2%	8,356	14.1%
8 Plant and machine operators, and assemblers	3,318	6.6%	3,593	6.6%	3,960	6.7%
9 Elementary occupations	19,250	38.5%	19,578	36.0%	19,319	32.7%
Total	49,996	100.0%	54,416	100.0%	59,060	100.0%

Source: ILO (2011).

Furthermore, there are some arguments about the impact of increasing FDI inflow on technological progress and the demand for skilled workers. Athukorala and Tran (2012) found that increasing investment from transnational corporations (TNCs) has positive effects on employment growth and productivity improvement, but Vind (2008) proposed not overestimating the impact of TNC investments. He argued that FDI would not immediately cause technological spillover to local firms due to weak backward linkage between TNCs and local suppliers. Almeida (2010) found that the large presence of FIEs may not lead to growth in demand for educated workers in Vietnam because the country does not have enough capacity for absorbing and diffusing technologies.⁵⁰

These arguments indicate that skill-biased technological change may not be occurring in Vietnam. In other words, firms may not suddenly start requiring a large skilled workforce. For instance, the ILO and Asian Development Bank (ADB)'s study of the impact of the ASEAN Economic Community (AEC) on employment and labour migration in member countries predicted that the demand for lower skilled workers would continue to increase faster than for those with higher skills (ILO and ADB 2014).⁵¹

⁵⁰ Almeida (2010) regarded the large presence of FIEs as one of the indicators that measures a country's openness, along with export intensity.

⁵¹ According to their employment demand projections for 2010-2025, two occupations with the fastest growth rates are 'other craft and related workers' and 'heavy truck and bus drivers'. Those anticipated to

3.4. Skill Supply and the Education and Training System

Vietnam has made impressive progress in expanding access to education nationwide since the implementation of the Doi Moi policy in the late 1980s (World Bank 2013a). The government has been allocating a significant amount of the national budget to education, increasing it from 15.3 per cent of the total state budget in 2001 to 20 per cent in 2010 (Government of Vietnam 2012a). The ratio of public expenditures on education against GDP in Vietnam was 4.3 per cent, which is even higher than in advanced ASEAN countries (Baulch et al. 2012).

In particular, general education in Vietnam has significantly improved. The government reported that from 2001 to 2010, 94-97 per cent of school-age children went to primary school, 70-83 per cent went to lower secondary school, and 33-50 per cent attended upper secondary school (Government of Vietnam 2012a). This high general education enrolment is also confirmed by the World Development Indicator, which showed that the net primary school enrolment ratio was 98.06 per cent and the gross lower secondary school enrolment ratio was 91.97 per cent in 2012 (World Bank 2018b).⁵² In addition to expanding access to education, the quality of general education programs has improved (Rolleston et al. 2013; World Bank 2013a).⁵³ For example, at the Programme for International Student Assessment (PISA) held in 2012, Vietnam achieved higher mean

grow the most in the absolute terms are ‘street and market sales persons’ and ‘labourers in agriculture, forestry, and fishery’ (ILO and ADB 2014, pp. 47-48). The AEC was established in 2015 (ASEAN 2018).

⁵² The net primary school enrolment rate is the ratio of children of official primary school age who are enrolled in primary school to the total population of children of official primary school age. The gross enrolment ratio (GER) for lower secondary is the total enrolment in lower secondary education, regardless of age, expressed as a percentage of the total population of children of official lower secondary education age. GER can exceed 100 per cent due to the inclusion of over-aged and under-aged students because of early or late school entrance and grade repetition (World Bank 2018a).

⁵³ Rolleston et al. (2013) reported that the performance of Vietnamese students in mathematics is consistently better than students in Ethiopia, Peru, and India at ages 5, 8, 12, and 15. The result of the World Bank’s survey showed that literacy of the Vietnamese adults outperforms Laos, Bolivia, and Sri Lanka (World Bank 2013a).

scores in mathematics, science, and reading than some advanced ASEAN countries such as Malaysia, Thailand and Indonesia (see Table 3.7).

Table 3.7. Results of PISA 2010

	Unit: Point					
	Vietnam	Singapore	Thailand	Malaysia	Indonesia	OECD average
Mathematics	511	573	427	421	375	494
Science	528	551	444	420	382	501
Reading	508	542	441	398	396	496
Average	516	555	437	413	384	497

Source: Education GPS (OECD 2018).

In contrast to general education, the performance of the Vietnam’s higher education and TVET system is not valued as highly as the general education system. The OECD (2013b) claimed that it does not sufficiently meet the economy’s demands for a skilled workforce. Employers often criticise higher educational and TVET institutions for not providing adequate education and training programs in the skills required by industry (VBF 2010,2014,2017). Therefore, this section examines the skill supply situation, focusing on higher education and TVET programs, which are supposed to train students to assume professional staff and intermediate worker roles.

3.4.1. Characteristics of Vietnam’s Education and Training System

Vietnam’s education and training system consists of: (i) general education; (ii) professional and higher education; and (iii) vocational education and training (see Figure 3.12). General, higher, and professional education programs are supervised by the Ministry of Education and Training (MOET), while the Ministry of Labour, Invalids and Social Affairs (MOLISA) supervises vocational education and training courses. MOLISA includes the Directorate of Vocational Education and Training (DVET) which administers TVET programs and relevant activities (Government of Vietnam 2017a).

The definition of TVET in Vietnam has been rather unclear because the system has been managed by two ministries. The professional secondary and college courses under MOET are also regarded as part of TVET in government policies. However, professional college

courses are often included in the higher education system in official statistics (see Section 3.4.2), probably because students in these courses can transfer to university (see the latter part of this section). Accordingly, ‘TVET’ in Vietnam often means vocational education and training courses under MOLISA. Thus, the government has been trying to integrate the TVET management system, as the later part of this section explains.

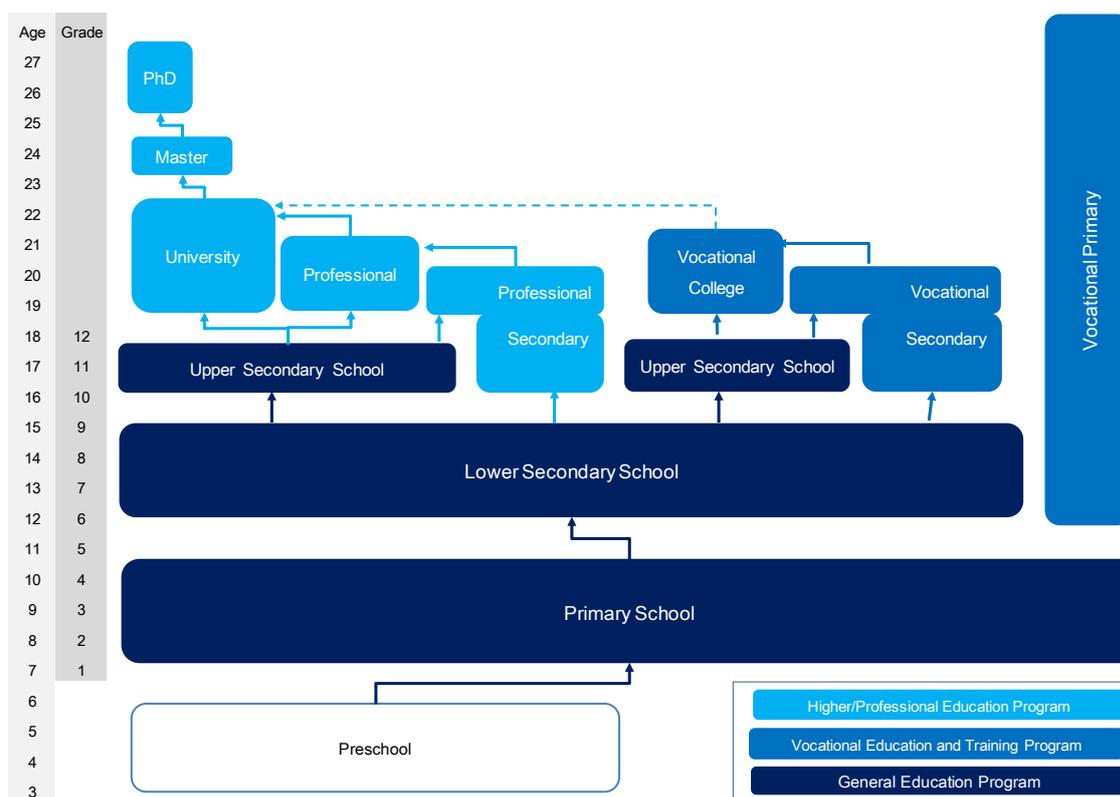


Figure 3.12. Overview of Vietnam’s Education and Training System

Source: Drafted in reference to Mori et al. (2009); Nam (2013).

The general education program consists of three levels: (i) five years of primary education (ISCED 1); (ii) four years of lower secondary education (ISCED 2); and (iii) three years of upper secondary education (ISCED 3).

The professional and higher education program consists of four courses: (i) two years of professional secondary (ISCED 3-4); (ii) three years of professional college (ISCED 5); (iii) four or five of years university (ISCED 6); (iv) and one or two years for master’s and four or more years for doctoral programs (ISCED 7-8). Professional secondary graduates can transfer to a professional college, and professional college graduates can transfer to

university courses. Upper secondary graduates are eligible to apply for the professional and higher education program. Currently, the government is trying to integrate professional courses into vocational courses as explained below.

The vocational education and training program consists of three courses: (i) less than one year of vocational primary (ISCED 3); (ii) two or three years of vocational secondary (ISCED 3-4); and (iii) three years of vocational college (ISCED 5). While vocational primary courses are open to anyone, vocational secondary and college courses are in principle for upper secondary school graduates.⁵⁴ Vocational secondary graduates can transfer to vocational college courses. Recently, a transfer path for vocational college graduates to university courses has been developed, but it is still limited as explained below.⁵⁵

Vietnam's higher education and TVET system has three key features. First, while private educational establishments are increasing, public ones are still dominant, especially for engineering and technical education (Nguyen and Truong 2007). Public educational establishments are operated by various ministries such as the Ministry of Industry and Trade (MOIT) and the Ministry of Construction (MOC) and local governments, namely Provincial People's Committees (PPC), while they are still subject to the supervision of MOET and MOLISA in terms of curricula and standards (Mori et al. 2009).

Second, the higher and professional education program and the TVET program are distinctly separated (World Bank 2015), and transferability between the two programs is very limited. The World Bank (2012c) reported that few vocational college graduates are qualified to transfer to university courses. The government also recognises this problem and it is trying to integrate professional courses into the vocational courses explained below by designating MOLISA as the stage management agency of TVET (World Bank

⁵⁴ Lower secondary graduates can also apply for the vocational secondary course, which takes three years to be completed.

⁵⁵ This was stipulated by Decision 53/2008/QD-BLDTBXH and Inter-circular 27/2010/TTLT-BGDDT-LDTBXH (World Bank 2012c).

2015; Government of Vietnam 2016b; NIVET 2018).⁵⁶ However, this thesis refers to the education system in place before the current TVET reform since this integration is still in process and the details were not fixed during this research.⁵⁷

Finally, one educational establishment can provide multiple levels of training if the government approves. For example, universities can provide courses at various levels including university, professional college, professional secondary, vocational college, and vocational secondary. Colleges supervised by MOET can provide courses including professional college, professional secondary, vocational college, and vocational secondary. However, vocational colleges cannot provide professional college courses before the above TVET reform is in place. In addition, vocational training centres provide only vocational primary courses.

3.4.2. Higher Education

Higher education, including professional college and university courses, has been rapidly expanding in Vietnam. According to the GSO, there were around 163,000 university and college graduates in 2000, but this number reached 442,000 in 2014 and the number of schools also more than doubled between 2000 and 2013 (see Figure 3.13).⁵⁸ The gross tertiary education enrolment ratio soared up from 2.76 per cent in 1990 to 28.26 per cent in 2016.⁵⁹ It is still lower than in most advanced ASEAN countries but Vietnam is catching up rapidly (World Bank 2012a) (see Figure 3.14).⁶⁰ These statistics did not

⁵⁶ The Education Development Strategy 2011-2020 mentioned that the national education system lacks transferability between a number of grades and training levels and a national qualification framework (Government of Vietnam 2012a). In fact, TVET programs have moved between MOET and MOLISA several times in the past (Mori et al. 2009).

⁵⁷ During the empirical research process, several interviewed policymakers (NG03, NG04) reported difficulty in integrating professional and vocational courses.

⁵⁸ It dropped to 353, 600 in 2015. Since this sudden reduction of about 88 thousand is unusual, this is a potential statistical error. Another possibility is that the government has implemented a new policy to strictly control the number of university students, but this is less likely according to the findings of this research (see Chapter 5, Section 5.3.1.3 and Chapter 8, Section 8.2.4 for recent government policies).

⁵⁹ Refer to data of Edstats (World Bank 2018a).

⁶⁰ The gross tertiary education enrolment in Thailand is 51.23 per cent (2013), 35.97 per cent in Malaysia (2011), 28.20 per cent in the Philippines, and 31.51 per cent in Indonesia (World Bank 2018a).

separate university and professional college students, but the government reported that 227 per 10,000 people attended to university from 2001–2010 (Government of Vietnam 2012a).

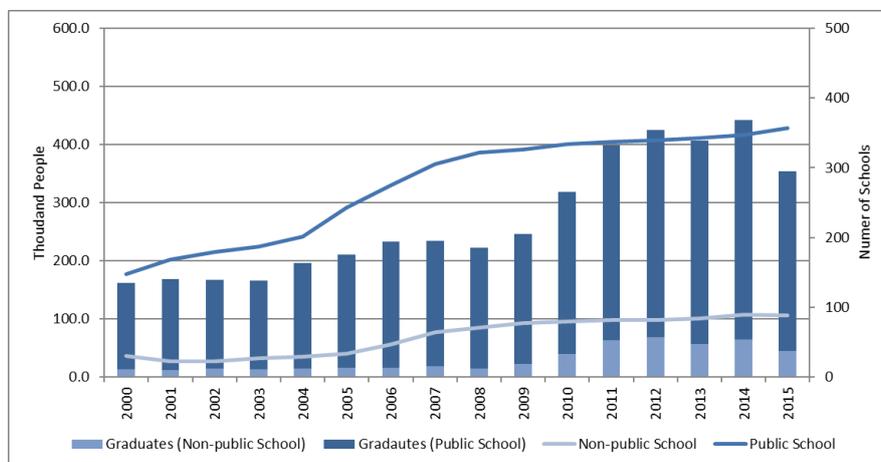


Figure 3.13. Number of Universities and Colleges and Graduates (2000-2015)

Source: GSO (2018e).

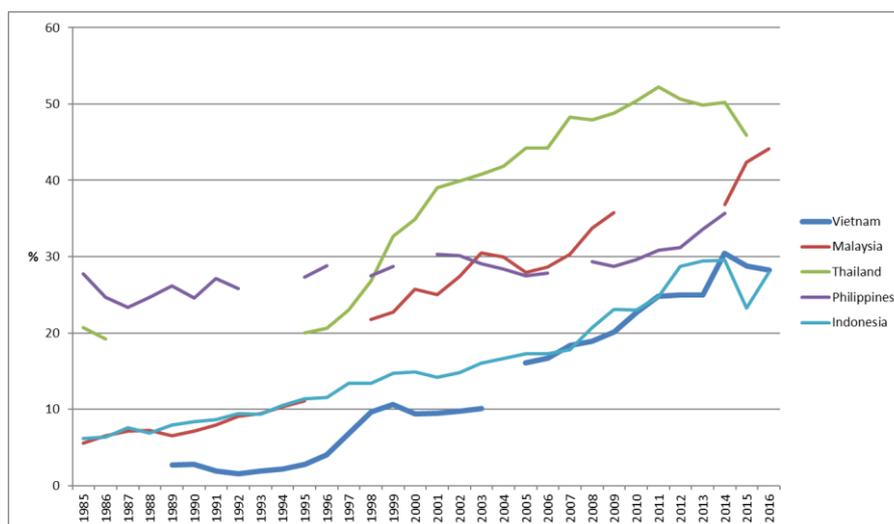


Figure 3.14. Gross Enrolment Ratio of Tertiary Education in ASEAN Countries (1985-2016)

Note: ‘Tertiary Education’ means the International Standard Classification of Education (ISCED) 5 and 6. The data for Singapore is not available.

Source: Edstats (World Bank 2018a).

Moreover, Vietnam’s higher education system has been training more people to work in the industrial sector. The number of students who enrolled in tertiary education including

professional college and university programs related to engineering, manufacturing, and construction has been gradually increasing (see Figure 3.15). The share of those students accounted for 17.52 per cent in 1999, but it increased to 23.64 per cent in 2012. Moreover, the distribution of students across academic disciplines is relatively balanced in Vietnam compared to other ASEAN countries such as Indonesia, Thailand, Cambodia and Lao PDR, where the number of students who study social science, business, and law outpaced those who study engineering and manufacturing (World Bank 2012a).

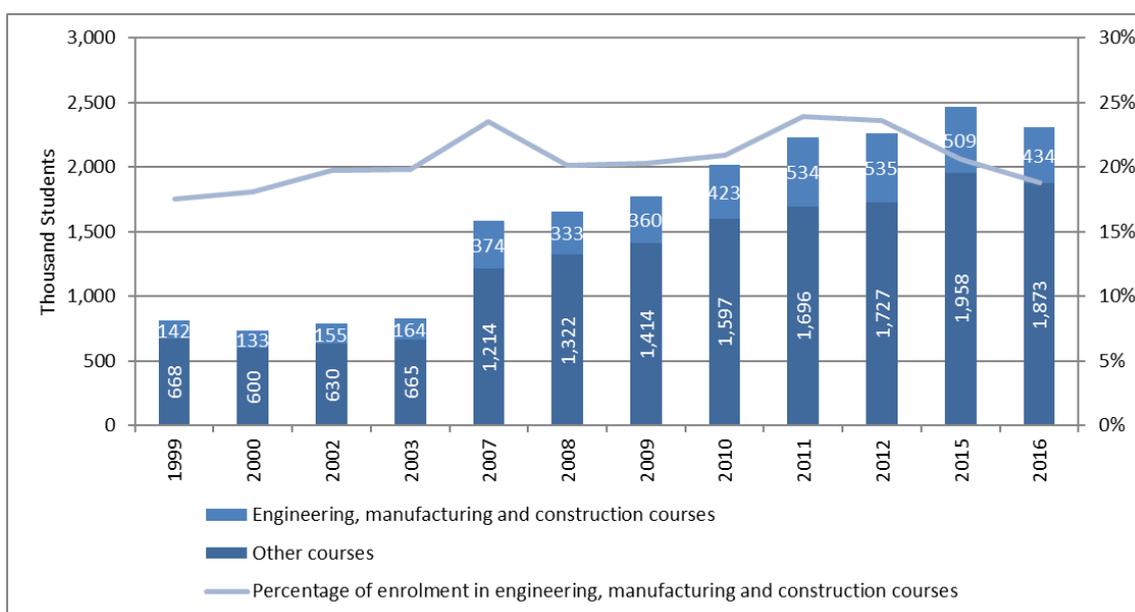


Figure 3.15. Enrolment in Tertiary Education by Course (1999-2016)

Source: Author's estimation based on Edstats (World Bank 2018a).

However, there is increasing concern about the quality of higher education after this rapid expansion (World Bank 2008; VBF 2012,2013,2014).⁶¹ For example, in 2007, the student-to-faculty ratio was 30 to 1. It was already higher than most ASEAN countries (World Bank 2012a), but it might have worsened after the increase in the number of students after 2007. In *the Education Development Strategy for the period of 2011-2020*, the government also expressed concern that university graduates may not obtain skills

⁶¹ Regarding VBF annual reports, see the reports from the European Chamber of Commerce (EuroCham), the American Chamber of Commerce (AmCham), the Nordic Chamber of Commerce, and the Japan Business Association Vietnam (JBAV).

required by employers since the number and scale of educational and training institutions have expanded without sufficiently ensuring training quality (Government of Vietnam 2012a).

3.4.3. *Technical and Vocational Education and Training*

TVET programs have been expanding in Vietnam. The enrolment in TVET courses increased from about 1.2 million in 2005 to about 1.8 million in 2011 (see Figure 3.16).

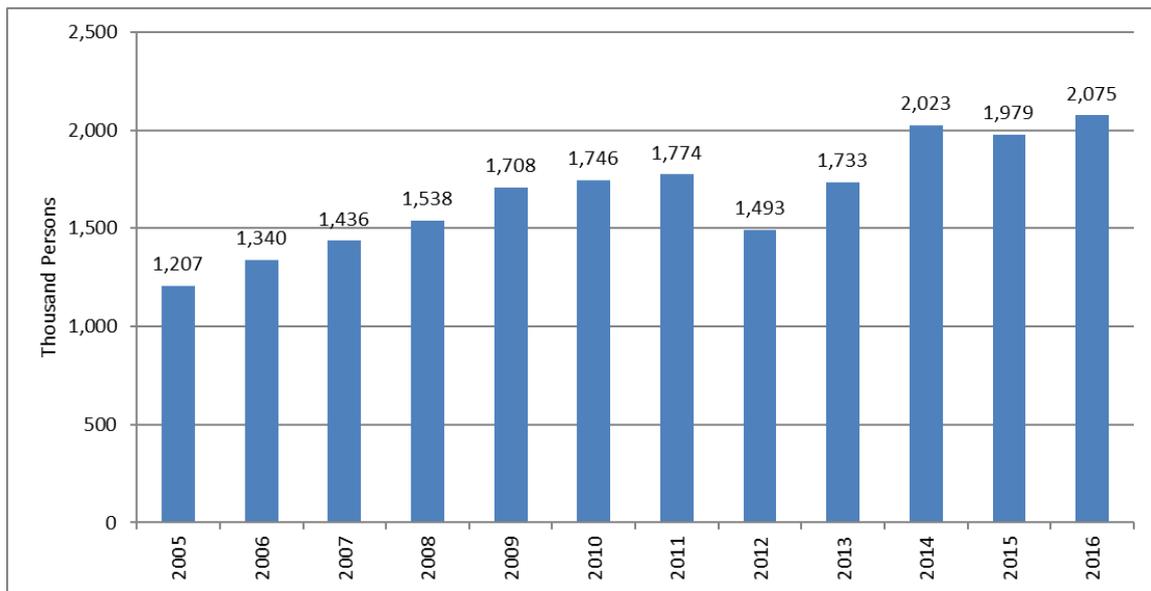


Figure 3.16. Enrolment in TVET Programs (2005-2016)

Source: Data for 2005-2008 refer to Mori et al. (2009) and data for 2009-2016 refer to NIVT (2014); NIVET (2018).

The number of TVET institutions increased from 936 in 2007 to 1,467 in 2015 (see Figure 3.17). The government aims to increase this number to 1,590 by 2020 (NIVT 2014). The number of TVET institutions significantly increased between 2015 and 2016 due to the merger of vocational training and professional training under TVET reform, not the establishment of new institutions (NIVET 2018) (also see Section 3.4.1).

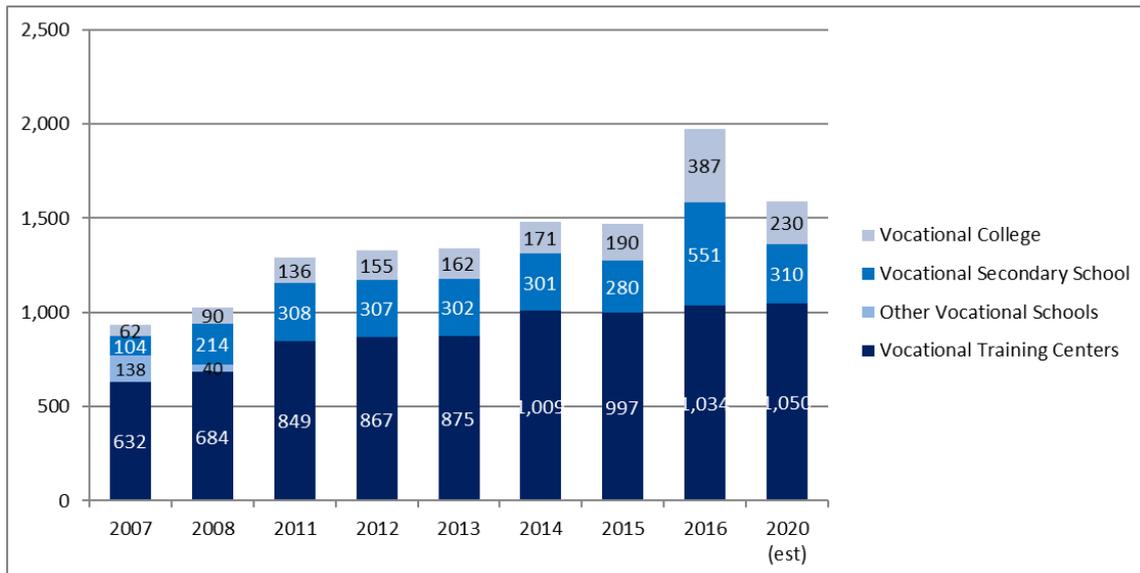


Figure 3.17. The Number of TVET Institutions (2007-2017 and Estimation for 2020)

Source: Data for 2007-2008 refer to Mori et al. (2009) and data for 2011-2020 refer to NIVT (2014); NIVET (2017,2018).

The majority of TVET institutions are public. Out of the 1,972 institutions in operation as of 2016, 1,307 (66.3 per cent) are public institutions which consist of 304 public colleges, 308 vocational secondary schools, and 695 vocational training centres (NIVT 2014; NIVET 2018).⁶² However, the number of private TVET institutions appears to be gradually increasing. The government reported that from 2001 to 2010, the share of private TVET institutions which provide primary vocational training courses increased from 28 per cent to 44 per cent and the share of private TVET institutions which provide vocational secondary and college courses increased from 1.5 per cent to 5.5 per cent (Government of Vietnam 2012a).

However, the increasing number of TVET students may not directly ensure that the supply of intermediate workers will grow. The majority of TVET students participate in the vocational primary course which takes less than one year to complete. In 2016, 88.5 per cent of new students enrolled in the vocational primary level course, while 7.1 per

⁶² In 2016, there were 243 private vocational secondary schools and 83 vocational colleges (NIVET 2018).

cent entered the vocational secondary course and 4.4 per cent started the vocational college course (see Table 3.8).⁶³ Vocational primary course graduates have little chance of becoming intermediate workers since employers tend to require a vocational college diploma or vocational secondary certificates for these jobs (see Section 3.3.2). Accordingly, ActionAid and Oxfam (2012) reported that most young people in urban areas are not interested in short-term vocational training programs because they think that those courses will not help them improve the skills required for their jobs.

Table 3.8. Number of Admitted Students for TVET Programs by Course

		Unit: Thousand Persons							
Course		2009	2010	2011	2012	2013	2014	2015	2016
Vocational	No.	1,420	1,468	1,552	1,279	1,516	1,803	1,769	1,836
Primary	%	83.1%	84.1%	87.5%	85.7%	87.5%	89.1%	89.4%	88.5%
Vocational	No.	199	181	142	129	128	133	129	147
Secondary	%	11.7%	10.4%	8.0%	8.7%	7.4%	6.6%	6.5%	7.1%
Vocational	No.	89	97	80	84	89	88	81	92
College	%	5.2%	5.6%	4.5%	5.6%	5.1%	4.3%	4.1%	4.4%
Total		1,708	1,746	1,774	1,493	1,733	2,023	1,979	2,075

Source: NIVT (2014); NIVET (2018).

Furthermore, enrolments in long-term vocational courses, including at the vocational college and secondary levels, are not greatly increasing. The number of new students in vocational secondary courses declined from 199,000 in 2009 to 147,000 in 2016. Enrolments in vocational college courses decreased from 89,000 in 2009 to 81,000 in 2015. While they increased slightly to 92,000 in 2016, probably due to the merger of the vocational and professional colleges, there has been little evidence of an upward trend (see Table 3.8).⁶⁴ In contrast, the number of higher education students has been rapidly increasing (World Bank 2013a). In addition, Baulch et al. (2012) reported that the percentage of upper secondary school students enrolled in TVET programs in Vietnam

⁶³ In addition, 24.8 per cent of students out of 85.7 per cent enrolled in the short-term course for less than 3 months (NIVT 2014, p. 68).

⁶⁴ This is because of a recent TVET reform as mentioned in Section 3.4.1, but it is still not clear how the two courses, the vocational college course and the professional college course, are merged in practice.

(16.7 per cent) is considerably lower than in Indonesia (37.2 per cent) and Thailand (39.9 per cent in 2008), while it is similar to Malaysia (15.9 per cent).⁶⁵

Existing literature has attributed this situation to the unpopularity of TVET programs in Vietnamese society. Nguyen and Truong (2007) pointed out that TVET programs have much lower social prestige than a university education. World Bank (2013a) reported that many upper secondary school students and their families do not expect that TVET programs will give them good career opportunities.

In short, the supply of intermediate workers who have graduated from TVET programs is stagnating, despite government's efforts to increase the supply-side capacity. Thus, previous literature tends to claim that current vocational training programs are not satisfying society's needs since a large proportion of the labour force remains untrained, particularly in rural areas (World Bank 2012c,2013a).

3.5. Current Skill Mismatch Discussion

The abundant supply of diligent and low-wage workers, alongside other factors such as political stability, is one of the factors which has enabled Vietnam to attract a vast amount of FDI (Mori et al. 2009). This means that the Vietnamese education system has succeeded in providing most workers with basic skills (World Bank 2013a). Past research found that employers do not face serious problems in securing elementary workers such as production line operators given Vietnam's relatively large workforce (World Bank 2013a; Goodwin et al. 2014).⁶⁶

⁶⁵ Pompa (2013, p. 12) reported that the rate of lower and upper secondary graduates entering TVET programs was 17.25 per cent in 2011.

⁶⁶ According to a survey conducted by the World Bank, only about 25 per cent of employers reported difficulty in finding job applicants with sufficient skills for operator positions (World Bank 2013a, p. 54). Goodwin et al. (2014) also reported that employers are less concerned about skill shortages of manual workers than other technical or managerial occupations (see Figure 3.18), while they noted that this does not mean employers never face skill shortages or gaps at the elementary occupation level.

On the other hand, many previous studies and reports have claimed there is a lack of skilled workers and regard this as an impediment for further industrialisation in Vietnam (di Gropello 2010; OECD 2013b; Pompa 2013; World Bank 2013a; Goodwin et al. 2014). This section reviews the current policy discussion on skill mismatch, focusing on two skilled occupation levels at which the previous studies often pointed out significant skill mismatch: (i) professional staff, who are mostly university graduates; and (ii) intermediate workers, who tend to be graduates of long-term TVET courses.

3.5.1. Skill Mismatch in the Supply of Professional Staff

Despite the increasing supply of university graduates, the previous literature found that many employers face a lack of competent professional staff, including managers and engineers. According to a survey conducted by the World Bank, about 80 per cent of respondents reported that applicants to professional positions do not have the required skills (World Bank 2013a). Goodwin et al. (2014) mentioned that over 60 per cent of survey respondents have experienced a skill shortage for managerial and technical staff (see Figure 3.18). According to the annual surveys of the Japan External Trade Organization (JETRO), Japanese firms in Vietnam have been having difficulty recruiting middle managers (see Figure 3.19). Previous research indicated that university graduates lack job-specific technical skills as well as cognitive, social, and behavioural skills such as problem-solving skills and communication skills because traditional teaching methods do not include enough interaction with students, group assignments, or opportunities to experience jobs through internships or apprenticeships (Trung and Swierczek 2009; Tran 2013a; World Bank 2013a).

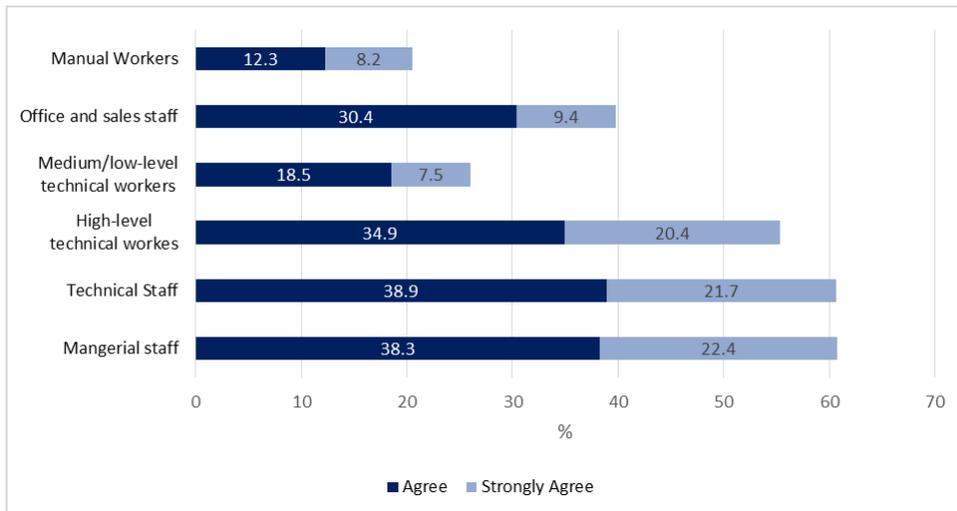


Figure 3.18. Current Skills Shortage in Quantity and Quality by Occupation

Note: Only the percentages of the answers for ‘Agree’ and ‘Strongly agree’ are extracted.

Source: Goodwin et al. (2014, p. 42)

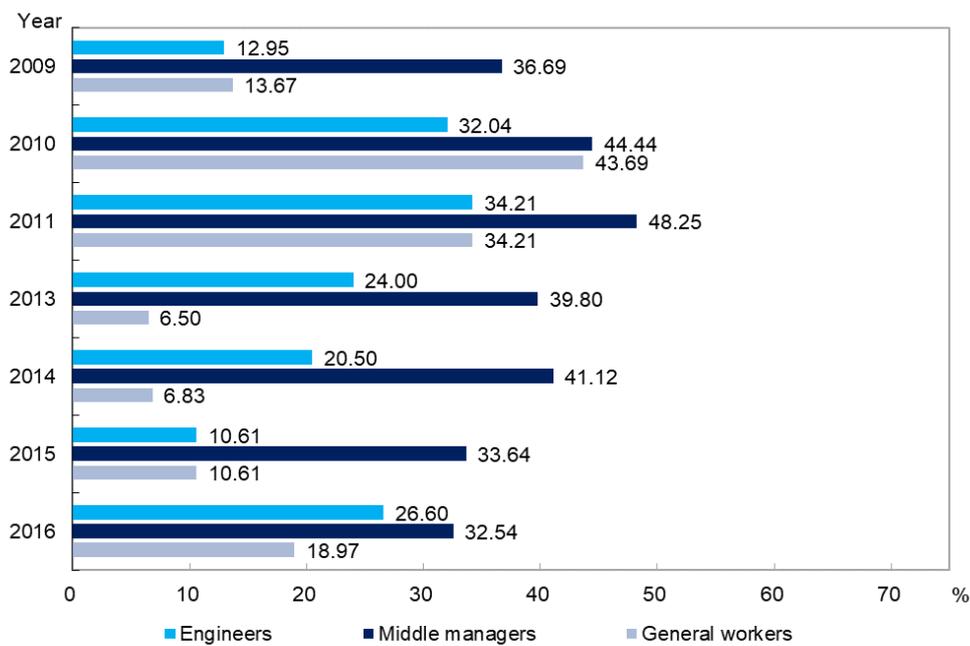


Figure 3.19. Recruitment Difficulties of Japanese Firms in Vietnam (2009-2016)

Note: The answers for engineers and general workers were only from manufacturing firms. The answers for middle managers are from all sorts of firms.

Source: JETRO (2009,2010,2011,2012,2013,2014c,2015,2016b).

Furthermore, Goodwin et al. (2014) found that many of their survey respondents predicted it will continue to be difficult to secure enough skilled technical and managerial staff over the next five years (see Section 3.3.3).

Despite high employer demand for professional staff, the unemployment rate seems to be higher for university graduates than others in Vietnam. Figure 3.20 shows that the unemployment rate of people who completed advanced education, including professional college and university courses, went up from 2.7 per cent in 2010 to 5.1 per cent in 2016. Their unemployment rates were always higher than those of people who completed intermediate education such as vocational training and general education.⁶⁷ In addition, the unemployment rate is likely to be even higher at the moment of graduation, since some students start job hunting after receiving their degrees (Thu 2012; Hotta and Kishi 2013; Inagawa 2013).

Furthermore, the disaggregated unemployment data shows that people with a bachelor's or higher degree account for 16.3 per cent of the unemployed population, which is the third largest share following lower secondary graduates (20.0 per cent) and primary graduates (17.1 per cent), who are considered unskilled labourers (see Table 3.9).⁶⁸ Nguyen et al. (2015) explained that the unemployment rate for university graduates in Vietnam is high because they do not have the skills to meet employers' requirements.⁶⁹

⁶⁷ The unemployment rate of university students might be even higher right after graduation. According to an article in the Vietnam News, MOET's report indicated that 63 per cent of new university graduates were unemployed in 2011 (Thu 2012). Inagawa (2013, p. 79) reported that only about 50 per cent of university-course students from one public university in Hanoi found jobs right after graduation, while an even lower percentage of vocational training course graduates from the same university were able to do so.

⁶⁸ On the other hand, the unemployment rate is not high in Vietnam. The unemployment rate was 3.02 per cent in 2017 and the average unemployment rate between 2000 to 2017 was 2.64 per cent, according to the author's calculations based on data retrieved from ADB Statistical Data System (ADB 2018). The unemployment rate of university graduates is still not too high (4.1 per cent) even compared to people with other qualifications such as vocational secondary graduates (4.5 per cent) (GSO 2015, p. 41).

⁶⁹ Nguyen et al. (2015, pp. 32-33) reported that the unemployment rate of youth who graduated from universities is 7.6 per cent, which is higher than for general education and vocational secondary graduates. The UKCES (2010a) explained that unemployment may represent skill deficiencies which arise in the external labour market. Certainly, the unemployment rate cannot be a perfect or proxy indicator of skills

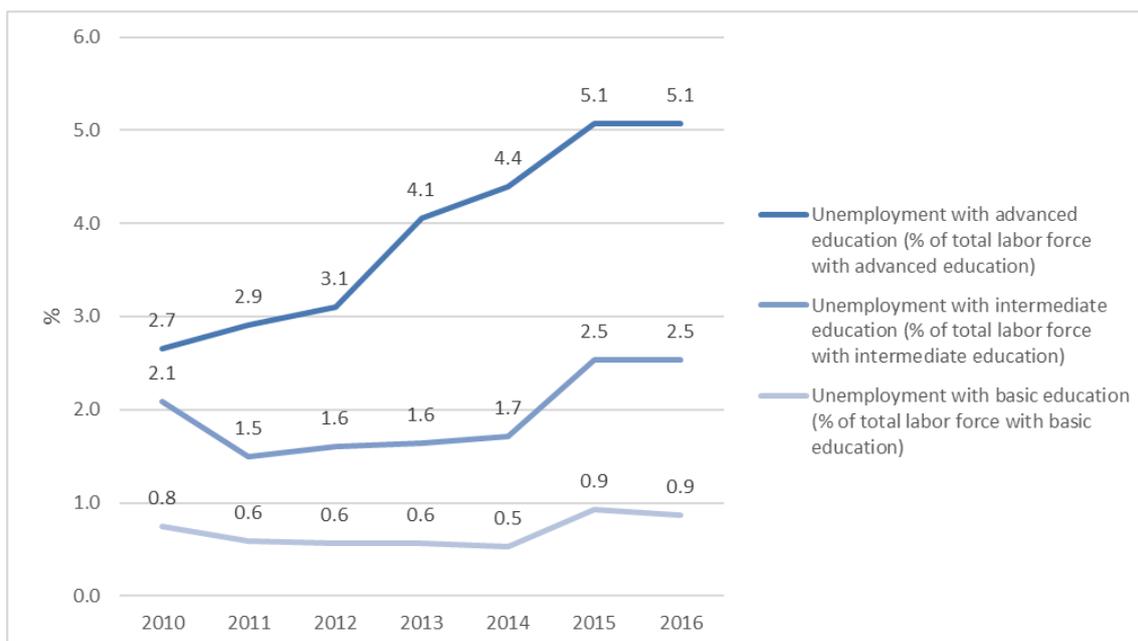


Figure 3.20. Unemployment Rates by Educational Qualification (2010-2016)

Note: According to the International Standard Classification of Education 2011 (ISCED 2011), ‘advanced education’ comprises short-cycle tertiary education, a bachelor’s degree or equivalent education level, a master’s degree or equivalent education level, or doctoral degree or equivalent education level. ‘Intermediate education’ Intermediate education comprises upper secondary or post-secondary non-tertiary education. ‘Basic education’ comprises primary education or lower secondary education.

Source: World Bank (2018b).

The relatively high unemployment rate may be forcing university graduates to take intermediate or even elementary-level jobs. In fact, several studies found over-qualification in Vietnam in different degrees. For example, Handel et al. (2016) found that 70 per cent of surveyed workers are overeducated in Vietnam. Nguyen et al. (2015) also found 52.9 per cent of elementary workers are overeducated, while most professional staff have adequate qualifications, namely a university degree.

mismatch because the relationship between skills shortage and unemployment has not been fully clarified yet (Holt et al. 2010).

Table 3.9. Distribution of the Unemployed Population by Highest Educational Attainments in 2015

Educational Attainment	Distribution (%)		
	Total	Male	Female
Never attended	2.4	1.7	3.3
Incomplete primary	7.7	6.4	9.2
Completed primary	17.1	17.7	16.5
Completed lower secondary	20.0	23.7	15.5
Completed upper secondary	15.0	16.7	15.9
Vocational Primary	3.3	5.3	0.9
Vocational secondary	2.0	2.5	1.4
Professional Secondary	6.5	4.7	8.6
Vocational College	1.0	1.4	0.5
Professional College	8.8	5.8	12.4
University and over	16.3	14.2	18.8

Note: Data for population aged 15 and above.

Source: GSO (2016).

3.5.2. Skill Mismatch Claimed for Intermediate Workers

Previous studies indicated that many employers are facing skill shortages for intermediate workers. According to a survey conducted by the World Bank, more than 80 per cent of respondents reported that applicants to technician positions do not have the required skills (World Bank 2013a, p. 54). This rate is even higher than that of managers (about 70 per cent) and professionals (about 80 per cent). Goodwin et al. (2014) found that 54.3 per cent of survey respondents face shortages of high-skilled technical workers (see Figure 3.18), while over 60 per cent of respondents have an insufficient amount of managerial and technical staff.

Employers also tend to claim that TVET graduates, who are trained to be intermediate workers, do not have the necessary skills. According to the World Bank (2012c), MOLISA's 2007 report mentioned that 44 per cent of FIEs had to organise retraining courses for their employees and 25 per cent of vocational training graduates did not satisfy their skills and knowledge requirements. According to Mori et al. (2012), many employers feel that TVET graduates are usually not active in leading production improvement activities, while they are good at following company rules and supervisor

guidance. Therefore, many past studies attributed these skill gaps to the poor performance of current TVET programs and hence recommend improving their quality in accordance with employers' skill needs (World Bank 2013a; ADB 2014; Goodwin et al. 2014).

Despite the large skill shortages and gaps indicated above, the majority of vocational secondary and college course students appear to acquire jobs after graduation. No past research indicated serious concerns about an oversupply of TVET graduates, unlike with university graduates. In fact, the results of a labour force survey show that long-term TVET course graduates account for a smaller share of the unemployed population than higher education graduates (see Table 3.9).⁷⁰ The NIVT (2014) reported that 65 per cent of vocational college graduates found jobs after graduation. In particular, employment rates are high for graduates from metal cutting trade, industrial electrical engineering, welding, and computer network administration programs (see Figure 3.21).⁷¹

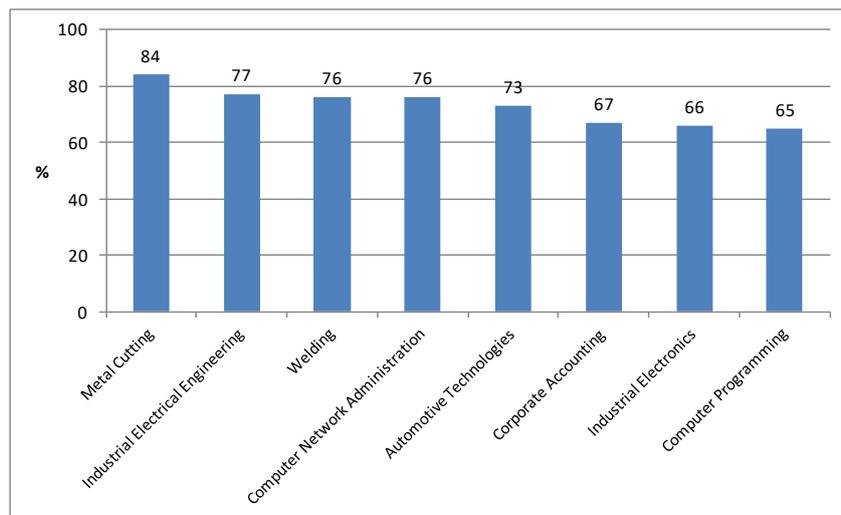


Figure 3.21. Employment Rates of Vocational College Graduates by Trade (2012)

Source: NIVT (2014, p. 76).

⁷⁰ This small population of unemployed TVET graduates may reflect that the supply of long-term TVET course graduates is smaller than for university graduates (see Section 3.4.3).

⁷¹ On the other hand, Nguyen et al. (2015, pp. 32-33) reported that the unemployment rate of post-secondary vocational course graduates, which probably means vocational college graduates, was 12.9 per cent in 2013. This is even higher than for university graduates (7.6 per cent). This may indicate that vocational college graduates can get work upon graduation but that some of them become unemployed sometime after graduation, assuming that the figures provided by NIVT (2014) are accurate.

However, it is uncertain how reliable these data are since many TVET institutions seem to be struggling to understand the employment situations of their graduates due to a lack of data collection and analysis capacity and rapport with students (JICA 2014b). Furthermore, the high employment rate does not necessarily mean that TVET graduates obtained jobs in which they utilise their skills and earn reasonable incomes. At this moment, there is no comprehensive research which traces the actual career paths of TVET graduates. Thus, it is uncertain whether TVET graduates are working as intermediate or elementary workers.

The existing literature foresees that the shortage of skilled intermediate workers will expand in the future. The ILO (2008b) found that survey respondents indicated stronger future demand for high-level technical workers than for technical staff, meaning engineers, and managerial staff (see Figure 3.22). JICA (2014c) also reported that 89 per cent of respondents to their survey indicated the need for more technicians in the future, while 81 per cent of them will also require more production engineers. This prospect of growing skill shortages is in line with the assumption that the demand for intermediate workers will increase since technologies are advancing (see Section 3.3.3).

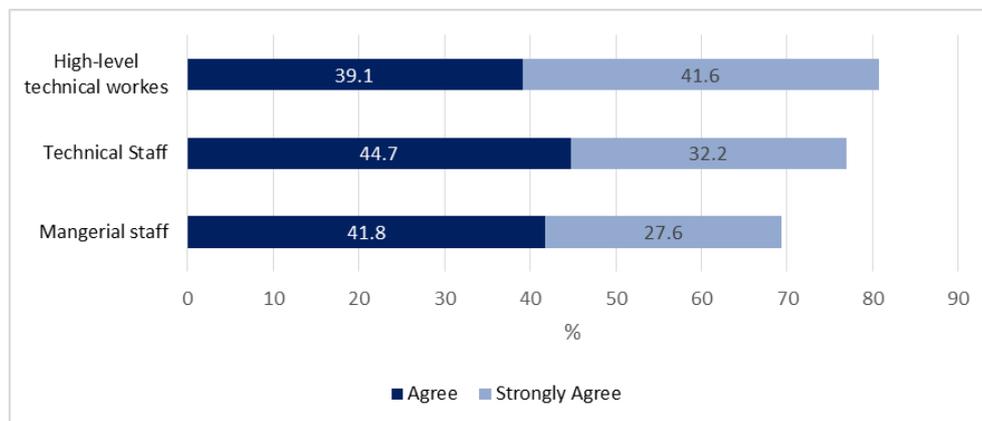


Figure 3.22. Will Demand Increase Significantly in the Next Five Years?

Source: Drafted in reference to ILO (2008b, p. 31).

3.5.3. Skill Mismatch in Vietnam: Unsolved Issues

Previous studies tended to attribute increasing skill shortages and gaps for both professional staff and intermediate workers to the poor performance of Vietnam's education and training system, in accordance with the supply-side approach (World Bank 2008,2013a; Goodwin et al. 2014). This conclusion is likely to be supported by employers, as seen in this statement from the American Chamber of Commerce (AmCham) included in the Vietnam Business Forum (VBF) annual report 2017:

'The foundation for improving the operational efficiency and competitiveness of Vietnamese-based businesses is workforce productivity. Numerous studies show that educational curricula are outdated, teachers overwhelmed and underpaid, and graduates lack the job-ready skills sought by the private sector. To continue attracting investment and to upgrade the skills of its workforce, the government should take further action to modernize and upgrade its national education system, particularly at the vocational and university levels. Modernizing education will ensure that Vietnam has a skilled workforce of managers, engineers, and manufacturing technicians that can move up the value chain as the economy grows.' (VBF 2017, p. 17)

Their argument is supported by the assumption that skilled jobs are increasing faster than the skill supply due to technological development accelerated by economic growth and industrialisation (di Gropello 2010; OECD 2013b; Pompa 2013; World Bank 2013a).

However, these studies did not analyse the demand-side problems, even though the employment data show that skilled jobs account for a small fraction of total employment and this occupational structure has not been changing significantly (see Section 3.3.2). For one thing, the relatively high unemployment rate of university graduates is attributed to their skill deficiencies, but this may also indicate that they have limited job opportunities. In fact, the average time needed to fill professional vacancies in Vietnam is 2.5 weeks, which is shorter than in advanced ASEAN countries, including Malaysia,

Thailand, Indonesia and the Philippines (World Bank 2013a). This implies that employers can attract enough applicants since professional staff jobs are scarce.

Table 3.10. Employment Growth Rate of Machine Manufacturing Related Occupations (2011-2015)

Occupation		Unit: Thousand Persons					
		2011	2012	2013	2014	2015	2011-2015 Growth Rate
Leaders, managers and administrators of branches, levels and organizations ^a	No	538	532	551	573	570	6.1%
	Growth Rate		-1.0%	3.6%	4.1%	-0.6%	
Professionals ^b	No	2,676	2,818	2,968	3,222	3,448	28.9%
	Growth Rate		5.3%	5.3%	8.5%	7.0%	
Technicians and associate professionals	No	1,774	1,745	1,699	1,640	1,668	-6.0%
	Growth Rate		-1.6%	-2.7%	-3.4%	1.7%	
Plant and machine operator and assemblers ^c	No	3,510	3,729	3,637	3,889	4,494	28.0%
	Growth Rate		6.2%	-2.4%	6.9%	15.6%	
Elementary occupations ^d	No	20,306	20,829	21,327	21,124	21,035	3.6%
	Growth Rate		2.6%	2.4%	-0.9%	-0.4%	

Note

^{a, b, d} These occupations include non-manufacturing related workers (e.g. administrative staff, sales and marketing staff, etc.)

^c They are likely to include unskilled workers such as production line operators.

Source: Author's estimation based on the data retrieved from (GSO 2018a).

Furthermore, it is questionable whether skill shortages at the intermediate occupation level are as significant as previous research indicated. The employment growth rate for technicians and associate professionals appears to be slow, despite high demand for technicians expressed by employers. During 2011-2015, the employment growth of technicians and associate professional was negative (-6.0 per cent), (see Table 3.10).⁷² This is even slower than the modest forecast made by the ILO (2011), which predicted that the employment of technicians and associate professionals would increase by 5.2 per cent from 2011 to 2015 and 3.8 per cent from 2015 to 2020 (see Table 3.5). This casts doubt on the assumption that the demand for intermediate workers is increasing due to technological change. In addition, the supply of long-term TVET course graduates, who

⁷² The employment growth rate of plant operators, machine operators, and assemblers increased by 3.7 per cent, but this group includes unskilled workers. For example, simple assembling jobs do not require specific skills or knowledge.

are trained to be intermediate workers, has not been increasing a lot, as seen in Section 3.4.3. It is hard to draw the conclusion that the intermediate occupation level is experiencing serious skill shortages from this stagnation on both the demand and supply sides.

Part of the reason that previous studies on Vietnam's skill formation system did not pay attention to the demand-side issues can be ascribed to their research methods. In employer surveys which focus on skill deficiencies, employers often indicate large skill shortages, despite low-level skill shortage vacancies (Felstead 2016). Holt et al. (2010) pointed out the possibility that the principal-agent problem exaggerates recruitment needs. This means that line managers often inflate recruitment needs in order to let senior managers know the importance of those already employed in similar positions. Cappelli (2015) also claimed that many survey reports on skill mismatch face validity problems and offer little compelling evidence on skill shortages and gaps. The analysis on the vacancy data could be an alternative method to identify the degree of skill shortages (see Chapter 2), but it is not available in Vietnam. Furthermore, it is not easy to isolate skill-shortage vacancies from aggregated vacancy data (Cappelli 2015, pp.267-268).⁷³

In short, it is hard to clarify the extent to which the demand for skilled workers is increasing and whether employers are facing as serious skill shortages and gaps as previous studies indicated, because they concentrate excessively on supply-side problems solely based on employer perceptions, which can be subjective and exaggerated.

3.6. Skill Demand and Supply Coordination Mechanisms

Each theoretical approach expects different mechanisms to coordinate skill demand and supply, as explained in Chapter 2. The supply-side approach expects the market mechanism, in particular wages, to adjust skill demand and supply (Becker 1993b). On

⁷³ On the other hand, care should be taken in using vacancy data as an indicator of skill shortages because vacancies can be caused by a variety of other factors (Cappelli 2015, pp.267-268). See Chapter 2, Section 2.2. for the relationship between vacancies and skill shortages.

the other hand, the demand-side approach emphasises the necessity of government interventions on both the supply and demand sides because the market adjustment is too slow (Ashton et al. 1999). This approach also suggests that the government facilitate social partnerships among stakeholders to coordinate skill demand and supply (Brown et al. 2001). Thus, this section explores how these three coordination mechanisms are working in Vietnam.

3.6.1. Adjustment by Wages

According to human capital theory (Becker 1964, p.31), wages facilitate the adjustment of demand and supply and let them reach the equilibrium if employers provide wages equivalent to marginal product. This indicates that employers need flexibility to determine wages. The Global Competitiveness Report 2014-15 shows that employers in Vietnam have more flexibility in determining wages than in some ASEAN countries, including the Philippines, Indonesia, and Thailand (see Figure 3.23). This indicates that employers can still adjust wages without significant intervention by the government, despite their claim that the government’s movement to increase minimum wages jeopardises Vietnam’s competitiveness (VBF 2010,2012,2013,2014).

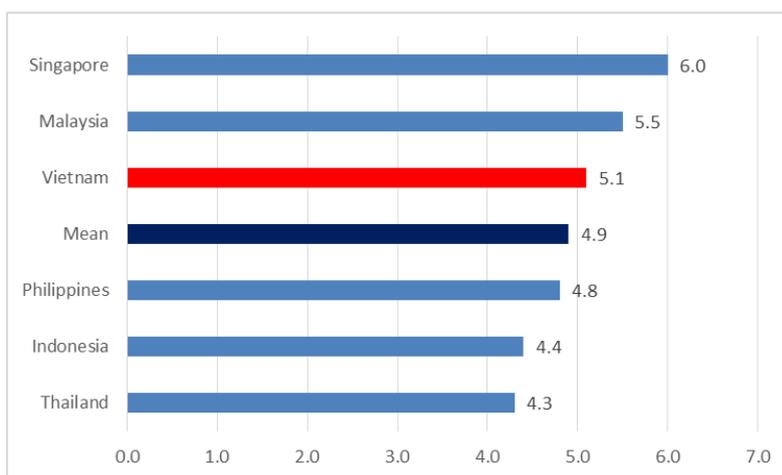


Figure 3.23. Flexibility of Wage Determination

Source: World Economic Forum (2014, p. 485).

In Vietnam, wages are adjusted in favour of university degree holders. University graduates earn far more than people with other or no qualifications (see Table 3.11). For

example, the average income of vocational training course graduates is 23.2 per cent lower than that of university graduates.

Table 3.11. Average Monthly Employment Income of Wage Workers by Highest Qualification in 2015

Technical Qualification	Total	% vs. (i)	Unit: Thousand VND	
			Male	Female
(i) University and over	7,016	-	7,612	6,406
(ii) College	5,105	-27.2%	5,627	4,773
(iii) Mid-term professional training ^a	4,761	-32.1%	5,180	4,384
(iv) Vocational training ^b	5,385	-23.2%	5,558	4,360
(v) No technical qualification	3,898	-44.4%	4,056	3,669

Source: GSO (2016).

According to Phan and Coxhead (2013), the real wage of college and university graduates increased by 42 per cent in the period from 1993 to 2008, while that of upper secondary graduates increased by only 23 per cent in the same period. They also showed that the skill premium for college and university graduates, which means the wage relative to workers with no schooling, dramatically increased from 1993 to 2002 compared to people with lower educational qualifications, while it stagnated from 2002 to 2008.⁷⁴

Accordingly, professional staff, who are mostly university graduates (see Section 3.3.2), earn more than other occupations (see Table 3.12). For instance, technicians and associate professionals, whom TVET graduates aim to become, earn 25.8 per cent less than professionals, who include engineers. In contrast, technicians and associate professionals earn only 3.7 per cent more than machine operators and assemblers, who are likely to

⁷⁴ The skill premium may differ by firm ownership. Phan and Coxhead (2013, p. 1120) found that employees of SOEs received a substantially higher economic return to investment in education than those working for private firms, which include the majority of domestic SMEs and a smaller number of FIEs, based on data from 1993-2008. In contrast, Friedman (2004) indicated that workers at FIEs received a higher economic return to investment in education than those at SOEs. In addition, he found that FIEs attracted more skilled workers (52.8 per cent of total workers) than SOEs (35.6 per cent) and far more than domestic private firms (22.9 per cent), based on survey data collected in 1999. Furthermore, he argued that FIEs' technical capacity is higher than SOEs', whose compressed wage structure discourages their staff from increasing productivity

include unskilled production line operations without technical qualifications (see Section 3.3.2).

Table 3.12. Average Monthly Income of Wage Workers by Occupation Group in 2015

Unit: Thousand VND				
Occupation	Total	% vs. (ii)	Male	Female
(i) Leaders, managers and administrators of branches, levels and organizations	7,828	14.2%	8,018	7,315
(ii) Professionals	6,852	-	7,464	6,336
(iii) Technicians and associate professionals	5,082	-25.8%	5,566	4,722
(iv) Clerks	4,592	-33.0%	4,495	4,689
(v) Service workers and market sales workers	3,984	-41.9%	4,240	3,647
(vi) Skilled agricultural, forestry and fishery workers	4,138	-39.6%	4,378	3,496
(vii) Craft and related workers	4,279	-37.6%	4,487	3,702
(viii) Plant and machine operator and assemblers	4,903	-28.4%	5,347	4,442
(ix) Elementary occupations	3,241	-52.7%	3,460	2,899

Source: GSO (2016).

However, the higher average income for university graduates does not necessarily indicate greater demand for graduate level qualifications (Cappelli 2015).⁷⁵ In particular, it is unlikely that it represents skill demand in quantitative terms. In Vietnam, employers tend to indicate more general difficulties in finding qualified professional staff, as seen in Section 3.5.1. What might be inferred is that graduate wages have greatly increased because employers are competing to recruit capable professional staff scarce in the labour market, not graduates *per se*. However, if the demand for university graduates (as potential professional staff) keeps increasing as rapidly as their average income does, they should be absorbed into the labour market - instead of graduate oversupply resulting, as seen in Section 3.4.2. Hence, wages are encouraging more young people to attend universities and become over-qualified, rather than a balance in skill demand and supply emerging.

⁷⁵ Cappelli (2015) suggested that care should be taken in interpreting the university/college wage premium, because: (i) it may not necessarily represent the experience of newly hired people, (ii) the socio-economic background of university graduates varies considerably vary, (iii) it is influenced by various factors other than a university degree, (iv) education qualification is not necessarily equal to 'skills,' and (v) it does not ensure that all people would obtain the same premium if more of them attended university.

Furthermore, there is a discrepancy between wages and employer perceptions of skill mismatch. According to previous research and the reports of employer organisations, firms indicated high demand for both professional staff and intermediate workers (VBF 2010,2012,2013; World Bank 2013a; Goodwin et al. 2014; VBF 2014). They did not prioritise professional staff over intermediate workers as clearly as the wage difference suggests. No past research provided a clear explanation about why employers do not offer better salaries for intermediate workers if they really need them.

3.6.2. Government Policies for Skill Formation

This section provides an outline of the government's skill formation policies, including those addressing the supply side, namely skill development policies and the demand side, namely industrial policies.

3.6.2.1. Skill Development Policies

Vietnam's political leadership shows a high commitment to enhancing the skills of their labour force in order to meet the rising demand for a more highly skilled workforce (World Bank 2012c; OECD 2013b).⁷⁶ *The Socio-Economic Development Strategy for the Period of 2011-2020 (SEDS)*, which is the most important national strategy in Vietnam, treats the development of high quality human resources as one of the three strategic breakthroughs necessary for achieving the national target of becoming an industrialised country, along with the improvement of socialist-oriented market economy regulations and the development of infrastructure (Government of Vietnam 2011e). In accordance with SEDS, the government has issued various skills policies (see Figure 3.24).

⁷⁶ GSO (2012, pp. 17-18) also proposed that Vietnam increase the number of skilled workers, in order to meet industry skill demands and achieve higher economic growth in the 'population dividend' period, when a large amount of young people is available in the labour market.

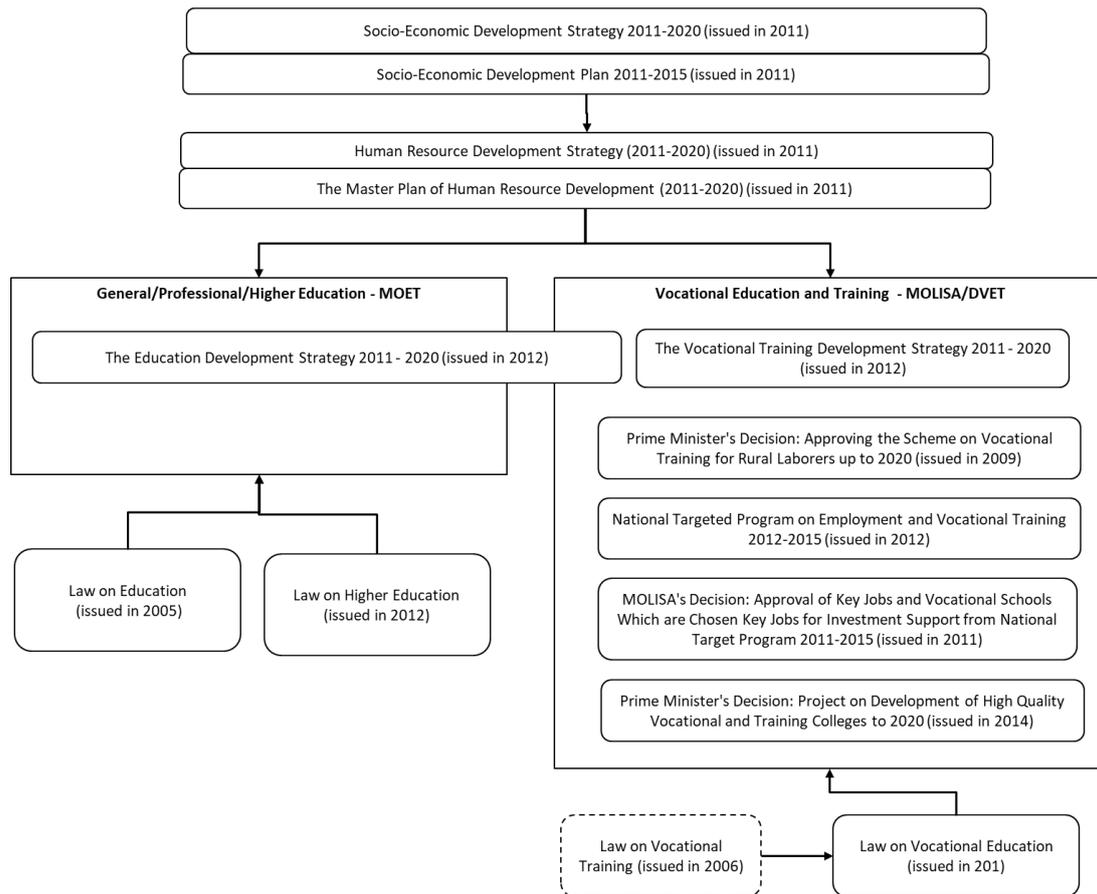


Figure 3.24. Key Skill Development Policies in Vietnam

Source:: Drafted by the author.

These policies show that the government has started paying closer attention to employer skill needs. For example, the *Human Resources Development Strategy 2011-2020* suggests that education and training conform to social and labour market demand (Government of Vietnam 2011b). *The Human Resource Development Master Plan (HRDMP) 2011-2020* emphasises that the government should ensure a balance of human resource supply and demand in consideration of training needs (Government of Vietnam 2011a). In particular, as a result of the Communist Party’s 2013 resolution on ‘fundamental and comprehensive reform of education and training to meet the demand of industrialisation and modernisation in a market economy and international integration’, the government is encouraging TVET institutions to improve their training programs according to industry demands. (Nguyen and Truong 2007; Communist Party of Vietnam 2013; OECD 2013b; NIVT 2015). *The Vocational Training Development Strategy 2011-*

2020 stresses that TVET programs should aim to meet employers' skill demands, while expecting firms to: (i) ensure the development of occupational skills for their workers; (ii) make contributions to the vocational training support fund; (iii) participate in vocational training-related activities such as the formulation of occupational skills standards and training curricula; and (iv) provide vocational training institutions with information on employment needs (Government of Vietnam 2012b). However, the existing policies have not yet provided concrete measures to mobilise employer engagement (Tran 2015), except for policies to encourage voluntary contributions such as tax incentives for promoting investment in internal training. The 2014 *Law on Vocational Education and Training* reemphasised firms' obligation to provide skill needs information and participate in various TVET reform activities such as curriculum improvement (Vietnam National Assembly 2014), but it did not provide detailed procedures or methods on how to deliver these activities. As a result, employer engagement in TVET reform is still limited in Vietnam (Kis 2017; NIVET 2018).

Referring to current skills policies, the government intends to meet skill demands mainly by expanding the supply of educated workers. The HRDMP envisaged that the number of universities, colleges, and TVET institutions will increase by 2020 (Government of Vietnam 2011a).⁷⁷ In particular, the government is attempting to increase the number of TVET students. The HRDMP envisaged that the proportion of TVET graduates will increase from 77 per cent to 78.3 per cent of workers trained in TVET or higher education institutions in the period from 2015 to 2020, while that of higher education graduates will slightly decrease from 23.0 per cent to 21.7 per cent.

⁷⁷ The HRDMP envisaged that there would be 259 universities and 314 colleges by 2020 with 70 universities and 88 colleges newly established in the period from 2011 to 2015. In addition, by 2015, there would be 190 vocational colleges (60 non-public ones), 300 vocational secondary schools (100 non-public ones), and 920 vocational centres (320 non-public ones) (Government of Vietnam 2011a). It also predicted that by 2020, there would be 230 vocational colleges (80 non-public ones), 310 vocational secondary schools (120 non-public ones), and 1,050 vocational centres (350 non-public ones). *The Vocational Training Development Strategy 2011-2020*, which was issued in 2012, repeated the same target as HRDMP to increase the number of TVET institutions (Government of Vietnam 2011a,2012b).

One measure to achieve the above target is to provide more training opportunities for rural workers, who are often self-employed or work for household firms, and encourage them to work in the industrial sector.⁷⁸ The government launched *the Project on Vocational Training for Rural Labour Forces by 2020* (Government of Vietnam 2009b). This project plans to provide vocational training for around 1 million labourers per year in poor households in rural and agricultural areas. However, the government has not managed to increase the number of TVET-graduated workers as rapidly as it envisaged, given that the actual ratio of vocational training in trained workers was 44.3 per cent in 2015, which is far behind from the target set in the HDMP (see Table 3.13).

Table 3.13. HRDMP's Qualification Distribution Target and Actual Data

Training Level		Unit: Thousand Persons							
		2010	2011	2012	2013	2014	2015	2015 (HRDMP)	2020 (HRDMP)
Vocational Training ^a	No. of People	3,711	3,984	4,397	4,845	4,622	4,859	23,500	34,000
	%	49.7%	49.4%	50.0%	50.0%	46.2%	44.3%	77.0%	78.3%
Higher Education ^b	No. of People	3,762	4,087	4,397	4,845	5,375	6,100	7,000	9,400
	%	50.3%	50.6%	50.0%	50.0%	53.8%	55.7%	23.0%	21.7%

Note

^a Including 'vocational training' and 'mid-term professional training' called by Labour Force Surveys.

^b Including 'College' and 'Univeresity of over' called by Labour Force Surveys.

Source: The figures from 2010 to 2015 are estimated by the author based on GSO (2014, 2015, 2016).

The figures of HRDMP's targets refer to Government of Vietnam (2011a) .

In addition to the quantitative expansion of skill supply, the government is aware of the necessity to improve the quality of education and training programs (see Section 3.4.2 and 3.5.2). For instance, both SEDS and the *Socio-Economic Development Master Plan (SEDP) 2011-2015*, which define action plans for achieving the targets set by SEDS, suggested paying more attention to quality improvement than expanding the number of educational establishments (Government of Vietnam 2011d). In particular, the government appears to be attempting to adopt advanced countries' curricula and

⁷⁸ According to Labour Force Survey 2014, self-employed people and workers for household firms account for 76.7 per cent of the total employed population. Female workers account for 48.8 per cent of them (GSO 2015, p. 28).

standards. In 2014, the government approved *the Project on Development of High Quality Vocational and Training Colleges to 2020* which listed the names of 40 vocational colleges nationwide. This policy aims to improve the capacities of selected TVET institutions to meet ASEAN or international standards (Government of Vietnam 2014b). However, it neither specified what the government means by ‘ASEAN or international standards’ nor explained how compatible advanced countries’ standards or curricula are to Vietnam’s economic, social, and institutional contexts.

In parallel with the improvement of the education and training system, the government has been encouraging employers to provide more internal training. Under the Project on Vocational Training for Rural Labour Forces, the government decided to reimburse 50 per cent to 100 per cent of the training cost for firms that recruit and train unskilled rural workers and to provide land granting and tax exemptions for firms that establish a vocational school or university (World Bank 2012c). According to the Law on Vocational Training issued in 2006, employers can apply for a tax exemption for the investment and maintenance expenses for their own vocational institutions and employee training (Vietnam National Assembly 2006; Nguyen and Truong 2007). This policy was taken over by the new Law on Vocational Education and Training promulgated in 2014 (Vietnam National Assembly 2014). It was also applied to corporate income tax laws and regulations (NIVET 2018). However, it is uncertain how effective these incentive policies are. The World Bank (2012c) pointed out that Vietnam’s current skills policies, including policies to stimulate skill demand and encourage firms to improve productivity, are not as effective as those of NIEs such as Singapore and South Korea in the 1970s. In fact, there is no published data about how many employers have utilised and benefited from those incentive policies.

In short, the Vietnamese government has issued a wide range of skill policies in order to increase the supply of skilled workers, assuming that skill demand will increase as the economy grows. However, it seems that the government has not issued detailed policy

measures to achieve their targets. In addition, the effectiveness of these policies has not been clarified yet.

3.6.2.2. Industrial Policies

The government has been trying to promote higher-value added industry. The SEDS emphasises the importance of industrial development to achieve economic growth and envisages that the manufacturing value-added will increase to 40 per cent of GDP by 2020 (Government of Vietnam 2011e). Accordingly, MOIT issued master plans for various industries including motorcycles, automobiles, and supporting industries (MOIT 2007; Government of Vietnam 2014a; MOIT 2014). The government also issued the *Industrial Development Strategy through 2025, Vision toward 2035* in 2014. This strategy identified six strategic industries: (i) mechanical engineering and metallurgy, which includes agricultural machinery and equipment, automobiles, including mechanical spare parts, steel, shipbuilding, non-ferrous metals, and new materials; (ii) chemicals, including basic chemicals, petrochemistry, engineering plastic and rubber, and pharmaceutical chemistry; (iii) agricultural, forestry and fishery processing; (iv) garments, textile, leather and footwear; (v) electronics and telecommunication, including both hardware and software; and (vi) new energy and renewable energy (Government of Vietnam 2014c). Furthermore, in order to substitute for the imports of parts and machinery and increase manufacturing value-added, the government issued a series of policies for supporting industry development. They include fiscal and tax incentives for investment and human resource development (Government of Vietnam 2011c; MOIT 2014; Government of Vietnam 2015a; MOIT 2015; Government of Vietnam 2017b).

However, there are some questions about the effectiveness of the above industrial policies. For one thing, Ohno (2010) criticised existing Vietnamese industrial policies for not offering a consistent industrial vision and not providing answers to important policy questions, including: (i) the future roles of state-owned enterprises (SOEs), private firms, and FDI; (ii) the choice between export orientation and import substitution under

deepening integration; and (iii) the scope and extent of official support to emerging as well as declining industries.

Furthermore, it is unlikely that industrial policies are closely linked with skills policies. The SEDS should function as an umbrella policy to coordinate both sides, but it does not specify the areas for achieving a breakthrough in workforce development (World Bank 2012, p.16). Industrial master plans usually have a section for human resource development, but it is often limited to the general direction and assigns the further development of the action plans to MOET and MOLISA. The Industrial Development Strategy issued in 2014 proposed a few specific targets such as the development of occupational skills standards, the improvement of training programs, the enhancement of cooperation between TVET institutions and firms, and the improvement of job placement services (Government of Vietnam 2014c). Nonetheless, it did not stipulate detailed action plans to deliver these targets.

In short, it is uncertain how effective the current demand-side policies are and to what extent they have been contributing to Vietnam's skill formation.

3.6.3. Status of Social Partnerships

Coordination for skill policy formulation among stakeholders is one of the key elements of achieving upskilling (Brown et al. 2001). The Vietnamese government appears to understand the necessity of these social partnerships among governments, firms, trade unions, and educational and training institutions. In 2008, the government established the National Steering Committee on Training towards Society's Demand (NSCTSD) which is an inter-ministerial body headed by the deputy prime minister (World Bank 2012c). The NSCTSD is mandated to consult the prime minister in making and implementing policies for training to meet the demands of society by organising meetings on skill supply and demand with industry leaders, managers of industrial parks, and representatives from educational establishments. However, there is no information available about the results of the NSCTSD's activities.

Among the skill formation stakeholders, the World Bank (2012c) pointed out that employers often remain passive participants and have a limited impact in establishing and implementing workforce development priorities. Some foreign chambers of commerce have been attempting to organise policy dialogues for skill development with the government, but it seems that they have not yet been able to deliver significant results. For instance, the Vietnam-Japan Joint Initiative to Improve Business Environment was organised from 2003 to 2014. In this initiative, high-level representatives of the business sector and government officials had intensive and regular policy discussions on various issues, including human resource development, such as the Vietnam-Japan Joint Initiative for Business Environment Improvement (Ohno 2010; Embassy of Japan in Vietnam 2014). The working team for human resource development of this initiative organised one matching meeting between TVET institutions and Japanese firms (JICA 2014b). However, no follow-up or new activities have been reported so far. In addition, the VBF has been facilitating policy dialogues for business environment improvement between representatives of foreign and local business associations and high-level government officials since 1997 (VBF 2018). Representatives of the business community have been providing various recommendations for skill development to the government every year. However, this dialogue has not yet delivered substantial results for upskilling, given that its annual reports have been noting the same types of problems, such as the lack of skilled workers (VBF 2010,2012,2013,2014,2017). Furthermore, the 2014 *Law on Vocational Education and Training* stipulates that the VCCI and other business associations are responsible for engaging in TVET reform (NIVET 2018), but how much they have contributed is unclear.

In summary, Vietnam has not yet established social partnerships among its stakeholders for coordinating skill demand and supply (World Bank 2013a). This absence of a skill policy coordination platform also leads to weaker cooperation between firms and educational establishments than in advanced ASEAN countries such as Singapore, Malaysia, and Thailand (World Bank 2012c; JICA 2014b; Tran 2015).

3.7. Conclusion

Vietnam has experienced rapid economic growth and industrialisation since the late 1980s. However, this has been driven mainly by the effects of one-time liberalisation and external forces such as increasing FDI inflow associated with global integration rather than internal value creation (Ohno 2010). In fact, this chapter found that Vietnam's manufacturing-value added is still lower than in other advanced ASEAN countries. Vietnam will not be able to achieve further economic growth and industrialisation if it keeps depending on the low value-added labour-intensive industries.

Most of the existing literature states that increasing skill shortages and gaps have been hindering Vietnam from achieving further economic growth and industrialisation (e.g. OECD 2013b; World Bank 2013a; Goodwin et al. 2014). This argument assumes that the demand for skilled workers is increasing since Vietnam has already started experiencing skill-biased technological changes (World Bank 2008; ManpowerGroup 2011; Pompa 2013; World Bank 2013a). In particular, FIEs are expected to be a driver of technological development and upskilling (World Bank 2012a). According to the above argument, the government has been attempting to improve higher education and TVET programs, in particular in terms of quantity. This policy direction is in line with the supply-side approach, which assumes that skill supply creates its own demand (Lloyd and Payne 2002).

However, this chapter found several uncertainties on the above skill mismatch discussion. First, skilled workers still account for a small share of total employment. This employment structure has not changed drastically, despite the rising expectations of skill-biased technological change. Furthermore, given the current economic trajectory, this situation may remain in the future (see ILO 2011). This casts doubt on the assumption that skill demand is rapidly increasing because of skill-biased technological changes.

Second, are employers really facing significant skill shortages? The oversupply of university graduates may be caused in part by the scarcity of professional staff jobs.

Moreover, it is questionable whether there is a large shortage of skilled intermediate workers since the growth in intermediate jobs is slow and the supply of vocational secondary and college graduates has stagnated. This casts doubt on the validity of previous research findings from large surveys of employers, which often fail to provide compelling evidence (Cappelli 2015; Felstead 2016).

In addition, the issue of intermediate job growth stagnation has been put aside due to the dominance of the skill mismatch discussion, even though it poses a serious challenge to upskilling in Vietnam. The lack of intermediate jobs causes ‘job polarisation’ between a small number of highly educated workers and a larger number of unskilled workers, as in some developing countries (Goos et al. 2009; Autor 2015).⁷⁹ If this job polarisation increases in the future, Vietnam may fail to achieve inclusive economic and industrial development which offers ‘equal opportunities and an equitable distribution of benefits’ (UNIDO 2016), since unskilled workers will have less chance to climb up career ladders and obtain higher incomes.

Finally, there is a question about the viability of current skill formation policies. The government seems to be focusing on the improvement of education and training programs, in accordance with the supply-side approach’s recommendations. On the other hand, the government has not been intervening in skill demand side as actively as the demand-side approach proposes (Ashton et al. 1999; Ashton and Sung 2015; Brown et al. 2015a). This is probably because the government expects skill demand to grow rapidly. Are current skill formation strategies delivering the results the government expected? If it is confronting some challenges, how is it attempting to overcome them?

Taking into account these questions, empirical research was undertaken for this study, the methodology of which is explained in the following chapter.

⁷⁹ Autor and Dorn (2013) and Autor (2015) argued that the polarisation of labour markets and the hollowing-out of middle-income jobs in the United States is due to computerization. Goos et al. (2009) found the same phenomenon in Europe and called it ‘job polarisation.’ On the other hand, Holmes and Mayhew (2012) found that in the UK many jobs continued to be found around the middle of the wage distribution, but the job titles of those middle-income earners changed to higher status titles.

Chapter 4. Research Design and Methodology

4.1. Introduction

This chapter examines the design and methodology of the empirical research. Section 4.2 describes the overall research design. Section 4.3 explains how the data was collected and analysed. Section 4.4 discusses the ethical issues. Section 4.5 evaluates the design and methodology, and the conclusion is presented in Section 4.6.

4.2. Research Design

4.2.1. Research Objectives

The objective of this research project is to contribute to the theoretical and empirical understanding of Vietnam's skill formation system. In order to achieve this objective, the empirical research focuses on the following issues which address three research questions (see Chapter 1).

First, this research examines how three key skill formation actors, namely policymakers, employers, and educators, perceive skill demand, supply, and mismatch. Previous research on skill formation in Vietnam focused mainly on employer perspectives, which were collected through large-scale surveys (e.g. World Bank 2013a; Goodwin et al. 2014). However, those studies often provided subjective impressions of company managers without analysing the perceptions of policymakers and educators. In addition, these studies often assumed that employers can precisely determine their skill mismatch and needs (ADB 2009), but did not sufficiently examine how they do so. Thus, this research project attempts to undertake an in-depth analysis of how three key actors (policymakers, employers, and educators) understand skill demand and supply and examine the process that they utilise to form their perceptions of skill demand and mismatch.

Second, this research analyses what actions policymakers are taking based on their perceptions of the skill demand and supply balance and how employers and educators are reacting to these policies. The previous literature on Vietnam's skill formation system tended to attribute skill mismatch to the poor quality of education and training programs and proposed improving them in accordance with employer skill needs (World Bank 2013a; ADB 2014; Goodwin et al. 2014). However, it did not sufficiently examine to what extent these strategies address the challenges which the three key actors perceive in achieving upskilling. Therefore, this research aims to conduct an in-depth analysis of key actor perceptions of current skill formation policies and their challenges.

Finally, this research examines what reform strategies are workable in order to achieve upskilling in Vietnam. Past research recommended improving the skill supply and correcting market failures (Pompa 2013; World Bank 2013a; ADB 2014; Goodwin et al. 2014). However, it is uncertain to what extent these proposals will work in Vietnam, because previous studies did not sufficiently examine the holistic contexts of Vietnam's skill formation model which include not only economic but social and institutional aspects. Thus, this research aims to identify to what extent these supply-side solutions would enable Vietnam to achieve upskilling and, if not, what reform strategies are more viable for Vietnam's particular context.

4.2.2. Research Strategy

In order to achieve the above objectives, this research project adopted qualitative research as the main research strategy for two main reasons. First, qualitative research is suitable for a research project which attempts to advance theories, while quantitative research fits better to research that tests theories with a deductive approach (Ragin 1994; Bryman 2016).⁸⁰ Second, this research intends to provide a holistic picture of Vietnam's skill

⁸⁰ On the other hand, this research project is not purely inductive because the research is conducted based on my theoretical interests and analytic preconceptions. See Braun and Clarke (2006).

formation model and its challenges. It is difficult to fully understand skill formation systems solely with quantitative analysis, in part because key actor perceptions are hard to quantify precisely. For instance, Cappelli (2015) contended that contemporary reports on skill mismatch have problems of face validity and offer little compelling evidence. In addition, quantitative research, which often relies on large-scale surveys, tends to predispose employers to claim that they are experiencing large skill shortages or gaps (Felstead 2016). In contrast, qualitative research focuses on individuals' interpretation of the social world (Bryman 2016). Therefore, it allows the researcher to conduct an in-depth analysis of key actor perceptions and can provide a more comprehensive view of Vietnam's skill formation model. It is particularly useful in developing countries, where quantitative data is limited in terms of quantity and quality.⁸¹

4.2.3. Research Method

This research adopted case studies as the research method. For one thing, case studies often focus on analytical social units and social processes (Hakim 2000). In addition, case studies are utilised to develop a comprehensive picture of the causal process surrounding a particular phenomenon by taking into account information gained from many levels (de Vaus 2001). These features of case studies fit well with this research which aims to formulate a holistic picture of Vietnam's skill formation model by targeting three key actors.

The 'case' can be about an individual, a small group, a community, a decision, a program, an organisational change, or a specific event (Yin 2014). In this research, the case is Vietnam's skill formation model, which, according to previous literature, is producing serious skill mismatch (OECD 2013b; Pompa 2013; Truong and Rowley 2013; World Bank 2013a; Goodwin et al. 2014). This study specifically focuses on the industrial

⁸¹ For example, disaggregated employment data by industrial sector is not published in Vietnam (see Chapter 3, Section 3.3.2.). In addition, nation-wide job vacancy data is not available (see Chapter 3, Section 3.5.1).

sectors, occupations, and regions described below. First, it concentrates on the manufacturing industry, which is increasingly contributing to economic growth in Vietnam (Athukorala and Tran 2012) and will continue to be an important driver of industrialisation and employment generation as in other developing countries (UNIDO 2016; Haraguchi et al. 2017; ILO 2017a). In particular, it focuses on the machine manufacturing industry, which includes the automobile, motorcycle, and electric and electronic sectors. This industry has been contributing to Vietnam's industrialisation, taking advantage of the massive inflow of FDI, and has a high potential to increase manufacturing value added and require more skilled workers.⁸² Accordingly, the government aims to promote these sectors under national industrial policies (Government of Vietnam 2014c). Second, this research focuses on professional staff such as engineers and intermediate workers such as technicians and skilled operators. This is because the previous literature mentioned above reported significant skill shortages and gaps for these two important manufacturing industry occupations (World Bank 2013a; Goodwin et al. 2014). Finally, this study primarily targets the Red River Delta Region surrounding Hanoi but also covers the South East Region surrounding Ho Chi Minh City. These regions have relatively high industrial agglomeration (Perkins and Vu 2010).

I want to classify the type of case study presented in this thesis in reference to the six classifications outlined by de Vaus (2001, p. 228). First, this research is an *explanatory case study* rather than a descriptive case study. Explanatory case studies begin with a set of expectations or propositions derived from previous research and theories (de Vaus 2001).⁸³ Second, this research is for *theory building* rather than theory testing, since it

⁸² According to ILO and ADB estimations, this industry (metals, vehicles, electrical equipment, and machinery) accounted for about 20 per cent of manufacturing industry employment in 2012, but they projected that it will lead employment growth in the future (ILO and ADB 2014, pp. 33, 42). The McKinsey Global Institute (2012a) also indicated that this industry has high growth potential, as mentioned in Chapter 3, Section 3.3.1. UNIDO (2013, p. 58) indicated that the metal and electrical industry continued to grow as GDP per capital increased, while the apparel industry declined from the certain point, as seen in Korea, Malaysia, and Sri Lanka.

⁸³ A similar concept to 'proposition' is the 'priori theme' defined by King and Horrocks (2010, p. 168). These two concepts are referred to in the process of defining themes.

mainly aims to contribute to the theoretical and empirical understanding of skills policies in Vietnam. Third, this research adopts *multiple case studies* because it aims to provide a holistic picture of skill demand and supply. Examining commonalities and differences in multiple cases enables us to deepen and enrich analysis and presentation (Ragin 1994). Fourth, this research analyses *holistic units* of skill formation, which consist of employers, educators, and policymakers, instead of focusing on one of those embedded units. This analysis enables us to develop a comprehensive picture of Vietnam's current skill formation model. Fifth, this is a *sequential case study* rather than a parallel one. The interviews started with employers and then moved to educators and policymakers. This is because I learned which educational establishments work with these employers during interviews with them. In addition, sequential research enabled me to compare the perceptions of each actor even in the process of research and to probe some key issues during interviews. Finally, this is a *prospective case study* rather than retrospective one since it examined three key actors' perceptions of current and future skill demand and supply.

4.2.4. Data Collection Method

This research project used semi-structured face-to-face interviews since they are more suitable for this study than other interview methods for the following reasons. For one thing, it is difficult for a foreign researcher to develop a rapport with Vietnamese interviewees by telephone due to the language barrier. They seem to be more comfortable providing their perceptions through face-to-face interviews. In addition, company managers tend to view researchers who come to visit them as more serious and sincere. Participants are better able to express their thoughts in open-ended interviews, but they risk being disorganised and veering from their intended topic. I felt that this risk is very high in Vietnam where many people are not used to participating in open-ended

interviews.⁸⁴ Semi-structured interviews, which are organised according to questions prepared in advance, enabled me to ensure that the interviews adhered to a basic framework, while allowing for the questions and the order in which they are asked to be modified as needed in order to probe important topics (Bryman 2016).

Another alternative method would be the focus group discussion or interview. This method may allow participants to probe each other's reasons for holding a certain view and collectively make sense of a phenomenon and construct meanings around it (Bryman 2016). However, this method has some limitations. For example, if people realise that their viewpoint is a minority perspective, they may not speak up. In addition, the dynamics among group participants become complex when participants have prior established relationships, such as a hierarchical relationship between a general director and his or her staff (Patton 2015). In other words, there is a risk that outspoken and higher-ranking people will excessively influence the consensus-building process in this method. I believe that the risk of this is significant in Vietnam since many people are not familiar with participating in proper group discussions. In addition, they are deeply influenced by Confucian culture, which promotes the respect of more senior people. Lastly, it is difficult for a foreign researcher to properly moderate a focus group discussion due to the language barrier. Therefore, I regarded the individual interview as the best option for collecting qualitative data for this research project.

In addition to qualitative data, this research project employed questionnaires in order to collect firm and educational establishment administrative data, such as the number of employees and students. This supplementary data enabled me to not only save time by not having to ask about basic background information during interviews but also to reconfirm the credibility of the interview data, as outlined by the triangulation concept (King and Horrocks 2010; Patton 2015). Administrative records sometimes provide more

⁸⁴ In fact, many participants requested I provide them the list of core questions prior to the interviews. See Section 4.3.2.

reliable information than interviewee self-reports on some factual information (Hakim 2000). Yin (2014) also suggests that case studies be based on multiple sources of evidence. In addition, I extracted organisational data from brochures, reports, or public relations (PR) materials provided by the firms and educational establishments as well as from their websites. Furthermore, research collaborators provided me with the organisational data for some educational establishments.

Regarding interviewee selection, this research project adopted the ‘theoretical sampling’ method, a form of purposive sampling (Glaser and Strauss 1967, p. 45), the details of which are explained in Section 4.3.2. Since the main purpose of this research is to contribute to the theoretical and empirical understanding of skills policies in Vietnam through qualitative case studies which do not aim for statistical generalisation, theoretical sampling is considered more suitable than probability sampling, which relies on statistical criteria (de Vaus 2001; Bryman 2016). This research targets employers, educators, and policymakers, the key constituents of skill formation systems.⁸⁵ In order to achieve generalisability and transferability, it is important to ensure a reasonable range of diversity among the target groups (King and Horrocks 2010). Therefore, samples included different types of employers, educational establishments, and policymakers, as Section 4.3.2 details. Regarding sample size, the research collected data until it reached ‘theoretical saturation’, which is the point at which new data would no longer provide new insights or dimensions for the research (Bryman 2016).

4.2.5. Analytic Framework

Qualitative research usually applies the process of analytic induction, which refers to a systematic examination of similarities for developing concepts or ideas (Ragin 1994). The collected data were coded and analysed in order to identify the commonalities, differences, and patterns which may exist across the cases (Ragin 1994; de Vaus 2001). This research

⁸⁵ Ashton et al. (1999) regarded workers and prospective workers as essential actors of skill formation, in addition to the three actors which this study targets. This is discussed in Section 4.5.4.

project targets multiple groups. Therefore, the collected data were compared not only within each group but also between groups, based on the concept of constant comparison which aims to ensure consistency and accuracy in applying codes and explore differences and variations in interviewee perceptions and experiences (Patton 2015) (see Figure 4.1) .

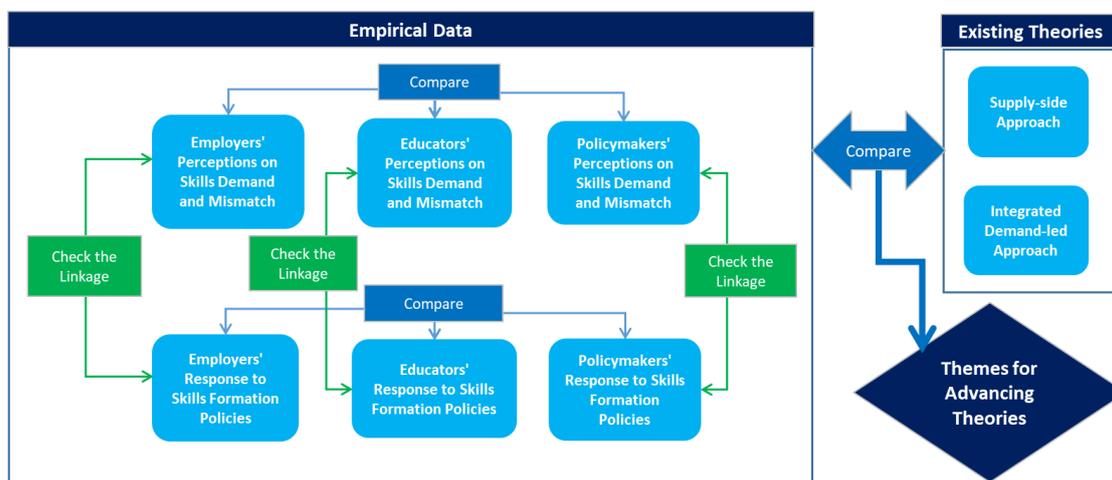


Figure 4.1. Framework of Constant Comparison

In qualitative research, grounded theory is a frequently cited analytical approach for theory generation (Bryman 2016). However, this research project aims to examine to what extent existing theories of skill formation such as the supply-side and the demand-side approaches explain Vietnam’s skill formation model and identify issues to be modified or added. Therefore, this research adopted ‘thematic analysis’, which is not bound by theory construction (Braun and Clarke 2006; King and Horrocks 2010).⁸⁶

There are criticisms that thematic analysis is not as identifiable or established as other methods such as grounded theory or critical discourse analysis (Bryman 2016). However, this research requires flexibility in the thematic analysis process to achieve its objectives. Furthermore, while adopting thematic analysis, this research applies parts of the grounded theory method such as constant comparison and theoretical sampling. This is done

⁸⁶ There are various versions of grounded theories and some are similar to thematic analysis, but thematic analysis in this thesis means research which does not need to subscribe to the implicit theoretical commitments to grounded theory (Braun and Clarke 2006).

because qualitative researchers benefit by retaining a hold on the underlying principles of grounded theory, as Seale (1999) advised.

The process of thematic analysis can be divided into three main stages (King and Horrocks 2010). The first stage is descriptive coding, during which the parts of transcripts that help in understanding participant perceptions and experiences are highlighted and labelled. The second stage is interpretive coding. Here descriptive codes are grouped and the meanings of the clusters are interpreted in relation to the research questions. The final stage is to derive overarching themes from data sets by considering interpretive themes from a theoretical stance. In this research, NVivo, a computer-assisted qualitative data analysis software (CAQDAS), was utilised to transcribe, code, and analyse data. Section 4.3.4 explains the analysis process for this research in further detail.

Coding is the central process of this thematic analysis as it is in other methods such as grounded theory (Bryman 2016), but the coding method depends on whether the themes are more ‘data-driven’ or ‘theory-driven’ (Braun and Clarke 2006). Since this research falls into the latter category, it is necessary to code data in reference to specific questions derived from theories (Braun and Clarke 2006). In order to link the data with theories, I developed propositions, which Yin (2014) regarded as necessary components for materialising case studies. Propositions are required to clarify that theories will work in the real world (de Vaus 2001).⁸⁷ The propositions in this research were mostly derived from existing theories on skill formation, but I also developed my own propositions by reviewing existing skill formation literature (see Appendix 4A).

While analysis has been carried out to identify patterns in key actors’ perceptions, I also attempted to highlight cases which are exceptions to the major patterns, according to the principle of constant comparison. These cases not only broaden understanding of the pattern with alternative explanations but also provide clues that lead in different directions

⁸⁷ Although this research is not testing theories deductively, the author believes that developing propositions is useful for examining the applicability of existing skills formation theories.

(Patton 2015).⁸⁸ This research attempts to identify elements which could help break through potential challenges in Vietnam's skill formation by analysing negative cases.

As a supplement to thematic analysis, this study uses the 'simple counting technique'. Pseudonyms, identification numbers, and number of interviewees who provided evidence relevant to the important findings were noted in footnotes or appendices. In addition, this thesis defines words related to frequency, which usually means the number of interviewed organisations which provided the same or similar views, as follows: (i) 'many' and 'the majority' – more than half of target organisations; (ii) 'some' – more than 3 and less than half of target organisations; (iii) 'several/a few' – 2 to 3 target organisations.⁸⁹ Since this is a qualitative research project and the samples are not drawn from a known population, the interviewees are not representative of a population (Bryman 2016). This means the frequency of relevant statements does not determine the significance of certain patterns found in this research. Moreover, Patton (2015) claimed that quantitative analysis of qualitative data such as frequency counts may reduce the rich interpretation of people's experience expressed through interviews. On the other hand, simple counting is useful to avoid 'anecdotalism' in qualitative research and to present the data to readers as fully as possible (Seale 1999). In thematic analysis, themes are usually defined when some degree of repetition is found across interviews, even though minor or negative cases play an important role in the analysis (King and Horrocks 2010). Therefore, while it is not appropriate to rely excessively on the frequency count, it is also inadequate to totally ignore it. Simple counting allows readers to judge whether the research relies excessively on rare events without proper justification by excluding more common ones that might contradict the main argument (Seale 1999).

⁸⁸ Patton (2015, pp. 654-655) calls these cases 'negative cases'.

⁸⁹ I defined these by target organisation rather than target interviewees because the number of participants in each interview varied by organisation and not all participants provided their views.

4.3. Research Procedure

This section explains how this research was prepared and conducted, focusing on the four core processes: (i) design of interview schedules; (ii) sampling and securing access to target interviewees; (iii) conducting interviews; and (vi) data analysis.

4.3.1. Designing Interview Schedules and Questionnaires

Proper interview schedules or questionnaire are essential to conducting fruitful interviews and collecting adequate data to achieve the research objective, even though the scope of the interviews should not be limited to the questions listed in them.⁹⁰ I developed interview schedules according to the following steps.

First, I drafted a research design map, which clarified which data is required to explore answers to the three research questions (see Appendix 4B). The data included qualitative data to be obtained through interviews and supplementary administrative records to be obtained through questionnaires. Second, I clustered the required data according to each target group of interviewees. Then, I identified the preliminary interview questions which would address the required data. Third, based on these preliminary questions, I drafted interview schedules for each target group (see Appendices 4C, 4D, and 4E). Each section of the interview schedule started with introductory questions and moved to follow-up questions to probe interviewee perceptions, opinions, and experiences (King and Horrocks 2010; Bryman 2016). All of the questions were asked in a neutral manner in order to avoid leading participants to express a certain view (King and Horrocks 2010; Bryman 2016).

⁹⁰ Recently, the phrase ‘interview guide’ has become more common. The word ‘guide’ implies more flexibility than ‘schedule’ (King and Horrocks 2010, p. 35; Bryman 2016, p. 469). However, this research uses the term ‘interview schedule’ simply because it used this term from its initial designing stage. However, this does not mean that the interviews were conducted rigidly according to the ‘schedule’. They were conducted flexibly according to the ‘interview guide’ concept.

To assist with later data analysis, I structured all three interview schedule types in a comparable way, although each of them had some questions specific to the particular target group. They consisted of six main sections: (i) interviewee and organisation background information; (ii) perceptions of current skill demand and supply; (iii) perceptions of future skill demand and supply; (iv) responses and actions taken based on these perceptions; (v) perceptions of the performance and roles of other key actors; and (vi) closing questions to check for any missing information.

In addition, I prepared questionnaires for the purpose of collecting firm and educational establishment administrative records, which were called ‘interviewee data sheets’ (see Appendices 4F and 4G). At the end of each interview, I showed the interviewee the questionnaire and let him or her know I would be sending it via e-mail the next day. It should be noted that I filled in information obtained during the interview before sending the questionnaire to the interviewee.

Both the interview schedules and questionnaires were translated from English to Vietnamese and Japanese, given that the interviewees consisted of Vietnamese, Japanese, and other foreign nationals.

4.3.2. Sampling and Access

In order to ensure reasonable diversity and examine commonalities and differences within the three target groups, I took the following steps to select samples. First, I specified the desirable features of target organisations for each group in light of the research questions. Second, I drafted a rough geographical distribution target. Third, I set up sample selection criteria for each group, aiming to make sufficient comparisons within groups. In this sense, this research applied criterion sampling as a secondary sampling method (Palys 2008; Patton 2015) to realise theoretical sampling. Fourth, I drafted preliminary lists of interview candidates by utilising data from my previous research and professional experience. I then revised the lists in consultation with my research collaborators, which

consisted of local research partners, bilateral aid organisations, industrial zone management companies, and firms and educational establishments with which I used to work. The list of interview candidates included more people than the target sample size since I expected some candidates to decline interviews for a variety of reasons. I kept revising this list throughout the field research phase depending on the number of appointments made and new information received from my research collaborators.

Based on these interviewee candidate lists and the field research schedules, I took the following steps in order to make appointments with interviewees. First, I sent an inquiry letter by e-mail or fax, attaching an information sheet (see Appendix 4H). Second, my 2 contracted local research partners and I followed-up via e-mail and telephone to check interviewee availability.⁹¹ Finally, once an appointment was confirmed, I sent a consent form (see Appendix 4I). Because most of the interviewees wanted to have a general idea of the questions in advance, I also sent them the short version of the interview schedule. This version only showed the introductory questions so that the interviewees would not feel overwhelmed by seeing some of the more probing questions which would be asked.

As a result, during the field research phase, which comprised 5 separate trips from April to December in 2016, I managed to conduct 55 interviews (72 participants) with actors from the three key groups (see Table 4.1). This includes pilot interviews, which were treated as valid data (see Section 4.3.3). The total number of interview participants was 72 persons because more than one participant was present for some of them.

Table 4.1. Summary of Interviewed Organisations and Participants

Target Group	No. of Organisation	No. of Participants
Firms	27	37
Educational Establishments	12	14
Policy Makers & Experts	16	21
Total	55	72

⁹¹ In addition to two research partners, I hired one interpreter when I conducted the field research in the South East region since the research partners could not travel there.

The details of the sample selection criteria and sampling results are described below according to target group.

4.3.2.1. Policymakers

Target Organisations and Persons

The research targeted the national and local government agencies which are involved in skills and industrial policy formulation and implementation. The primary target region was the Red River Delta including Hanoi, the national political centre, and the surrounding provinces. However, I also tried to conduct interviews with several governmental organisations in the South East region, including Ho Chi Minh City and the surrounding provinces, in order to find out whether there are distinctive regional differences.

The target interviewees were directors or deputy directors in charge of the relevant departments of targeted government agencies. In addition, I conducted interviews with bilateral or multilateral aid experts and economic cooperation organisations which have been providing technical assistance to targeted governmental agencies. I predicted difficulty in obtaining sufficiently credible information from policymakers, who often become defensive and provide only the positive aspects of a given situation. In such case, objective views from experts helped me evaluate the credibility of policymakers' statements, according to the concept of triangulation (King and Horrocks 2010; Patton 2015).

Profiles of Interviewed Governmental Organisations and People

I conducted interviews with 12 governmental organisations (17 participants), which consisted of 8 national governmental organisations (10 participants) and 4 local governmental organisations (7 participants), as seen in Table 4.2. While most of them were located in the Red River Delta region surrounding in Hanoi, I also interviewed two organisations from the South East region surrounding Ho Chi Minh City. In addition, I interviewed 3 foreign aid and economic cooperation organisations (4 participants) to obtain supplemental information.

Table 4.2. Profile of Interviewed Governmental Organisation and Experts

No	Code	Pseudonym	Region	Number of Interviewees	Job Title of Interviewees
1	NG01	Ministry A	Red River Delta	1	Deputy Division Head
2	NG02	Government Agency A	Red River Delta	1	Deputy Director
3	NG03	National Policy Institution A	Red River Delta	3	Deputy Director, Officer A, Officer B
4	NG04	Ministry B	Red River Delta	1	Department Director
5	NG05	Ministry C	Red River Delta	1	Officer
6	NG06	Regional Office of Ministry C	South East	1	Department Head
7	NG07	National Policy Institution B	Red River Delta	1	Vice President
8	NG08	Government Agency B	Red River Delta	1	Deputy Division Head
9	LG01	Provincial Government A	Red River Delta	1	Department Director
10	LG02	Provincial Government B	Red River Delta	1	Vice Department Director
11	LG03	Provincial Government C	Red River Delta	3	Vice Department Director, Vice Division Director, Official
12	LG04	Provincial Industrial Zone Authority (in Province D)	South East	2	Deputy Director, Vice Division Director
				Policy Maker	17
1	FO01	Foreign Aid Agency A	Red River Delta	2	Foreign Officer, Foreign Investment Expert
2	FO02	Foreign Trade Promotion Agency A	Red River Delta	1	Foreign Officer
3	IO01	International Organisation A	Red River Delta	1	National Officer
				Expert	4
Total Number of Interviewee				21	

4.3.2.2. Employers

Target Firms and Persons

In order to assure diversity in the firms interviewed, I set the following sample selection criteria: (i) ownership; (ii) business type; (iii) length of business operation in Vietnam; and (iv) industrial sector.

First, this research targeted both foreign-invested and Vietnamese (local) firms. In Vietnam, foreign-invested firms are dominant in the high precision machine manufacturing sector. However, it is expected that the role of local firms, in particular as parts suppliers, will increase, as many foreign-invested assemblers intend to source more parts from local suppliers for further cost reduction (VDF 2007). Regarding foreign-invested firms, I selected Japanese firms, which have a significant presence in the machine manufacturing sector, as well as some other foreign-invested firms such as American, European, Taiwanese, and Korean firms.⁹²

Second, this study covers both assemblers and suppliers. Assemblers are usually large firms, but suppliers can be either large firms or small-and-medium enterprises (SMEs).⁹³

Thus, I tried to conduct interviews with both large and SME suppliers. In addition, I tried

⁹² Sales by Japanese firms accounted for more than 30 per cent of total automotive sales in 2015 (JETRO 2016a, p. 26). Sales by Japanese firms accounted for more than 70 per cent of total sales in 2009 (Fujita 2013, p. 15). There are some large Japanese electronics manufacturers operating in the Red River Delta region (McKinsey Global Institute 2012a). Exports from one of those firms accounted for 1.6 per cent of total export value of Vietnam in 2016, according to data from the author's interview.

⁹³ The Government Decree No: 56/2009/ND-CP defines SMEs in the industrial and construction sectors as follows: (i) micro enterprises -10 or fewer employees; or VND 20 billion or less total capital; (ii) small enterprises - between 10 and 200 employees; or between VND 20 billion and VND 100 billion total capital; (iii) medium enterprises - between 200 persons and 300 employees (Government of Vietnam 2009a). Recently, the Vietnam National Assembly (2017) redefined SMEs as firms which have no more than 200 employees participating in social insurance programs annually and which satisfy one of the following criteria: a) The total capital is not greater than 100 billion dong; b) The previous year's revenue is not greater than 300 billion dong. According to GSO (2017, pp. 325, 331), about 92.59 per cent of total acting manufacturing enterprises in Vietnam have less than 200 employees as of 2015. However, the law stipulated that the definition of micro, small, and medium enterprises by each industry. Since the government has not issued a decree to define SMEs in the industrial and construction sectors, this thesis uses the definition of Government Decree No: 56/2009/ND-CP. In addition, this paper classifies firms based on the number of employees unless information about total capital is given by interviewees or available to the public. In addition, this paper classifies firms with 1,000 or more employees as 'very large firms'.

to select some assemblers and suppliers which share the same supply chain networks since this research intends to examine assembler perceptions of their suppliers' skill mismatch.

Third, I targeted firms which have been in operation in Vietnam for five years or more. This is because firms which have just started operations tend to focus more on other crucial issues related to stabilising their business rather than internal skill development. In addition, I assumed that there would be a better chance of acquiring recruitment data from firms with a longer history of business operation.

Finally, this research project mainly covered firms in the automobile, motorcycle, and electric and electronic sectors (see Section 4.2.3). I included both the automotive and motorcycle industries since they have different impacts on industrialisation and supply chains. While the market for motorcycles is large in ASEAN countries, the automotive market is still small.⁹⁴ The rate of local parts procurement is much higher in the motorcycle industry than in the automotive industry (VDF 2007). In addition, I conducted interviews with manufacturers and parts suppliers of machinery and equipment. This sector is still small in Vietnam, but it has the potential to increase manufacturing value-added by substituting for imports which currently account for a large part of total import value.⁹⁵

Regarding the geographical distribution, this research project focused mainly on firms in the Red River Delta Region. This is because there are more large assemblers in northern Vietnam, in particular in the Red River Delta Region, than the south. Accordingly, many of their suppliers are located there rather than in the south.⁹⁶

⁹⁴ See Chapter 6, Section 6.2.1.2

⁹⁵ Machinery, transports, and equipment accounted for 42.3 per cent of the total value of imported goods in 2015, and its share has been constantly increasing since 2010 (GSO 2017, p. 562). Also see Vietnam Business Forum (2011).

⁹⁶ The Japan External Trade Organization (JETRO) has been publishing a directory of excellent parts suppliers in Vietnam since 2008. According to their directories for the northern (including the central region) and southern regions published in 2014, the number of selected suppliers is not significantly

This research mainly targeted company directors and managers. When interviewing large firms, I tried to invite managers from both the human resource (HR) departments and the production or engineering departments, because HR staff do not necessarily have detailed information about skill gaps and future skill needs. In case of SMEs, I attempted to conduct interviews with directors, who often have detailed information on internal skills.

Profiles of Interviewed Firms and People

I conducted interviews with 37 participants from a total of 27 firms (see Table 4.4). In scheduling interviews with firms, I tried to balance nationalities, business types, sizes, and industrial sectors. As a result, I achieved reasonable diversity in sampling as shown in Table 4.3, even though some firms declined interviews (see Section 4.5.4).

Table 4.3. Summary of Interviewed Firms

Ownership	No	%	Business Type	Size ^b				Total	
				Very Large	Large	Medium	Small		
Japanese	11	40.7%	Assembler	No	4	4	0	0	8
Other FDI	7	25.9%		%	50.0%	50.0%	0.0%	0.0%	100.0%
Vietnamese	9	33.3%	Supplier	No	9	6	1	3	19
Total	27	100.0%		%	47.4%	31.6%	5.3%	15.8%	100.0%
Years of Operation	No	%	Total	No	13	10	1	3	27
Less than 5 Years	2	7.4%		%	48.1%	37.0%	3.7%	11.1%	100.0%
5-9 years	7	25.9%							
10 years and more	18	66.7%							
Total	27	100.0%							
Industrial Sector ^a	No	%							
Automobile	7	25.9%							
Motorcycle	7	25.9%							
Electric and Electronic	10	37.0%							
Others	3	11.1%							
Total	27	100.0%							

Note

^a Some firms are involved in multiple industrial sectors.

^b Refer to the Government Decree No: 56/2009/ND-CP which defines SMEs in industry and construction sector as follows: (i) micro enterprises - 10 or fewer employees; or VND 20 billion or less total capital; (ii) small enterprises - between over 10 and 200 employees; or between over VND 20 billion and VND 100 billion total capital; (iii) medium enterprises - between over 200 persons and 300 employees. This research classifies firms based on the number of employees, unless information of total capital is given by interviewees or available in public. In addition, this research classifies the firms with 1,000 or more employees as 'very large firms'.

different (about 160 firms in the northern and central regions and 153 firms in the southern region). See JETRO (2014b,2014a).

Table 4.4. Profile of Interviewed Firms

Code	Pseudonym	Ownership	Business Type	Industrial Sector ^a	Region	Number of Employees	Size ^b	Years of Operation ^c	Number of Interviewees	Job Title of Interviewees	
JA1	Japanese Automotive Assembler	Japanese	Assembler	Automobile	Red River Delta	1,872	Very Large	19	1	Production Director	
JA2	Japanese Electronics Assembler A	Japanese	Assembler	Electric and Electronic	Red River Delta	1,000	Large	19	1	General Director	
JA3	Japanese Electronics Assembler B	Japanese	Assembler	Electric and Electronic	Red River Delta	21,258	Very Large	13	1	HR Manager	
JA4	Japanese Motorcycle Assembler	Japanese	Assembler	Motorcycle	Red River Delta	10,000	Very Large	18	1	GA Manager	
JS1	Japanese Automotive Parts Supplier	Japanese	Supplier	Automobile	Red River Delta	3,780	Very Large	12	3	Production Director, Deputy Maintenance Director A, Deputy Maintenance Director B	
JS2	Japanese Plastic Injection Mould Supplier	Japanese	Supplier	Electric and Electronic	Red River Delta	180	Medium	13	2	General Director A, General Director B	
JS3	Japanese Plastic Parts Supplier	Japanese	Supplier	Electric and Electronic	Red River Delta	1,140	Very Large	10	1	Admin General Manager	
JS4	Japanese Motorcycle Parts Supplier	Japanese	Supplier	Motorcycle	Red River Delta	2,300	Very Large	18	1	General Director	
JS5	Japanese Heavy Machine Parts Supplier	Japanese	Supplier	Others	Red River Delta	71	Small	7	2	General Director, Production Manager	
JS6	Japanese Machinery and Equipment Supplier	Japanese	Supplier	Others	Red River Delta	337	Large	11	1	Director	
JS7	Japanese Electronics Parts Supplier	Japanese	Supplier	Electric and Electronic	South East	4,000	Very Large	18	1	HR Manager	
FA1	American Automotive Assembler A	Other FDI	Assembler	Automobile	Red River Delta	270	Large	4	2	Managing Director, HR Manager	
FA2	American Automotive Assembler B	Other FDI	Assembler	Automobile	Red River Delta	650	Large	20	2	Factory Manager, HR Manager	
FA3	European Motorcycle Assembler	Other FDI	Assembler	Motorcycle	Red River Delta	800	Large	6	1	HR Director	
FS1	European Electric Parts Supplier	Other FDI	Supplier	Electric and Electronic	Red River Delta	750	Large	22	2	Recruitment and Training Leader, HR Specialist	
FS2	Taiwanese Plastic Parts Supplier	Other FDI	Supplier	Electric and Electronic	Red River Delta	947	Large	10	2	Sales Manager, Production Control Specialist	
FS3	European Automotive Parts Supplier	Other FDI	Supplier	Automobile	South East	1,465	Very Large	8	1	Managing Director	
FS4	Taiwanese Electronics Parts Supplier	Other FDI	Supplier	Electric and Electronic	Red River Delta	17,000	Very Large	9	1	HR Staff Member	
VA1	Vietnamese Automotive Assembler	Vietnamese	Assembler	Automobile	South Central Coast	320	Large	4	1	Acting Director	
VS1	Vietnamese Plastic Parts Supplier	Vietnamese	Supplier	Automobile	Red River Delta	1,260	Very Large	43	1	General Director	
VS2	Vietnamese Electronics Parts Supplier	Vietnamese	Supplier	Electric and Electronic	Red River Delta	500	Large	14	2	HR Manager, HR & PR Manager	
VS3	Vietnamese Plastic and Metal Parts Supplier	Vietnamese	Supplier	Electric and Electronic	South East	1,050	Very Large	16	1	Managing Director	
VS4	Vietnamese Mould and Die Supplier A	Vietnamese	Supplier	Motorcycle	Red River Delta	460	Large	9	1	General Director	
VS5	Vietnamese Mould and Die Supplier B	Vietnamese	Supplier	Motorcycle	Red River Delta	180	Small	9	1	Director	
VS6	Vietnamese Motorcycle Parts Supplier A	Vietnamese	Supplier	Motorcycle	Red River Delta	1,700	Very Large	10	2	Managing Director, HR Manager	
VS7	Vietnamese Motorcycle Parts Supplier B	Vietnamese	Supplier	Motorcycle	Red River Delta	500	Large	11	1	Deputy CEO	
VS8	Vietnamese Production Equipment Supplier	Vietnamese	Supplier	Motorcycle	Red River Delta	139	Small	8	1	Director	
Total Number of Interviewed Firms:		27				Total Number of Interviewees:			37		

Note

^a Firms may be involved in multiple industrial sectors.

^b The Government Decree No: 56/2009/ND-CP defines SMEs in industry and construction sector as follows: (i) micro enterprises -10 or fewer employees; or VND 20 billion or less total capital; (ii) small enterprises - between 10 and 200 employees; or between VND 20 billion and VND 100 billion total capital; (iii) medium enterprises - between 200 persons and 300 employees. This paper classifies firms based on the number of employees, unless information of total capital is given by interviewees or available in public. In addition, this paper classifies the firms with 1,000 or more employees as 'very large firms'.

^c As of 2015.

The distribution across several criteria is not very equal. In qualitative research, samples do not represent target group populations as they do in quantitative research, but the reasons for the imbalance are explained as follows. I interviewed more suppliers (19 firms) than assemblers (8 firms). Suppliers produce various types of products from low to high value-added parts and operate different types of production processes such as mass production and small-lot production. Since this diversity causes supplier perceptions to vary, I needed to have more samples in order to clarify what makes their perceptions similar or different. In addition, more large firms than SMEs were interviewed. This is mainly because I could not find many small firms which are active in the machine manufacturing industry supply chain. This implies that only firms which have grown to a certain size can participate in machine manufacturing industry supply chains. In this sense, they tend to be firms that have grown to become ‘transformational firms’, meaning that they have gone beyond subsistence level and have started to provide jobs and income for others (Schoar 2010). In addition, it should be noted that each individual industrial sector may have its own idea of what constitutes a SME. The interview data show that even if a firm employs more than 500 people, it considers itself to be a SME.⁹⁷

4.3.2.3. Educators

Target Educational Establishments and Persons

The selection criteria for educational establishments were: (i) institutional type; (ii) ownership; (iii) length of operation; (iv) courses offered; and (v) existing relationships with manufacturing firms. First, this research targeted vocational training institutions such as vocational and industrial colleges which train future intermediate workers and universities which educate future engineers. The second criterion is ownership. While many universities or TVET institutions which have engineering courses are public schools (Nguyen and Truong 2007), I also tried to conduct interviews at private universities and TVET institutions. Third, this research targeted educational

⁹⁷ See the quote from the interview with a Taiwanese Plastic Parts Supplier (FS2) in Chapter 6, Section 6.4.2.

establishments which have completed at least one full cycle of engineering or technical programs. I focused on these institutions because I intended to obtain employer perceptions of employees who have completed a degree or certificate program at these schools. Fourth, I selected educational establishments which offer courses related to machine manufacturing such as mechanical, electric, and electronic engineering. Finally, this research project tried to include some educational establishments which are cooperating with machine manufacturing firms in recruitment or other activities in order to compare the perceptions of the skill supply and demand sides. I acquired this information from interviewed employers.

Regarding geographical distribution, this research project mainly focused on educational establishments in the Red River Delta region. Since the interviewed firms were selected mainly from this region, targeting educational establishments in the same region enabled me to compare their perspectives on skill demand and supply.

This research targeted the top management of educational establishments such as rectors or vice rectors. This is because I aimed to obtain overall perceptions of skill formation rather than perspectives from the management of specific faculties or courses. In addition, it is often necessary to get the permission of top management staff for any interviews.

Profiles of Interviewed Educational Establishments and People

I carried out interviews with 14 persons from the 12 education establishments including 3 universities and 9 TVET institutions (see Table 4.5). I selected more TVET institutions, which are mostly vocational colleges, than universities. This is because one of the key issues in this research is why the number of intermediate workers and TVET graduates is not increasing very much, even though previous literature indicates high demand for intermediate workers (e.g. World Bank 2013a; Goodwin et al. 2014).⁹⁸

⁹⁸ Also see Chapter 3, Section 3.3.2. and 3.4.1.

Table 4.5. Profile of Interviewed Educational Establishments

No	Code	Pseudonym	Affiliation	Number of Interviewees	Job Title of Interviewees	Region	Year of Operation	Total Number of Students
1	PU1	Public University A ^a	National Government	1	Vice Rector	Red River Delta	117 ^b	42,757
2	PU2	Public University B ^a	National Government	1	Vice Rector	South East	59 ^b	45,000
3	RU1	Private University A ^a	Private Owner	2	Vice Rector, International Cooperation Staff	South East	18	10,000
No of University: 3			No of Interviewees	4				
4	PV1	Public Vocational College A	Provincial Government	1	Rector	Red River Delta	41	3,591
5	PV2	Public Vocational College B	Provincial Government	2	Rector, Vice	Red River Delta	6	4,500
6	PV3	Public Vocational College C	National Government	1	Rector	Red River Delta	9	1,500
7	PV4	Public Vocational College D	Provincial Government	1	Vice Rector	Red River Delta	54	1,303
8	PV5	Public Vocational College E	National Government	1	Vice Rector	Red River Delta	55	2,500
9	PV6	Public Vocational College F	Provincial Government	1	Vice Rector	Red River Delta	15	4,786
10	PV7	Public Vocational College G	Provincial Government	1	Rector	Red River Delta	48	2,136
11	PV8	Public Vocational College H	Provincial Government	1	Rector	South East	22	3,200
12	RV1	Private Vocational College A	Private Firm	1	Rector	South Central Coast	5	1,145
No of TVET institutions: 9			No of Interviewees	10				
Total Number of Establishments: 12			Total Number of Interviewees	14				

Note

^a Three universities (PU1, PU2, RU1) run TVET courses as well as university and professional college courses.

^b PU1 and PU2 were upgraded from college to university in 2000s.

In addition, this research focused on universities which teach applied engineering and intend to supply future engineers to the machine manufacturing industry. Since these universities often run TVET courses in parallel with other university courses, they should be able to monitor skill development and job opportunities for students who earn degrees and those who take TVET courses. On the other hand, I did not conduct interviews at top-ranked universities. This is because some employers mentioned that graduates from these institutions are not keen to work for manufacturing companies, in particular as production engineers.⁹⁹ Furthermore, several of them reported that those universities are not very interested in cooperating with manufacturing firms.¹⁰⁰

While this research primarily focuses on educational establishments in the Red River Delta region, I also conducted interviews at two educational establishments in the South East region and one in the Central Coast region. This is because I could not identify any

⁹⁹ Refer to the interviews with JA2 and JA3. On the other hand, several employers (JS2, VS7) stated that graduates from elite universities have much higher intellectual capacities than those from other universities or TVET graduates.

¹⁰⁰ Refer to the interviews with FS1 and VS5.

private universities and TVET institutions which met the selection criteria in the Red River Delta region.¹⁰¹

4.3.3. Conducting the Interviews

I regarded the first several interviews for each target group as pilot interviews. After the pilot interviews, I reviewed the effectiveness of the interview schedules with my two local research partners. Even though I made several minor corrections to the wording of the interview schedules, we found that they worked appropriately. Thus, I regarded the information obtained through these pilot interviews as valid data. More importantly, in these first few interviews I reconfirmed that my research partners understood what the questions meant and the basic rules for the interviews. In particular, I stressed the importance of keeping the introductory questions neutral in order to avoid leading the interviewees on, since my research partners sometimes mentioned that these questions were too general.

In principle, the interviews were conducted in five stages: (i) self-introduction; (ii) introduction of the research project by utilising the information sheet; (iii) explanation of research ethics with the consent form; (iv) interviews based on the interview schedules; and (v) request for any comments interviewees wished to add. All interviews were conducted at the interviewees' offices since I expected that this would make them more comfortable and relaxed and help them fit the interview into their schedules.

In carrying out the interviews, I kept the interview questions and sequence as flexible as possible (King and Horrocks 2010; Bryman 2016). I asked the questions listed on the interview schedules, but I did not stop the interviewees from talking about subjects they were strongly interested in even if they were not covered by the topics included in the interview schedules. In addition, I sometimes asked questions regarding issues which were highlighted in earlier interviews. On the other hand, in order to assure a minimum

¹⁰¹ Taking the opportunity to conduct an interview with one private university in the South East region, I also interviewed one TVET institution which has a reputation for actively cooperating with firms.

quality standard for each interview, I prepared several key questions for each interview which were specific to each organisation and could not be asked of other interviewees.

The interviews were recorded in two ways. First, I made an audio recording if interviewees agreed to it. Even in this case, I took hand-written notes as a back-up option. Second, in case an interviewee refused to consent to being recorded, I took notes by hand and asked my research partners to review the content afterwards. This applied to 7 of 55 interviews (2 firms, 1 educational establishment, 1 policymaker, and 3 experts). The rest agreed to be recorded by digital recorder.

The interview audio data was transcribed by myself and two contracted local transcribers. In order to assure the quality of the transcripts, all transcriptions made by local transcribers were reviewed by myself and my research partners. Transcriptions were made in English or Japanese according to the language of the interview.

4.3.4. Collecting Questionnaires

As explained in Section 4.3.1, the questionnaires about administrative records were usually distributed to interviewees from firms and educational establishments by e-mail one day after interviews. In those e-mails, I asked the interviewees, most of whom were management staff, to reconfirm the data I added in reference to the information given during the interviews and to fill in the missing data.

By the end of the field research, 11 of the 27 interviewed firms (40.7 per cent), which consisted of 4 Japanese, 2 other foreign-invested, and 4 Vietnamese firms, sent me back the questionnaires with additional information. In particular, 8 of them (2 Japanese, 1 other FIEs, and 5 Vietnamese firms) gave relatively comprehensive information. It is notable that 7 of those which gave comprehensive answers were suppliers. One possible reason is that since they are not very large firms they can collect and compile internal human resource information relatively quickly. Another reason would be that top SME management staff can decide whether to reveal human resource information, while large

firms, in particular FIEs, have more complex decision-making and approval procedures regarding this.

Regarding educational establishments, 7 of the 12 interviewed educational establishments (58.3 per cent), which consisted of 1 university and 6 vocational or industrial colleges, returned the questionnaire with additional information. Several educational establishments kept saying that they were trying to fill in the questionnaire, but they ended up not completing it. This might indicate that they do not have the internal data systems necessary to promptly produce disaggregated student data by major, trade, or training level (e.g. university, vocational college, vocational secondary). Furthermore, while the answer rate was higher than for firms, its quality was slightly questionable. For example, several educational establishments reported that the employment rates of their graduates are 100 per cent, but it is hard to believe such results (see Chapter 7 for details).

Lastly, there are two possible factors which affected the answer rate and quality for both firms and educational establishments. For one thing, it partially depended on the rapport between the researcher and interviewees. I used to work in Vietnam as an officer of the United Nations Industrial Development Organization (UNIDO) and as an expert of the Japan International Cooperation Agencies (JICA). Firms and educational institutions with which I used to interact frequently in these roles tended to be more serious about filling in the answers than those which I met for the first time. Moreover, those who showed a stronger interest in skill development issues tended to provide more comprehensive information. This led to a potential sampling bias, which is discussed in Section 4.5.4.

4.3.5. Data Analysis

I analysed the interview data relying on three core elements of thematic analysis (see Section 4.2.5), customising some processes for the purposes of this research. First, I drafted lists of preliminary codes for interview schedules, pilot interview results, and proposition maps. I revised these preliminary codes and added new ones while analysing the transcripts. In carrying out descriptive coding, I applied ‘template analysis’ (King and

Horrocks 2010). Codes were listed hierarchically, and in processing interpretive coding as the second stage, I then regrouped descriptive codes, revising the hierarchy as well as the cluster labels. Finally, the overarching themes were identified. I developed these by clustering relevant interpretive codes and then examining associations with propositions and existing theories. Each theme was founded on the layers of relevant interpretive and descriptive codes. For example, the theme ‘employer perception that skill mismatch is not serious in volume terms’ emerged based on two key interpretive codes: (i) stagnant growth of the demand for skilled workers; and (ii) insufficient skill supply in quality, not in quantity. Furthermore, I visualised the structure of the themes as ‘theme maps’ (see Appendix 4J for a sample). These coding trees and theme maps show the associations between research findings and causal conclusions, so called internal validity (de Vaus 2001; Bryman 2016). I structured and drafted chapters to present research findings (Chapters 5, 6, 7) based on those analytical outcomes.

One challenge was conducting a comparative analysis of interviewed employers because the data set was large and the interviewed firms consisted of various types of ownership, industrial sector, size, business type, and main process type. Since I could not find a suitable function in NVivo to conduct a comparative analysis of this large and complicated data set, I converted the coded data to a MS Excel database and then produced a number of tables by processing the data with MS Access, partially applying the matrix approach (King and Horrocks 2010).¹⁰²

As for the administrative and organisational data provided by the employers and educators, I transferred them to a MS Excel database and primarily analysed it with MS Access. The analysis outputs were summarised in tables and utilised to clarify findings from the qualitative interviews.

¹⁰² I did not use SPSS because I needed to produce various types of tables by using the query function rather than conducting statistical analysis.

4.4. Ethical Issues

I was mindful of the ethical implications for all people involved in research, regardless of research design, context, and structure (King and Horrocks 2010). All interviewees for this study were over 18 years old and most of them were in managerial positions. They represented multiple nationalities including Vietnamese, Japanese, and European. I designed an empirical study by taking into account the characteristics of these participants, in reference to the British Sociological Association's Statement of Ethical Practice (BSA 2002) and the British Educational Research Association's Ethical Guidelines for Educational Research (BERA 2011). The field research was undertaken with the approval of the Cardiff University Research Ethics Committee received on 5 February 2015.

4.4.1. Informed Consent

I ensured informed consent for the interviews by the following steps. First, prior to the interviews, consent forms were sent to participants with an information sheet about the research. The consent form was drafted in English and translated into Vietnamese and Japanese. Second, on the day of the interview, participants were given a briefing about the researcher, an overview of research project, and notification of their right to withdraw from the interview. Third, I usually obtained signed consent forms on the day of the interview, reconfirming that the participant fully understood the purpose of the research project and consented to participate in the interview. Fourth, I recorded the interviews with a digital recorder upon participant agreement, notifying them that it could be turned off anytime upon request. Fifth, I noted that participants could withdraw consent for their interview data to be used, although I never received such a request. Finally, I provided a copy of the signed consent form to participants by hard or soft copy.

4.4.2. Potential Harms Arising from the Project

My assessment was that interviewees would not face any physical or mental harm as a result of their participation in the interviews. Considering the non-sensitive nature of the

data to be collected, interviewees would experience minimal or no risk of harassment or harm, physically or mentally, as a result of their participation in the interviews. Furthermore, I maintained the confidentiality and anonymity of the data, in order to prevent participants from experiencing negative impacts from the interviews after publishing this research. I used pseudonyms for all organisations and participants, but it may not be always sufficient when I describe details of cases (King and Horrocks 2010). Therefore, when I quote interviews which contain potentially sensitive topics such as criticism of other key actors, I carefully avoid presenting information which would enable readers to identify interviewees.

I also determined that the safety risk for lone researchers is low in Vietnam. Vietnam is a relatively safe country with low rate of serious crime, and I had sufficient knowledge of any situations that might put me at risk due to my six and half years of work experience in the country. This means that all necessary precautions were taken to prevent harm to me as a researcher.

4.4.3. Data Protection

This research ensured data security according to the UK Data protection Act. Interview data were safely kept only on the on-line drive of the university network and a laptop PC which are both protected by password and anti-virus software. During my field research in Vietnam, my laptop PC, notebooks with interview notes, and digital recorder were kept in a safe, a locked desk drawer, or a locked suitcase when I was not working or absent from the office or a hotel room. Data was not shared with any external people including other colleagues of target organisations.

Furthermore, I undertook measures to prevent data leakage from my research collaborators. The two local research partners and the interpreter signed a confidentiality agreement and were provided with a comprehensive briefing prior to the interviews. Two local transcribers, whom I contracted for transcribing the audio data of interviews with

Vietnamese subjects, also signed the terms of reference which included a confidentiality agreement before starting work.

4.5. Critical Reflection of Research Design and Methodology

This section evaluates the design and methodology of this research, focusing on (i) objectives; (ii) strategy; (iii) data collection method; and (iv) sampling target and method.

4.5.1. Why is a Holistic Approach needed?

A characteristic of this study is a holistic approach which aims to analyse Vietnam's skill formation model from the perspectives of policymakers, employers, and educators. An alternative could be to focus only on one of the constituents of skill formation. Such research would allow for more focused sampling and analysis. However, its results would present only a partial view of Vietnam's skill formation model and its challenges, given that past studies reported serious skill mismatch based only on employer perceptions (e.g. World Bank 2013a; Goodwin et al. 2014). Therefore, analysing the perceptions of three key actors differentiates this research from previous work and provides a better understanding of skill formation theories applicable to Vietnam and other medium-size developing economies.

4.5.2. Qualitative vs. Quantitative Research

This study adopted qualitative research as the main research method because it enables us to understand Vietnam's skill formation model deeply and comprehensively (see Section 4.2.2). It also collected and analysed administrative records obtained through questionnaires, but this data was utilised as supplementary information to reconfirm or reinforce qualitative data without advanced statistical analysis (see Section 4.2.4). On the other hand, there might be a concern whether it is possible to generalise research findings from qualitative analysis based on a limited number of interviews (de Vaus 2001). This is an issue of 'external validity', which concerns whether the research results can be generalised beyond the specific research context (Bryman 2016). The theoretical

sampling method is justifiable for qualitative research which does not aim to test theories (see Section 4.2.4). In other words, it is exempt from the rigid methods of probability sampling. However, there is a risk of the results of this type of research being biased towards the interests and perspectives of the researcher (Hakim 2000).

The external validity of a qualitative study based on non-probability sampling is dependent on the ability to replicate the research, meaning experiments can be reproduced under the same conditions (de Vaus 2001). Replicability can be enhanced by showing readers details of the procedures used to analyse data and generate findings (Seale 1999). Therefore, I attempted to make the research methodology and process as transparent as possible by presenting the details of the methodology and process in the body and appendices of this chapter in order to enhance the replicability of this study by other research projects with similar objectives or even with different scopes in geography or industrial sectors.

4.5.3. Data Collection Challenges and Solutions

This study chose the semi-structured interview as the main data collection method due to its advantages over other methods (see Section 4.2.4). However, this method still comprises two potential challenges.

The first issue was the implementation of cross-cultural and cross-language interviews. This was the case when I interviewed Vietnamese participants. It is said to be difficult to conduct a cross-cultural interview when the differences between interviewees and interviewers are extreme (Rubin 2012). For this research, the cultural differences between the interviewers and interviewees are not large since they are both East Asian and come from cultures influenced by Confucianism. In addition, I have a reasonable understanding of Vietnamese culture through almost seven years of work experience in Vietnam.

The cross-language issue was more critical from the viewpoint of data quality assurance in this research because interviews with Vietnamese participants were mostly conducted in English with consecutive interpretation into Vietnamese. I took three measures to assure the quality of the interview data. First, I recruited two local research partners-cum- interpreters who have been working with me for about 10 years. Since they are used to my spoken English with a Japanese accent and have a good understanding of my previous Vietnamese research on skill formation, they could help bridge any translation-related communication difficulties between me and the interviewees.¹⁰³ Second, I gave them an initial briefing before starting field work and strove to create a team atmosphere (Edwards 1998).¹⁰⁴ Furthermore, after several interviews, we reviewed the quality of the interviews together. Finally, I conducted ‘multiple hearings’ of the interview data (Nikander 2008). I requested that two transcribers check the quality of the interpretation while transcribing the audio record. They corrected any interpretation errors in consultation with me and the research partners.

One drawback to recruiting them as interpreters was that they had sufficient knowledge on the topic to make their own comments or ask questions. This means that they occasionally went beyond the role of interpreter (Temple and Young 2004). Thus, I needed to keep reminding them to focus on interpreting the conversations between me and interviews and not intervene with their own insights.

Another issue was the potential that interviewees would present only the positive aspects of their organisations and activities (Weiss 1994). In particular, I predicted that policymakers and educators would be defensive since civil servants are more conservative than business people. Moreover, they have often been subject to criticism for the inadequate quality of Vietnam’s education system in past literature and reports

¹⁰³ Since I needed to employ other interpreters for interviews in the South East and South Central regions, interviews did not go as smoothly as in the Red River Delta region. On the other hand, because I previously worked with 3 of the 4 interviewed organisations in the South East, the rapport we had helped mitigate problems caused by lower capacity interpreters.

¹⁰⁴ Also see Section 4.3.3.

(OECD 2013b; Truong and Rowley 2013; World Bank 2013a; ADB 2014; VBF 2014). Therefore, I took three measures to address these concerns. First, I stressed that the purpose of the interview is not to evaluate their performance and that all interview data would be anonymised to limit any negative impact to them or their departments (see Section 4.4.2). Second, I avoided appearing judgemental regarding their activities and systems (King and Horrocks 2010). Finally, I attempted to compare their statements with administrative and organisational records, information and perceptions of experts, and perceptions of other key actors, as recommended by the triangulation concept (see Section 4.2.4).

4.5.4. Sampling Issues

A characteristic of this research was to sample three key actors of skill formation, but there are two potential issues related to the sampling process. First, I did not conduct interviews with several actors who play important roles in skill formation: production site workers and students. While recognising the importance of these actors, I decided to focus on the management staff of firms and educational establishments. This is because it would take considerable time to develop rapport with workers and students and acquire sufficient and accurate data from them since they may not be used to participating in interviews, especially with foreign researchers. Therefore, I determined that it would be more feasible and efficient to collect data through interviews with educators and employers who regularly interact with their students and employees.¹⁰⁵

Second, there is potential sampling bias (Bryman 2016). This research attempted to ensure the diversity of interviewed firms and educational establishments as described in Section 4.3.2. However, the organisations that accepted interviews might have relatively active skill development programs, while those who are not very interested in skill development declined interviews. For example, the firms which participated in this research might require more skilled workers than average. Interviewed educational

¹⁰⁵ Also see Chapter 9, Section 9.5.2.

establishments might be more eager to improve education and training programs in cooperation with firms than others. In the process of data analysis, I carefully took this potential sampling bias into account. In fact, while this is a critical issue for probability sampling-reliant quantitative research, it is usually not one for qualitative research, including this study, which is theoretical sampling-based. Even so, I continued to monitor this in order to enhance internal validity in terms of the causal conclusion (de Vaus 2001).

4.6. Conclusion

This research aims to provide a comprehensive picture of Vietnam's skill formation system, which, according to previous literature, is facing serious skill mismatch. It has done so by examining the perceptions of three key actors, namely policymakers, employers, and educators. In order to achieve this objective, it adopted qualitative research as the research strategy and multiple case studies as the research method. Data was mainly collected through semi-structured interviews and analysed according to the thematic analysis method.

This study has two main characteristics in terms of design and methodology for skill formation research. For one thing, it takes a holistic approach in targeting policymakers, employers, and educators. Furthermore, it adopted qualitative research to deeply understand the three key actors' perceptions, while most past studies on skill demand and supply were based on quantitative data. With this design and methodology, this research aims to provide empirical findings which contribute to developing a better theoretical understanding of skill formation in Vietnam, a medium-size developing country.

Chapter 5. Skill Demand and Supply: Policymaker Perceptions and Responses

5.1. Introduction

As described in Chapter 3, there is a widely-held argument that Vietnam faces serious skill mismatch, in terms of both skill shortages and gaps, and that it is impeding economic development and industrialisation (OECD 2013b; Pompa 2013; Truong and Rowley 2013; World Bank 2013a; Goodwin et al. 2014). This argument is founded on the assumption that skill demand should be increasing as the economy grows and technologies advance, according to the supply-side approach, which is largely based on human capital theory (Becker 1993b) (see Chapter 2).

Based on the above apparent skill mismatch, most previous studies on Vietnam's skill formation propose supply-side policy measures such as reforming the training curricula in accordance with employer skill needs, providing more autonomy for TVET institutions, improving the labour market information system, developing an accreditation system to ensure the quality of education and training programs, and promoting on-the-job training (Pompa 2013; World Bank 2013a; ADB 2014; Goodwin et al. 2014; Kis 2017).¹⁰⁶

However, those studies often relied on superficial analysis of employers' perceptions obtained through large-scale surveys, neglecting to analyse other key actors' views.¹⁰⁷ Furthermore, they propose policy measures without deeply considering the economic, social and institutional characteristics of Vietnam's skill formation system. For instance, there is not much discussion about interventions in skill demand, which is regarded as

¹⁰⁶ See Chapter 2, Section 2.5.1 for the policies recommended by the supply-side approach.

¹⁰⁷ Also see Chapter 2, Section 2.6.1.

one of the key measures, particularly in developmental states, according to the demand-side approach (Ashton et al. 1999; Ashton and Sung 2015; Brown et al. 2015a).¹⁰⁸

The next three chapters examine: (i) to what extent the perceptions of the key skill formation actors, namely policymakers, educators and employers, are aligned with the supply-side approach's assumption of increasing skill demand and skill mismatch; and (ii) how their perceptions are reflected in Vietnam's current skill formation strategies.

To begin with, this chapter focuses on the perceptions and reactions of Vietnamese policymakers, who are responsible for shaping skill formation strategies. This analysis is based on qualitative data obtained through in-depth interviews with 17 national and local policymakers from 12 governmental organisations and 4 experts from foreign aid and international organisations who work closely with the government.¹⁰⁹ Section 5.2 examines how policymakers perceive the situation of skill demand and supply and how similar or different their perceptions are. Section 5.3 explores how their perceptions of the balance of skill demand and supply are reflected in the government's skill formation strategies, and Section 5.4 provides a conclusion to these discussions.

5.2. Policymaker Perspectives on Skill Demand and Supply

This section examines policymaker perceptions of skill demand, skill supply, and skill mismatch, aiming to understand what underlies the current skill formation strategies.

5.2.1. Optimistic View on Skill Demand

Increasing skill demand due to rapid economic and industrial development is one of the key assumptions of the previous literature, which stressed the existence of large skill shortages and gaps and proposed adopting the supply-side approach (Pompa 2013; World Bank 2013a; ADB 2014; Goodwin et al. 2014). According to the interview data, the

¹⁰⁸ See Chapter 2 Section 2.4 about the details of the demand-side approach, which stresses the necessity of government intervention in both skills demand and the supply side.

¹⁰⁹ See Chapter 4, Section 4.3.2.3 for profiles of the interviewees.

majority of policymakers believe that the demand for skilled workers has been increasing, in line with the preceding studies.

I think skilled workers are needed in every sector. [The Department Head, Regional Office of Ministry C]

Interviewed policymakers usually regard FIEs as the driving force of this perceived upskilling, in particular in the machine manufacturing industry. On the other hand, they presume that local SMEs do not require many skilled workers:

...especially in Vietnamese SMEs don't depend so much on a skilled labour force. It's easy to recruit workers, because they use lower technologies and equipment. Semi-skilled is OK. But I think some high-tech companies like [a large Korean electronics firm] or other electronic (manufacturers) like [a large American electronics firm] need high skilled workers, like engineers or technicians. [The Department Director, Ministry B]

The above suggests that most policymakers deem that skill demand is growing. However, it should be noted that their perceptions differ by occupation. They appear to believe that the demand for intermediate workers such as technicians and skilled operators is increasing.¹¹⁰ Some policymakers mentioned that higher value-added manufacturing firms need more intermediate workers, who are often graduates from TVET programs:

In the sectors of shoes and leather, textiles and garment, and wood processing, firms need unskilled workers. In other sectors such as more technical manufacturing industries, they need more workers who have graduated from vocational training courses or professional secondary courses. [The Deputy Director, a Provincial Industrial Zone Authority]

In contrast, they indicated that the demand for professional staff such as managers and engineers, who are usually university graduates, is smaller.¹¹¹ The Vice Department

¹¹⁰ See Chapter 3, Section 3.3.2 for the occupational structure in the manufacturing industry and the common requirements of educational qualifications.

¹¹¹ See Chapter 3, Section 3.3.2 for the standard educational qualification requirements corresponding to occupations in Vietnam.

Director of Provincial Government C mentioned that firms do not need many of them. Interviewed policymakers consider that this is because few firms, even FIEs which are expected to drive high skill demand, conduct R&D activities in Vietnam:

Well, first, we hope for technological spillover from FIEs. But in fact, there is very little R&D in Vietnam. We have seen little technological spill-over from FIEs in Vietnam. For example, [a large Korean electronics manufacturer] produces high-tech products. But all research, all key people from that company are not Vietnamese but Korean or Chinese.¹¹²

[The Vice President, National Policy Institute B]

How do policymakers envisage the trend of future skill demand? The majority of them strongly anticipate that skill demand will increase even faster in the future. Most policymakers stated that firms will require more skilled workers in the future due to further economic growth and industrialisation:¹¹³

We need more skilled workers, more technicians, more managers especially when you want to be a part of a bigger community like the AEC or the Trans-Pacific Partnership (TPP).¹¹⁴ [The Deputy Division Head, Government Agency B]

In particular, many of them predicted that employers will keep recruiting more intermediate workers:¹¹⁵

I foresee that in the future firms will need more intermediate-level workers like vocational training graduates, because companies will make use of more advanced technologies. We

¹¹² ASEAN Secretariat and UNCTAD (2016) reported that this Korean firm has been investing in R&D in Vietnam. However, it seems policymakers are finding that this investment is not having a significant impact on the upskilling of the Vietnamese workforce.

¹¹³ Nine of 12 interviewed governmental organisations (NG01, NG02, NG04, NG05, NG06, NG08, LG01, LG02, LG04) and 1 expert (IO01).

¹¹⁴ US President Donald Trump declared that the United States will withdraw from the TPP in 2016. However, the remaining 11 countries signed the trade pact without the United States on 8 March 2018. Those countries are: Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam. See The Japan Times (2018).

¹¹⁵ Seven of 12 interviewed governmental organisations (NG01, NG02, NG04, NG05, NG08, LG02, LG04).

are quite sure that the demand for skilled workers will increase in future. [The Deputy Director, a Provincial Industrial Zone Authority]

On the other hand, they seem to consider that the demand for engineers will remain small:

And regarding the structure of the industrial labour force, I think the number of engineers will be stable, not much changed, because currently, the number of people graduating from university is quite high and I think there will be no need more engineers in the future. [The Vice Department Director, Provincial Government B]

Their positive views on increasing demand for intermediate workers mainly rely on two economic factors. First, some policymakers predicted that the integration to the regional and global market through AEC and TPP will expand the demand for skilled workers:

Also, I just want to emphasise that Vietnam joined the AEC. So, it opened the door for workers in Vietnam and other countries to be integrated in regional economic development. So, in order to meet this new demand, we need more skilled workers and so I think in every sector we need skilled workers not just only in production but also others. [The Deputy Director, Government Agency A]

Second, they anticipate that an increasing inflow of FDI will promote technological development and hence expand the demand for skilled workers at FIEs:

Actually, I think in the future, a lot of big foreign companies or famous brands will come to invest in Vietnam. So, they will bring high technologies into Vietnam. So, they will require workers in Vietnam. [The Officer, Ministry C]

In short, policymakers predict that skill demand is expanding due to economic growth and technological development, as the supply-side approach assumes. In particular, they regard FIEs as a driver of upskilling at present and in the future. Nonetheless, their perceptions vary by occupation. They consider the demand for intermediate workers to be higher than for engineers.

5.2.2. Imbalanced Skills Supply

Previous studies of Vietnam's skill formation often reported an insufficient supply of skilled workers, including professional staff such as engineers and intermediate workers such as technicians (Cox and Warner 2013; OECD 2013b; Pompa 2013; World Bank 2013a; ADB 2014; Goodwin et al. 2014). How do Vietnamese policymakers perceive the skill supply situation?

The interview data indicate that policymakers believe that skill supply is growing in terms of educational qualification attainment, but in an imbalanced way skewed to higher education.¹¹⁶ Many interviewees expressed explicit concern that the supply of university graduates is increasing excessively since many universities have recently opened and hence it has become easier to gain admittance to them:¹¹⁷

Recently we have had a huge number of people graduating from universities. And this has led to the situation that we have too many university graduates, but we do not have many (elementary or intermediate) workers. [The Vice Director, Provincial Government B]

Policymakers are also concerned about the quality of university graduates. An Officer of Ministry C predicted that the number of unemployed university graduates will increase in the future, since few of them have adequate skills to become engineers:

But in the future, I think university graduates with a lot knowledge, but lack of skills will have difficulty getting a job. And they will have to work in factories as workers, not as engineers, because they do not have enough skills and knowledge to work as engineers. Also, they do not have enough skills to work as high-skilled workers.

¹¹⁶ Also see Chapter 3, Section 3.4.1 for the skills supply situation in terms of educational qualifications.

¹¹⁷ Seven of 12 interviewed government officials (NG02, NG03, NG04, NG05, NG07, LG02, LG04) and 1 expert (FO01).

In contrast, they believe that the supply of TVET graduates has not been increasing as much as they expected:

So, in term of recruitment of students, for higher education sector it is larger, it's normal, but for TVET sector it is a little bit reduced. Because, one year we have about one million students who have graduated from upper secondary schools. Half of them are going to universities and three-year (professional) colleges. And around 200,000 people come to my sector, technical vocational education sector (professional secondary courses under the MOET). Around 150,000 people go to vocational training courses (vocational college and secondary courses under the Ministry of Labour, Invalids and Social Affairs - MOLISA). And several thousand go to short-term (training) courses (vocational primary courses) and the others go directly to companies. [The Department Director, Ministry B].

Their concern is supported by the actual trend of TVET enrolment data shown in Chapter 3.¹¹⁸ In addition, the quotes above imply that the proportion of TVET students is not increasing as fast as the government envisaged in the Human Resource Development Master Plan (HRDMP) (Government of Vietnam 2011a).¹¹⁹ Several interviewees mentioned that the situation may differ by region. The Department Head of Regional Office of Ministry C mentioned that more people go to TVET programs in the South than the North, since residents of the South are more pragmatic in the sense that they usually choose education paths based on job opportunities rather than social status. However, TVET institutions in the South are not entirely free from difficulties in securing enough students. For example, according to a 4 January 2018 article in the Vietnam News, the 66 TVET institutions in Ho Chi Minh City received only 13,000 applicants, which accounts for only the half of their capacity (Viet Nam News 2018).¹²⁰

¹¹⁸ See Chapter 3, Section 3.4.1.

¹¹⁹ This plan proposes a future human resource structure by training level, which suggests that the proportion of TVET graduates will increase from 77 per cent to 78.3 per cent in the period from 2015 and 2020, while that of higher education graduates will slightly decrease from 23.0 per cent to 21.7 per cent. Also see Chapter 3, Section 3.6.2.

¹²⁰ Public Vocational College H in the Southeast region reported that they have been receiving more applicants (see Chapter 7, Section 7.2.2), but this is likely due to the effect of provincial industrial policies

A few national policymakers indicated that people's attitudes on TVET are changing. The Deputy Director of Government Agency A reported that people have started reconsidering the value of TVET, noticing that firms need workers who can work on production lines rather than in offices. However, others pointed out that this change in perception is limited. The staff of National Policy Institution A mentioned that people will continue to prefer attending universities rather than TVET programs, despite PR activities which publicise the better job opportunities for TVET graduates. This issue will be discussed in Chapter 8 in more detail.

In summary, policymakers believe that while there are more university graduates than needed for the number of professional staff positions available, the supply of TVET graduates is decreasing even though the need for technicians and skilled workers is increasing.

5.2.3. Perceptions of Skill Mismatch and its Causes

Interviewed policymakers observed three sorts of skill mismatch, in line with their perceptions of skill demand and supply depicted in the previous sections. First, many of them perceive large skill shortages of intermediate workers:¹²¹

Actually, we have always recognised that our labour market has a mismatch between skill demand and supply. Normally, many occupations require very high levels of skills, but we have a shortage of elementary and intermediate-level technicians. [Officer B, National Policy Institution A]

They estimate that this is in part because of the slow growth in the number of TVET graduates, due to high social respect given to university degrees:

linked to skills policies (see Chapter 8, Section 8.3.5). In fact, the Rector of this College also indicated that TVET programs in the South are unpopular (see Chapter 7, Section 7.3.3).

¹²¹ Refer to the interviews with 6 of 12 interviewed government officials (NG01, NG03, NG04, NG05, NG06, LG04) and 1 expert (FO01). In this thesis, 'skills shortages' means the aggregation of vacant position due to the unavailability of qualified candidates. See Chapter 2, Section 2.2 for further details.

Also, concerning the skill supply and demand balance, education in Vietnam focuses much on university education. But technical and vocational education is required by enterprises (more). I think it is just the psychology of Vietnamese people. All families want to send their children to universities, not technical and vocational schools or something which educates them as high skilled workers. [The Vice President, National Policy Institution B]

Second, some policymakers stated that there is an oversupply of university graduates:

...people with higher education cannot find appropriate jobs, since companies need more people to work in production sites...When so many universities have been opened, it has become easier for people to get into universities. It creates the very big gap between supply and demand you may see now. [The Deputy Director, a Provincial Industrial Zone Authority]

Finally, policymakers perceived wide skill gaps for both intermediate and professional occupations.¹²² Many of them reported that both university-graduated professional staff and TVET-graduated intermediate workers do not have enough skills to meet employers' requirements:¹²³

But for the jobs requiring high skills, like technicians, engineers or technologists, and even managers, skills are lacking. [The Department Director, Ministry B]

While policymakers often stressed insufficient technical skills among university and TVET graduates, some have also started paying attention to the lack of advanced cognitive and social skills, which they often call 'soft skills', as previous literature

¹²² In this thesis, 'skills gaps' represent the skill mismatch within the internal labour markets of firms. They occur when employees are not fully proficient or competent in their jobs and do not satisfy their employer skill needs. See Chapter 2, Section 2.2 for further details.

¹²³ Six of 12 interviewed governmental organisations (NG01, NG03, NG04, NG05, NG06, and LG04) and one expert (FO01).

suggested (Trung and Swierczek 2009; Tran 2013a).¹²⁴ In particular, they reported a lack of problem-solving, teamwork, or discipline skills.

Policymakers envisage that skill shortages and gaps will remain or increase further in the manufacturing sector, according to the interview data. In particular, several national government officials expected that many employers will suffer from a shortage of intermediate workers:

In the future, I think we will have a shortage of workers in some key sectors like the manufacturing and processing sectors, I mean in the industrial sector, we have a shortage of high skilled workers in the manufacturing and processing sub sector...And another reason, workers who are now working in the manufacturing sectors don't have any chance to be re-educated to improve their skills. So, they always work with the old technologies...Yes, almost all Vietnamese people at the age of 18 want to enter universities, but they do not want to enter the vocational system. So, in the future, I guess there will be a shortage of vocational students with high skills. [The Officer, Ministry C]

Policymakers often attribute these skill mismatches to supply-side problems. For one thing, some national government officials stated that educational establishments failed to meet employer skill needs, which are assumed to be increasing in terms of level due to rapid economic growth and industrialisation:

The second reason (for under-employment) is the quality of the education. Even if people graduate from universities or colleges, they still do not meet the requirements of the labour market...Development in Vietnam has been too fast as it is a developing country. So, it has affected the labour market. The capacity of the vocational training institutions cannot keep pace with the change. And second, it is because of the growth of different kinds of enterprises. They need more and more skilled workers. Technologies and science have been developing too fast, while the education system in Vietnam has not been

¹²⁴ Three policymakers (NG01, NG04, and NG05) reported lack of technical skills, while 5 of them (NG01, NG03, NG04, NG06, and LG04) mentioned about lack of soft skills. MOET issued the Guideline 2196/BDDDT-GDDH in 2010 to oblige universities to provide 'soft skills' training which includes communication, teamwork, computer, and foreign language skills (Tran 2017a).

adjusted to be meet the country's development needs and other elements such as the increasing number of enterprises. [The Deputy Division Head, Ministry A]

The above notion follows the theory that the education system is not keeping pace with technological change.

In addition, policymakers are of the opinion that young people are prone to make the wrong choice in their education and career paths because of an insufficient understanding of the labour market, as market failure theory states (Almeida and Robalino 2012; World Bank 2013a; Packard and Nguyen 2014). Several national government officials pointed out that many young people are not choosing to join TVET programs and become intermediate workers, in part because the government and educational establishments are not providing appropriate career guidance:

So, we think that part of the responsibility is with the authorities. They haven't provided clear policies to promote career counselling. Educational establishments, families, or society have not provided adequate guidance to help potential students understand their strengths and make suitable future career plans. As a result, young people just follow the trendy things and miss opportunities, and this leads to an imbalance in terms of skills. [The Deputy Division Head, Government Agency B].

In short, policymakers perceive a large skill mismatch in the manufacturing sector, including the machine-manufacturing industry, as the previous literature has reported (World Bank 2013a; Goodwin et al. 2014), even though they have different perceptions regarding skill mismatches for professional staff and intermediate workers. They attribute skill mismatch to the insufficient performance and behaviours of the supply side, including educational establishments and people. In other words, the majority of policymakers believe that employers will hire many skilled workers once the education side starts expanding the supply of qualified workers, according to human capital theory (Lloyd and Payne 2002). Furthermore, many of them predict that these skill mismatches will grow in the future, because skill demand will further increase due to technological

progress enhanced by economic and industrial development. These assumptions are in line with the supply-side approach's understanding of skill mismatch.

5.2.4. Uncertainty about 'Increasing' Skills Demand

The above findings indicate that policymaker perceptions of skill mismatch depend on the assumption that skill demand is increasing much faster than skill supply, in particular for intermediate occupations. How did they form this view that skill demand is increasing? According to the interview data, their main information source seems to be government policies such as the Human Resource Development Master Plan (HRDMP) and the reports issued by the government in line with those policies. On the other hand, few policymakers referred to primary data from firms as their information sources. An exceptional case is the Deputy Division Head of Government Agency B, who appears to have frequent information exchanges with foreign investors, and hence shares similar perceptions of skill demand and supply with FIEs (See Chapter 6 for FIEs' perceptions).¹²⁵ Other government officials may have little chance to hear employer perceptions directly because the government rarely involves the business community in the policy designing process (Ohno 2014). Thus, it is likely that policymaker views on increasing skill demand are based on some key national industrial or skills policies, which naturally present the positive outcomes of economic development, industrialisation, and upskilling to encourage stakeholders. However, these national targets and the methods to achieve them may not necessarily be developed according to compelling evidence and analysis.¹²⁶ For example, the HRDMP provides human resource development targets by economic sectors, but it did not explain the foundation of their forecasts and how industrial policies contribute to achieving those forecasts.

In fact, the research found uncertainty and scepticism about the two drivers of upskilling mentioned in Section 5.2.1, namely regional economic integration and increasing FDI

¹²⁵ In general, FIEs do not perceive a large-size skills shortage. They claim to have difficulty recruiting competent professional staff, but they do not have many vacancies. See Chapter 6, Section 6.4.

¹²⁶ Also see Chapter 3, Section 3.6.2. In addition, some employers interviewed for this research also criticised the government strategies for often being unrealistic. See Chapter 8, Section 8.3.5.

inflow accompanying technological progress. First, regional and global integration may not necessarily lead to growing demand for a skilled workforce. For example, the AEC may stimulate the demand for skilled workers to certain extent, but it would increase demand for lower skilled occupations in absolute or quantitative terms (ILO and ADB 2014). In fact, the Deputy Division Head of Government Agency B pointed out the uncertainty about regional economic integration:

In my personal point of view, there are 2 different directions. If Vietnam can become a production base for foreign companies in the ASEAN area, then, the demand for high skilled workers will increase. But if Vietnam cannot be a production base but only a consumption market for foreign companies in the ASEAN area, then things may be different. We are talking about opportunities and challenges when integrating. For example, in the automobile sector, we foresee a very pessimistic future for the automobile industry.¹²⁷

Second, FDI may neither automatically bring technological change nor result in a need for more skilled workers across all regions. In fact, some policymakers suspect that FIEs may mainly require unskilled workers. For instance, the Department Director of Ministry B, who anticipated that FIEs would require high-skilled workers (see Section 5.2.1), made a rather contradictory statement:

But for FDI firms, there's a big demand for labour. But most of them just recruit workers who have graduated from high schools. [A large Korean electronics manufacturer], for example, recruited over 20,000 (workers).

This scepticism about growing skill demand is likely to be higher in provinces which have recently started attracting FDI. Several local officials from those provinces expressed the suspicion that firms need more unskilled workers, such as production line operators, than skilled workers:

¹²⁷ This is in line with the view of an interviewed employer (a Japanese Motorcycle Assembler). See Chapter 6, Section 6.2.1.

From my point of view, I think the quality of the labour force in [this province] is quite good. And [our provincial department], through the vocational training institutions, also implements some policies for skill development. But...right now companies are recruiting mostly unskilled workers. Therefore, it is really hard for the colleges to improve education quality. [The Vice Department Director, Provincial Government C]

Furthermore, the Department Director of Provincial Government A presented a rather pessimistic view on the future demand for skilled workers:

The situation has not changed in the last 10 years, while the demand volume for low-skilled workers has increased. It may not change unless some firms who require higher skilled workers come here. There would not be big change in the future. The number of high skilled labourers will increase in [this province], but they may work abroad or in other provinces.

The above findings imply that the speed of upskilling may differ by region, due to the variation in FDI and industrial agglomeration levels. In particular, FDI is usually concentrated in the core regions which have better infrastructure larger labour forces, access to markets, and political power (Wei 2015). In Vietnam, the core regions are the two largest cities, Hanoi and Ho Chi Minh City, and their neighbouring cities and provinces (Perkins and Vu 2010). This variance may lead to regional inequality, or spatial inequality, in the creation of higher skilled jobs (e.g. Sissons and Jones 2016).

However, the uncertainty and scepticism that skill demand is growing does not represent the majority view among policymakers interviewed for this research. Most of them, in particular national government officials who have a strong influence on skill formation policies, believe that skill demand is increasing, especially for intermediate workers. Furthermore, they often become more optimistic when talking about future skill demand. In short, this view that skill demand is expanding is crowding out uncertainty and scepticism about it.

5.3. Policymaker Responses to ‘Perceived’ Skills Mismatch

The previous section indicated that the majority of policymakers perceive a large skill mismatch, in particular at the intermediate occupation level, mainly due to increasing skill demand and the insufficient supply of skilled workers. On the other hand, minor scepticism regarding this assumption is hidden behind this mainstream perception. This section examines how those perceptions are incorporated into current skill formation strategies, including both supply- and demand-related policies.

5.3.1. Influence on Supply-Side Policies

As described in Chapter 3, the Vietnamese government has been promulgating various skill development policies. According to the interview data, policymakers are paying special attention to three key skill development policy areas: (i) reforming TVET programs; (ii) encouraging firms to contribute to education and training; and (iii) adjusting the labour force structure to increase the number of intermediate workers.

5.3.1.1. TVET Program Reforms

Most of the policymakers interviewed explained that the government has been making efforts to improve the quality of education and training, especially for TVET programs, in order to meet the perceived demand for skilled intermediate workers:¹²⁸

...So, the provincial government requires relevant agencies and schools in [the province] to focus on developing human resource programs in order to supply human resources who meet the needs of companies which are investing in industrial zones of [this province].
[The Deputy Director, a Provincial Industrial Zone Authority]

Some policymakers explained that the national government is investing in improving the training capacities of selected vocational colleges under the ‘Project on Development of

¹²⁸ Six of 12 interviewed governmental organisations (NG01, NG02, NG03, NG06, LG03, LG04) and 2 experts (FO01, IO01).

High Quality Vocational and Training Colleges to 2020' in order to meet skill demand.¹²⁹ Along with national policies, provincial governments are also making their own investments in improving TVET programs, according to the interview data.

Nonetheless, the government and TVET institutions are likely to face financial constraints in improving the quality of education and training.¹³⁰ In order to solve this problem, policymakers have adopted market-based solutions. They are encouraging educational establishments to be financially self-sustainable, giving them more autonomy:¹³¹

...the government encourages educational and vocational training establishments to mobilise financial resources by themselves. So, they can improve their capacity and expand infrastructure by themselves. [The Deputy Division Head, Ministry A]

As another means to improve TVET programs, the government seems to be adopting the competency-based training (CBT) model in conjunction with regional labour market integration. Accordingly, the government is developing the National Qualification Framework (NQF) and competency-based standards, which are important elements to realise CBT (GIZ 2011; Wahba 2013).¹³² The Deputy Director of National Policy Institution A explained that Vietnam has been participating in developing a common regional qualification framework called AQRF (ASEAN Qualifications Reference Framework) and Mutual Recognition Arrangements (MRA) for selected professional occupations.¹³³ Accordingly, the Department Director of Ministry B reported that the government is developing the Vietnamese Qualifications Framework (VQF), in order to

¹²⁹ This project listed the names of 45 vocational colleges nationwide, whose capacities should be raised to ASEAN or international standards (Government of Vietnam 2014b).

¹³⁰ Refer to the interviews with LG01 and FO01.

¹³¹ The government promulgated Decree No. 16/2015/ND-CP to promote the autonomy of public organisations, including TVET institutions (Government of Vietnam 2015b). In addition, the Resolution of the Government's regular meeting No 76/NQCP also mentioned the promotion of autonomy for TVET institutions (Government of Vietnam 2016b). However, it seems that these policies still lack sufficient details for implementation (NIVT 2017).

¹³² According to World Bank (2015), a final NQF proposal is due to be completed by the end of 2014.

¹³³ The AQRF was agreed by ASEAN members in 2014 (see ASEAN 2016). MRAs have been established for 7 occupations including accounting, engineering, tourism, nursing, architectural service, medical practitioners, and dental practitioners (see ASEAN 2017 website).

align educational qualifications under MOET and MOLISA.¹³⁴ In addition, the Deputy Director of National Policy Institution A reported that they are developing regional model competency-based standards in coordination with other ASEAN countries. Those activities are supported mainly by Anglo-Saxon countries such as the UK, Australia, and New Zealand, and international organisations such as the ADB and the International Labour Organization (ILO).¹³⁵ These attempts to introduce CBT can be regarded as solutions indicated by the supply-side approach, since it essentially aims to ensure that TVET programs deliver the skills required by industry through curriculum development with input from employers (Boahin and Hofman 2014). On the other hand, none of the interviewed policymakers referred to the issues related to competency-based skill systems and cross-national skill and qualification frameworks in developed countries (e.g. Clarke and Winch 2006). The potential challenges posed by these systems will be discussed further in Chapter 9.

5.3.1.2. Encouragement of Firm Contributions to Education and Training

The interview data show that policymakers have been encouraging firms to invest in education and training in two ways, based on the perception that they face serious skill shortages and gaps and require more skilled workers. First, several policymakers mentioned that the government is attempting to attract investment from manufacturing firms and other investors in establishing and running educational and training institutions. For example, the government of a southern metropolitan city appears to be providing incentives for firms which invest in training facilities:

In [a southern metropolitan city] ...enterprises also get support for training, such as the provision of land, for those which set up vocational training schools. In the Quang Trung Software Zone, there are IT enterprises and IT vocational schools.¹³⁶ Those firms pay much less to rent land in this area. In a high-tech industrial zone in District No.9,

¹³⁴ The government issued the VQF in October 2006 (see Government of Vietnam 2016a).

¹³⁵ Those countries are classified as liberal market economies in varieties of capitalism (VoC) theory (Hall and Soskice 2001). Also see Chapter 2, Section 2.4.1.

¹³⁶ Also see QTCS (2018).

enterprises that set up research institutions are renting land without paying fees.¹³⁷ These research institutions also provide training courses. [The Department Head, Regional Office of Ministry C]

As a model case, the Vice Department Director of Provincial Government C explained that a large construction SOE established its own vocational college:

...as I mentioned before, in [this province] we have one very good vocational college operated by VIGLACELA (Viglacera Corporation) for ceramic and glass. They provide training courses for their employees. Students graduating from this college have high qualifications. This college is now working with the British Council in designing the curriculum and the content of the training courses.¹³⁸

Second, several policymakers explained that the government is providing firms with incentives for internal training:

...in [this province], the local government also provides support for companies to do internal training courses...If a company provides a training course for a worker, signs a contract with a worker, and recruits her or him for more than 1 year, this company will receive VND 1 million per worker as an incentive.¹³⁹ [The Vice Department Director, Provincial Government C]

These policies indicate that policymakers have started regarding firms as the main driver of skill upgrading, as the supply-side approach concept of the superiority of the market and employers' initiatives indicates (Booth et al. 1996; Almeida and Cho 2012; Packard and Nguyen 2014).¹⁴⁰ However, this view has been formed without sufficient direct

¹³⁷ Also see SHTP (2018).

¹³⁸ This vocational college affiliated to VIGLACELA Corporation seems to be cooperating with Proskills UK (see VIGLACELA 2014).

¹³⁹ For comparison, the average monthly income for elementary occupations is about VND3.2 million (see Table 3.12). The monthly wage in 2019 will range from VND2.92 million to VND4.18 million (Vietnam Briefing 2018).

¹⁴⁰ Also see Chapter 2, Section 2.5.1.

conversations with firms (see Section 5.2.4). In fact, employers are likely to perceive skill shortages and gaps differently, as explained in Chapter 6.

5.3.1.3. Labour Force Structure Adjustment

In order to reduce the perceived skill shortage, policymakers are attempting to expand the supply of intermediate workers in three main ways.

First, the government has been trying to attract more young people to TVET programs. According to Officer A of National Policy Institution A, the national government is conducting PR campaigns to inform young people and their parents that TVET program graduates have more job opportunities than university graduates. In addition, the Vice Department Director of Provincial Government B mentioned that they are providing financial support for young people who apply to long-term TVET courses:

...in [this province], we have Directive No. 37 of the People Committee and we also have Project No.5178 of the People's Committee on the incentive to support training for the period 2007-2020. The first policy is to diversify the educational paths of students graduating from general education programs. We target the 25-30 per cent of the secondary school graduates who go to vocational training courses. Second, we have a policy to support vocational training students by providing assistance for tuition fees as well as scholarships. We have different kinds of support. The maximum is 530,000 Vietnamese dong per person per semester.

Second, along with promoting TVET, the government has started to control the number of university students by restricting the opening of new universities and tightening admission standards:

...now the government has been trying to fix this situation (that too many people go to university). Now they have stopped allowing new universities to be opened. And they have made some changes in the university admissions process. [The Deputy Director, a Provincial Industrial Zone Authority]

In addition, the Foreign Officer of Foreign Aid Agency A reported that MOET is currently drafting a policy to prohibit universities from running professional college courses, in order to prevent them from accepting students who aim to be transferred to university courses.¹⁴¹

Finally, the government is attempting to provide more short-term TVET courses for the labour force in the rural areas, aiming to shift them from agriculture to industry. Several policymakers referred to the ‘Project on Vocational Training for Rural Labour Forces by 2020’ (Government of Vietnam 2009b) as the major government policy for this endeavour.¹⁴² In line with the national initiative, the Vice Department Director of Provincial Government B mentioned that they issued some provincial policies to train the rural labour force.

The above findings indicate that the government is formulating skills policies based on their view that firms face acute skill shortages and gaps, in particular at the intermediate occupation level. Moreover, they assume that firms are eager to employ many trained workers and contribute to their education and training to reduce skill shortages and gaps. The assumptions that are driving their policy direction emanate from the supply side approach, which prioritises employer skill needs and associated training initiatives. On the other hand, it is necessary to examine to what extent this high anticipation of increasing skill demand and firm training initiatives is aligned with employer perceptions (see Chapter 6).

5.3.2. Demand-Side Policy Directions

National government officials often pay less attention to policies that stimulate skill demand than supply-side policies, according to the interview data. The national government issued various industrial policies, as described in Chapter 3, but there is likely

¹⁴¹ ‘Professional college’ courses are three-year courses for upper secondary school graduates (see Chapter 3, Section 3.4.1). However, it is likely that this policy has lost its effect since the government is trying to consolidate professional and vocational college courses as one ‘college’ course under the new Law on Vocational Training. See Government of Vietnam (2016b).

¹⁴² Also see Chapter 3, Section 3.6.2 for details of the policy.

to be little significant progress on the implementation of those policies. Several policymakers referred to the ‘Industrial Development Strategy through 2025, Vision toward 2035’ (Government of Vietnam 2014c). Nonetheless, no interviewees mentioned further details about how the strategy is being implemented.

Compared with the sluggish implementation of national industrial policies, some local governments are intervening in the demand-side more actively. The first step in provincial industrial policies may be improving the investment climate in order to attract FDI by taking advantage of the investment approval authority which was mostly devolved to provincial governments (Truong and Rowley 2013). For example, the Department Director of Ministry B praised the efforts of Provincial Government A in improving the investment licensing procedure for foreign firms:

Actually, I was very impressed with the mindset of the chairman of Province A’s People’s committee, because he seems very dynamic and tries to simplify the administration, tries to remove the bureaucracy. Therefore, they can attract many Japanese investors. And he also established a hotline (for investors). So, once investors face any problem, they can directly call him.

Some provinces are likely to be advancing to the next step of industrial policies (see Appendix 5A). Several local officials from the provinces which had started attracting FDI earlier mentioned their industrial policies which aim to not only increase higher value-added manufacturing activities but also expand the availability of higher skilled jobs. According to the Deputy Director of a Provincial Industrial Zone Authority, their provincial government has been trying to attract investment from higher-value added manufacturing industries while no longer accepting investment from low-skilled labour-intensive industries:

...we had a policy to attract investment in the fields which use a lot of workers (labour-intensive). But since 2007, our province has stopped accepting investment by textile-garment, leather-shoes, and wood processing companies in our industrial zones if they

use more than 1,000 workers¹⁴³...This policy aims to attract more investment from companies which use fewer unskilled workers and focus on those which apply higher technologies and employ higher skilled workforces... (after the implementation of this policy) The demand for skilled workforces has increased.

This provincial government has also been attempting to develop supporting industries according to their revised Socio-Economic Development Master Plan (see Government of Vietnam 2015c):¹⁴⁴

Provincial Government B has been also trying to increase the amount of higher value-added industries, specifically focusing on the development of supporting industries, according to the Vice Department Director:

...in the last 10 years, [Province B] has had the policy of developing industry and we'd like to become an industrialised province by the year 2020. That's why we need a new labour force ready for the development of industry, and that's why we are trying to shift the labour force from the agricultural sector to the industrial sector... We have around 120 FIEs which are parts suppliers for other big companies or multi-national companies. Also, [our province] has a policy of developing supporting industries.¹⁴⁵ So, we try to attract companies in supporting industries.

As another example, a southern metropolitan city government is promoting higher-valued industries such as IT, precision machinery, chemistry, food and food additives,

¹⁴³ This policy suspended investment attraction in the sectors including textile-garment, paper and paper pulp manufacturing, cassava powder production, leather, wood processing, and basic chemical manufacturing in industrial zones. Outside industrial zones, only projects of less than 500 workers per project and less than 5ha per project are being accepted (People's Committee of [Province D] 2014). The provincial government also included a strategy to promote supporting industries in their revised Socio-Economic Development Master Plan (see Government of Vietnam 2015c).

¹⁴⁴ A designated rental factory for supporting industries was established in Long Duc Industrial Zone in 2013, as part of the cooperation for investment promotion between the provincial government and the Japanese government (see METI Kansai 2017).

¹⁴⁵ The policy was promulgated in 2013 and the subsequent decision was issued in 2017 (People's Committee of [Province B] 2013,2017).

telecommunication, and high-tech agriculture, according to the Department Head of the Ministry C Regional Office.¹⁴⁶

However, the above cases of active local- or regional-level intervention on the demand-side might be still the exception rather than the rule in Vietnam, considering that this research found only a few such cases. This may be in part due to two reasons: (i) the skill demand- and supply-related policy formulation functions are generally centralised at the national government level, as the Deputy Director of a Provincial Industrial Zone Authority implied during an interview, and (ii) local governments are facing capacity constraints (see Chapter 8).

5.4. Conclusion

The findings in this chapter indicate that the majority of policymakers believe that skill shortages and skill gaps are becoming serious constraints on further industrialisation and economic development in Vietnam, in line with the supply-side approach. They forecast that skill mismatch at the intermediate occupation level for roles such as technicians and skilled operators, will widen, led by technological advances and economic growth spurred by FDI and regional integration.

Despite these generally positive views on growing skill demand, several local officials from the provinces in the early stages of industrialisation showed concern that firms may not require many skilled workers, as argued by the demand-side approach. Ashton and Sung (2015) pointed out that increasing the number of skilled workers does not automatically assure that employers utilise them. According to Dobbins and Plows (2016), the supply-side approach neglects to articulate that the number of quality skilled jobs would not necessarily increase even if the economy grows at the national average, in

¹⁴⁶ This Department Head also mentioned that the governments of Hanoi and Da Nang have similar strategies, but he did not provide the further details and I did not conduct interviews with those local governments.

particular in vulnerable regions which receive less policy support and investments by firms.

However, this scepticism is outweighed by more pervasive optimism on increasing skill demand in the process of formulating skills policies. Beliefs about growing skill demand lead policymakers to focus on the supply-side problems. Policymakers attribute skill shortages and gaps to the poor quality of education and training programs, in particular TVET programs. Accordingly, they are trying to improve TVET programs in accordance with industry skill needs. On the other hand, they are less concerned about whether trained people will be able to acquire suitable jobs. This direction is consistent with the trend of global skills policies and the skill mismatch discussion that focuses on skill shortages and gaps, which have less convincing evidence than overeducation and over-skilling (Cappelli 2015; McGuinness et al. 2017).

To sum up, policymakers perceive a large skill mismatch due to increasing skill demand and poor skill supply. Accordingly, their current skill strategies focus on the supply-side problems, while paying less attention to demand-side issues.

Chapter 6. Employer Perceptions of Skill Demand and Mismatch

6.1. Introduction

The previous chapter found that most Vietnamese policymakers interviewed for this research believe that Vietnam faces serious skill mismatch. In their view, the cause of this skill mismatch is insufficient skill supply. They believe that it has not caught up with demand, which has increased due to economic growth and technological progress. This understanding of skill mismatch is mostly in line with the previous literature on skill formation in Vietnam (OECD 2013b; Pompa 2013; Truong and Rowley 2013; World Bank 2013a; Goodwin et al. 2014).¹⁴⁷

However, earlier studies which reported serious skill mismatch (e.g. World Bank 2013a; Goodwin et al. 2014) often relied on large-scale surveys, which lack in-depth analysis of employer perceptions. This kind of research risks implicitly guiding respondents to indicate that skill mismatch exists and often fails to provide convincing and valid evidence for skill shortages (Cappelli 2015; Felstead 2016; McGuinness et al. 2017).

Therefore, this chapter aims to provide a comprehensive picture of employer perceptions of skill demand and mismatch by analysing qualitative data obtained through in-depth interviews with 37 people in 27 firms in the machine manufacturing industry.¹⁴⁸ In addition, it also examines firms' answers to questionnaires regarding employment data. Section 6.2 explores the contexts behind employer perceptions. Section 6.3 examines how employers perceive skill demand. Sections 6.4 and 6.5 analyse how employers perceive skill mismatch, in particular skill shortages and skill gaps.¹⁴⁹ Section 6.6 analyses how

¹⁴⁷ See Chapter 2, Section 2.4 for further details of the supply-side approach.

¹⁴⁸ See Chapter 4, Section 4.3.2.2 for the profiles of interviewees.

¹⁴⁹ See Chapter 2, Section 2.2 for the definitions of 'skill shortages' and 'skill gaps'. This research asked interviewed employers for their perceptions of skill gaps of newly-graduated students before they have been

employers form their perceptions of skill demand and mismatch and the conclusion is presented in Section 6.7.

6.2. Contexts Behind Employer Perceptions

Skill demands are affected by various megatrends such as global economic integration, technological progress, and demographic change due to aging populations (OECD 2017b). This section explore all of these issues except aging populations because Vietnam still has an abundance of young workers (Nguyen 2009).¹⁵⁰

6.2.1. Perspectives on Business and Economic Environment

Despite rapid growth in the past, interviewed employers are not very optimistic about their current and future business prospects. They often indicate two main challenges: (i) intensifying competition in supply chains; and (ii) the limited scale of the domestic market.

6.2.1.1. Intensified Competition in Supply Chains

Many interviewed employers across various ownerships and business types reported that competition in Vietnam is intensifying.¹⁵¹ For one thing, they face an increasing number of competitors. For example, General Director A of a Japanese Plastic Injection Mould Supplier mentioned that they need to compete with imports from China as well as Vietnamese-owned (called ‘local’ hereafter) suppliers which are improving their technologies. In addition, competition inside corporate-group supply chains is becoming fiercer. Some interviewees from large FIEs reported that they need to enhance cost competitiveness in order to obtain a sufficient amount of manufacturing orders and survive internal competition with group factories in other countries:

provided training, but some interviewees reported skill gaps for employees who have been working for them for a long time.

¹⁵⁰ Some interviewed employers also reported having young employees (see Section 6.6.2). On the other hand, aging may start increasing rapidly, as Nguyen (2009) estimated that the percentage of the aged population would sharply rise after 2015.

¹⁵¹ Thirteen of the 27 firms interviewed (JA1, JA2, JA3, JA4, FA1, FA2, JS1, JS2, JS4, JS7, FS2, VS3, VS7) mentioned this situation. ‘Business type’ means assembler or supplier in this thesis.

Even if we produce the same product, its price differs depending on productivity, operating hours, and so forth. So, if we become No.1 among group factories including those in China, Mexico, and Hungary, we will get more jobs. If we become No.3, we may not receive any manufacturing orders at all...In the same way as when you buy something, all of us submit cost estimates for new products...then, the headquarters decides which factory they will allocate a new product to by comparing cost estimates submitted by the relevant factories...We need to offer a cheaper price to get an order because all factories need to follow the same quality standard which was stipulated in the mechanical drawing of the product. [The Production Director, a Japanese Automotive Parts Supplier]

Furthermore, global or regional economic integration such as the AEC and the Trans-Pacific Partnership (TPP) is likely to accelerate this competition inside corporate group supply chains.¹⁵² In particular, automotive assemblers are concerned about the impact of the abolition of the import tax in 2018, followed by the launch of the AEC in 2015. The Factory Manager of American Automotive Assembler B expressed serious concern that after 2018, part of their production will be replaced by imports from more competitive group factories in other ASEAN countries such as Thailand and Indonesia. In other words, employers expressed concern about the disadvantage of being a latecomer country which needs to catch up to advanced nations in the region, while coping with international pressure to open up (Ohno 2014). This view is the opposite of that held by policymakers interviewed for this research, who regard global and regional economic integration as an opportunity for further economic growth and industrialisation (see Chapter 5).

6.2.1.2. Limited Scale of Domestic Market

Another challenge perceived by employers is the limited growth of the domestic market. For example, Vietnam's motorcycle market has become the second largest after Indonesia among ASEAN member countries, with annual sales of more than 3 million units per

¹⁵² See Chapter 5, Section 5.2.1. for the current status of TPP.

year.¹⁵³ It has attracted more investment from large foreign-invested assemblers, which has stimulated the agglomeration of foreign-invested and local suppliers (Fujita 2013). However, the market is likely to be reaching the saturation stage, according to the interview data. The General Affairs (GA) Manager of a Japanese Motorcycle Assembler stated that the motorcycle market peak was in 2011 and total sales have been decreasing since then.¹⁵⁴

Even if the motorcycle market reaches saturation, some firms in this sector may be able to survive by switching to the automotive sector. However, Vietnam's automotive market is still small compared with other advanced ASEAN countries such as Thailand, although it is the second largest ASEAN country with over 90 million people.¹⁵⁵ The GA Manager of a Japanese Motorcycle Assembler, which also produces automobiles, pointed out that the Vietnamese market is too small for both assemblers and parts suppliers to attain economies of scale and cost competitiveness:

Simply, if there is no special subsidy, it is cheaper to import automobiles from Thailand than producing them in Vietnam after 2018.¹⁵⁶ There is no justification to keep producing automobiles in Vietnam. Since we have been operating for 10 years here, we wish we could continue production here. However, the deficit is too large, unless the production volume increases...The low local sourcing rate of parts is a major reason for this deficit. In general, it would be worthwhile to produce parts here if we could produce 30,000 units

¹⁵³ In 2013, about 3.4 million units were sold in Vietnam, while about 7.7 million units were sold in Indonesia (PLANiDEA 2014).

¹⁵⁴ According to him, total sales in 2011 were 3.7 million units, while this number decreased in 2015 to 2.8 million.

¹⁵⁵ Annual sales of automobiles (including passenger and commercial vehicles) were 209,267 in 2015, which is fifth after Indonesia, Thailand, Malaysia, and the Philippines. Over 1 million units were sold in Indonesia and about 800 thousand units were sold in Thailand. Refer to AAF (2015). In 2014, the population of Vietnam was 90.73 million, while Indonesia's was 245.45 million. Refer to the World Development Indicator (World Bank 2018b).

¹⁵⁶ Starting in 2018, this Japanese Motorcycle Assembler decided to import one sports utility vehicle model from Thailand which they used to assemble in Vietnam (NNA Asia 2017).

of one automobile model per year. At this moment, our total production is about 7,000...So, they (parts suppliers) would not come to invest here.

This indicates a challenge for firms operating in latecomer medium-size countries which do not have very large domestic markets and are surrounded by competitive countries in the region.

6.2.1.3. Firms' Survival Strategies

In the challenging business and economic environment described above, some firms are struggling to increase sales and production volume. For instance, the GA Manager of a Japanese Motorcycle Assembler expected that they would not increase production volume drastically because of the slowdown in motorcycle market growth mentioned above. This affects the business of suppliers in the motorcycle sector. For instance, the Director of a Vietnamese Production Equipment Supplier predicted that they would not expand production for at least the next five years. This situation is in line with the findings of Nguyen et al. (2015), who reported that only a small portion of employers surveyed expect a substantial business increase in the industrial and construction sectors.

On the other hand, this research also found a group of firms which are striving to expand their business, in spite of the challenges mentioned above (see Appendix 6A). According to the interview data, those firms' strategies can be divided into three categories. First, some firms are trying to attain a sufficient scale of production by combining exports and domestic sales.¹⁵⁷ The General Director of a Japanese Motorcycle Parts Supplier indicated his company intends to increase exports to other countries such as Malaysia and the Philippines, predicting that domestic sales of motorcycles may not increase as fast as they used to.¹⁵⁸ Conversely, the Production Director of an export-oriented Japanese

¹⁵⁷ Refer to interviews with JS2, JS3, JS5, JS7, FS4, VS3, and VS4. Sales to export processing enterprises (EPEs) are considered indirect exports in this thesis given that they are physically located in Vietnam. EPEs are exempted from import taxes on materials, parts and equipment used to produce their goods, all of which should in principle be exported (Government of Vietnam 2008).

¹⁵⁸ This firm is not expanding production at this moment, but it recently increased production volume after receiving a transfer of one production process from a group factory in Japan.

Automotive Parts Supplier reported that they have recently started producing and selling motorcycle parts in the domestic market. The second strategy is to focus on enhancing the cost competitiveness of current products rather than start producing new and higher value-added products. This strategy is mainly applied by large firms focusing on mass production.¹⁵⁹ The Production Director of a Japanese Automotive Parts Supplier explained that they cannot secure sufficient production volume to run their business if they merely focus on high precision products:

We happened to have orders for higher precision products this time, but in principle we cannot choose which product we manufacture, and we also need to get orders for lower precision products...Otherwise, the amount of manufacturing orders will not increase. If we stick to high precision products, we will not get enough orders...The factory which can produce lower precision products at the most competitive cost is considered to be the strongest.

Finally, some firms are attempting to produce and sell high value-added products. For example, several Japanese suppliers of small-lot products are proactively responding to emerging requests from customers who want to source more parts and equipment locally.¹⁶⁰

Many customers have begun producing equipment and tools in Vietnam which used to be produced in Japan, China, and Taiwan and imported to Vietnam as finished goods. [One of our customers] used to produce all of their casting dies in Japan but started producing them in Vietnam by setting up the necessary machinery and equipment. Then, since they can produce casting dies here now, they came up with the idea to source the peripheral parts in Vietnam. Thus, they came to ask us if we can produce them. [The Director, a Japanese Machinery and Equipment Supplier]

¹⁵⁹ Refer to the interviews with JA2, JS3, and JS3.

¹⁶⁰ Refer to the interviews with JS2 and JS6. Their customers include EPEs in Vietnam.

In short, some firms are still managing to find ways to expand their businesses despite the challenges described above, but they are not always moving up value chains as the second business strategy mentioned above shows. This indicates that intensified competition in supply chains is discouraging firms from being innovative and producing higher value-added products, as the ILO (2017c) has pointed out.

6.2.2. Status of Technological Development

The interview data indicate that in the manufacturing sector, new technologies are usually adopted when a product or production process innovation is introduced.

6.2.2.1. Progress of Product-level Innovation

New technologies are often applied when new and innovative products are developed through R&D activities. For instance, the HR Director of a European Motorcycle Assembler mentioned that new products such as electric motorcycles often require skilled workers.¹⁶¹

Some FIEs reported that there has not been any major change in their product line-up recently and that there will not be one in the near future. For example, the General Director of a Japanese Motorcycle Parts Supplier mentioned that they need to focus on improving cost competitiveness by increasing productivity rather than expanding the product line-up. Immature R&D is likely to be one factor that contributes to the gradual change in product line-ups. Many interviewed firms do not have a full-fledged R&D centre in Vietnam. Most of the large FIEs interviewed for this research rely on R&D centres in their home countries or at regional headquarters and do not expect that they will establish any in Vietnam in the near future.¹⁶² For example, the GA Manager of a

¹⁶¹ The process of innovation explained by the ILO (2017c, p. 124) described a similar process of new technology adoption.

¹⁶² An exceptional case is a European Motorcycle Assembler which established a regional R&D centre in Vietnam. This firm has likely selected Vietnam as a regional R&D hub since it is a latecomer to the ASEAN market. In addition, a European Automotive Parts supplier also reported that they have R&D centres, but it was not possible to obtain the details of their functions and capacities.

Japanese Motorcycle Assembler explained that they depend on their regional R&D centre in Thailand where they have a much longer history of operation:

Considering the long history of operation and human resources accumulated, there would be a marginal chance that another R&D centre is established in Vietnam...It takes time (to develop a R&D centre). Japan used to be the main R&D centre and Thailand played a supporting role. Currently they are switching the roles as Thailand has started playing the main role, while Japan is supporting their activities... Probably there are no Japanese firms which are doing R&D in Vietnam. Some firms may do partial and downstream tasks of designing such as modifications of mechanical drawings, but few firms are developing something entirely new.

On the other hand, some suppliers reported that they are expanding their product line-ups in a relatively innovative manner. A Japanese Machinery and Equipment Supplier has started producing casting parts for aluminium die-casts. Vietnamese Mould and Die Supplier B has begun producing progressive dies in partnership with a Japanese firm. In two cases of more radical change, a Vietnamese Electronics Parts Supplier reported that they have started producing TV set top boxes and healthcare products and Vietnamese Motorcycle Parts Supplier A has started manufacturing home appliance parts for new customers.

Accordingly, those suppliers have been attempting to develop their product designing capability, but in a gradual manner (see Appendix 6B). The Director of a Japanese Machinery and Equipment Supplier explained that they are shifting the product design drawing function from their headquarters in Japan to their factory on a step by step basis. It would take even longer for local firms to develop full-fledged R&D activities due to insufficient technological capabilities. The Director of Vietnamese Mould and Die Supplier B said that few local firms have a real R&D centre:

I do not think we really have R&D. We have a so-called technical department which is responsible for designing. Some other companies in Vietnam may call it R&D, but I do not really think it is R&D.

Therefore, a certain amount of time would need to pass before sales of newly developed products grow enough to be the above firms' primary products, as none of them stated that these new products account for a significant share of their total sales and production.

6.2.2.2. Progress of Production Process Innovation

New technologies are also applied when production processes are changed in order to produce new products or improve productivity or quality (ILO 2017c). According to the interview data, there are three types of production process changes: (i) development of new production processes; (ii) upgrading existing production processes; and (iii) automation of existing production processes.

Not many interviewed firms are introducing completely new production processes. Some firms, across different sizes, ownerships, and business types, reported that there has not been any major change recently in the type of production processes and predicted that their production processes will not change significantly in the future.¹⁶³ Several of them presented plans to focus on expanding production volume for existing production processes. On the other hand, there is a group of firms which has been implementing new types of production process.¹⁶⁴ Most of them are suppliers which have direct or indirect access to exports through customers with the export processing enterprise (EPE) license. For example, a Japanese Machinery and Equipment Supplier started two totally new processes, casting and induction hardening, which even its Japanese mother factory does not do. Nonetheless, implementation of new production is usually an incremental process. The General Director of a Japanese Motorcycle Parts Supplier reported that it took three years to transfer a casting process from Japan to Vietnam since they needed to manage the risks involved in the transfer.

According to the interview data, instead of implementing totally new processes, many firms are trying to upgrade existing production processes. However, the methods of

¹⁶³ Nine of 27 interviewed firms (JA2, JA3, JS2, JS5, FS1, FS4, VS1, VS4, VS8).

¹⁶⁴ Nine of 27 interviewed firms (JA4, FA3, JS1, JS3, JS4, JS5, JS6, VS3, VS4).

upgrading existing production process often differ between assemblers and suppliers. Large assemblers, in particular those targeting the domestic market, mainly focus on improving production management systems rather than investing in equipment and facilities. The Production Director of a Japanese Automotive Assembler explained that their production system has kept changing, even if there may be no obvious change in products, production processes, or production layout. This is not only because assembling does not require a large amount of processing equipment such as machine tools, but also because those domestic-market-oriented assemblers are not able to attain sufficient economies of scale by investing in technologies. For instance, the Managing Director of American Automotive Assembler A explained that one of their competitors wants them to share a high-quality painting facility due to the difficulty in obtaining a sufficient return on investment on such an expensive facility in Vietnam.

In contrast to assemblers, many suppliers upgrade their production processes by investing in hardware such as production equipment and facilities, in addition to software such as production management systems (see Appendix 6C).¹⁶⁵ In particular, some export-oriented suppliers are eager to invest in higher capacity machine tools in order to meet customer requirements for increased quality and precision. For instance, General Director A of a Japanese Plastic Injection Mould Supplier mentioned that since they started investing in higher capacity machine tools, their technology level has overtaken their competitors in China.

However, no firm reported adopting the cutting-edge technologies applied in developed countries. For example, General Director A of a Japanese Plastic Injection Mould Supplier stated that they could not imagine what to do with 3D printing technology at present, even though policymakers may anticipate firms to utilise such a cutting-edge technology (e.g. World Bank and Ministry of Planning and Investment of Vietnam

¹⁶⁵ Thirteen of 19 suppliers interviewed for this research indicated that they are increasing investing in equipment and facilities.

2016).¹⁶⁶ This may be because of low demand for the latest technologies in Vietnam. The Director of Vietnamese Mould and Die Supplier B stated that they are interested in higher capacity machines, but will not be able to attain a sufficient return of investment due to low demand:

Certainly, I am interested in installing a five-axis machining centre (high capacity machine tools), but there is not enough work for it in Vietnam. There are some companies which bought this machine but have not fully utilised it yet. So, when we need to produce a product which needs a five-axis machine, we borrow the machine from that company. However, this happens only once every few months.

Similarly, firms' eagerness to promote automation depends on whether they have sufficient production volume to attain the economy of scale for investment. Most automotive assemblers are careful about investment in automation technologies because of the insufficient scale of the domestic market. The Managing Director of American Automotive Assembler A mentioned that they have no plans to drastically automate their production processes:

Most automotive manufacturing in Vietnam is manual. We do not see a great jump in becoming automated in the way you would possibly see in Thailand and so on. This is because you will invest in some kinds of technologies only in certain sectors where the demand is very high and production volume is large.

In contrast, some firms were positive about promoting automation as a means to enhance cost competitiveness (see Appendix 6D). Most of them are suppliers which have either direct or indirect access to export markets.¹⁶⁷ For example, the HR Manager of a Japanese Electronics Parts Supplier reported that they reduced the workforce by half through the

¹⁶⁶ Employers in other countries may have a similar view, considering that Cohen et al. (2015) reported that 40 per cent of survey respondents were unfamiliar with additive manufacturing technologies such as 3D printing.

¹⁶⁷ Export-oriented assemblers can also be positive about promoting automation if they internally produce some components. For example, the HR Manager of Japanese Electronics Assembler B reported that they are reducing manpower by installing more automated equipment for some production processes such as print-circuit board manufacturing and plastic injection moulding.

promotion of automation while at the same time increasing production volume. These suppliers, in particular those focussing on mass production, are most likely to further increase automated processes in the future, expecting that labour costs will increase:

Automation will be promoted from now on. Probably, Vietnam will lose its labour cost advantage in about three years. Then, the direction will be toward automation in order to produce goods at competitive prices. [The Production Director, a Japanese Automotive Parts Supplier]

In short, attitudes about production process innovation differ by business type. Assemblers usually focus more on changes in production management rather than hard technologies. In contrast, suppliers are setting up new processes and many of them are investing in hard technologies. Nonetheless, they are adopting new technologies gradually since they need to manage risks in starting new production processes and the demand for the latest technologies is still small. This supports the finding mentioned above that not many firms are moving up the value chains.

6.2.3. Impact on Firm Business Strategies

Most existing literature regarding the supply-side approach assumed that many firms are attempting to expand higher value-added production by increasing their investment in technologies (Pompa 2013). Nonetheless, the above findings suggest that this is an oversimplification of employer behaviour in Vietnam. Due to intensified competition and the limited scale of the domestic market, some firms are struggling to expand their businesses and choosing to focus on low value-added production rather than investing in higher technologies.

On the other hand, some firms are still expanding their businesses and investing in technologies despite the challenges described above. In other words, those firms have implemented dynamic business strategies to help them grow fast, move up value chains,

and potentially create more jobs (Decker et al. 2016; Konczal and Steinbaum 2016).¹⁶⁸ The interview data indicate that those ‘dynamic’ firms are likely to be suppliers (see Appendix 6E).¹⁶⁹ In particular, suppliers which produce small-lot goods in non-routine process often have high levels of dynamism.¹⁷⁰

However, there may not be many of these dynamic suppliers, given that supporting industries are still weak in Vietnam (Mori 2006; VDF 2007; Vind 2008; Ohno 2010; JETRO 2016a). For example, the Director of a Japanese Machinery and Equipment Supplier said that there are not many machine tool producers with whom they can exchange information. This indicates that the majority of firms in Vietnam are likely still focusing on lower-value added activities.

6.3. Is Skill Demand Increasing?

The previous section found that not all firms, including FIEs, are expanding their businesses or investing in higher technologies as dynamically as the supply-side approach assumes. In light of this situation, this section aims to examine whether firms still require many skilled workers by analysing employer perceptions of skill demand, specifically focusing on two main manufacturing-related occupations for which previous literature determined demand is increasing: (i) professional staff such as managers and engineers, who are usually university graduates; and (ii) intermediate workers such as technicians

¹⁶⁸ The term ‘dynamic business strategy’ is in reference to Decker et al. (2016); Konczal and Steinbaum (2016) who explained that there is ‘business dynamism’ when firms are growing, moving up value chains, and generating employment.

¹⁶⁹ This is a similar concept to the ‘transformational’ firms defined by Schoar (2010, pp. 58-59), which ‘aim to create large, vibrant businesses that grow much beyond the scope of an individual’s subsistence needs and provide jobs and income for others’. However, many firms interviewed for this research, including local private firms, are already employing a few hundred people or more. Therefore, this thesis calls them ‘dynamic’ firms, which have already been transformed from subsistence firms and have the potential for further growth. All 12 firms which are classified as ‘having high’ or ‘medium’ dynamism are suppliers. See Appendix 6E.

¹⁷⁰ Four of the five firms (JS2, JS3, JS6, VS4) which are classified as having ‘high dynamism’ produce small-lot goods in non-routine processes.

and skilled operators, who have often obtained TVET (World Bank 2013a; Goodwin et al. 2014; VBF 2015,2016).¹⁷¹

6.3.1. Perceived Demand for Professional Staff

The interview data indicate that employers have different perceptions regarding the various professional staff positions such as managers, design engineers, and production engineers (see Appendix 6F).

Regarding design engineers, General Director A of a Japanese Plastic Injection Mould Supplier stressed their importance, emphasising that product designs are the most important factor contributing to cost competitiveness. This is because product designs dictate the materials used and the processing methods, which can either raise or lower the cost. This firm is expanding its product designing function in Vietnam. Nonetheless, it is likely to be in the minority. Some firms reported little or no demand for design engineers, which reflects the relative immaturity of R&D activities in Vietnam (see Section 6.2.2).

Compared to design engineers, employers often pay a high level of attention to middle managers and production engineers, anticipating that they will help accelerate productivity and quality improvement. The Factory Manager of American Automotive Assembler B stressed the need for competent production engineers:

We really need this, industrial engineer...We don't have this. So, the guys do not know how the market flow (production flow?) works, how they get out the efficiency from the production. They don't have that training.

The above findings imply that firms are usually trying to establish top-down productivity improvement systems led by professional staff rather than bottom-up systems led by intermediate or elementary workers.¹⁷² The Production Director of a Japanese

¹⁷¹ See Chapter 3, Section 3.3.2 for an explanation of the occupational structure in the manufacturing industry.

¹⁷²¹⁷² Only the Administrative (Admin) General Manager of a Japanese Plastic Parts Supplier reported on their bottom-up productivity improvement activities. This may be in part because this General Manager is Vietnamese but grew up in Japan and closely communicates with both Japanese and local staff.

Automotive Parts Supplier explained that currently they cannot carry out bottom-up productivity improvement activities because intermediate workers such as team leaders have insufficient problem-solving abilities. In other words, they expect professional staff to have advanced cognitive skills such as complex problem-solving to lead productivity improvement activities, in line with previous research findings (World Bank 2013a; JICA 2014c) (also see Section 6.5.2).¹⁷³

In particular, many employers indicated that the demand for production engineers will increase further in the future (see Appendix 6G).¹⁷⁴ This is in part because they anticipate that production engineers will take over the roles handled by foreign experts dispatched from their headquarters:

...I want to strengthen the capacity of Vietnamese production engineers, in order to develop our production engineering capacities... We hope to develop production facilities, production flows, and manpower distribution more theoretically, together with engineers at our headquarters, when we are going to produce new products, set up new production lines, or introduce new technologies. [The General Director, Japanese Electronics Assembler A]

Upgrading of production equipment and facilities such as automation can be another factor which increases the need for production engineers, in particular among large suppliers which have access to the export market (see Section 6.2.2):

To achieve this [downsizing] target, we need people who can carry out technical and engineering work. For example, merely introducing robots is not enough. We need people who have studied how to align the processes between robots and develop a proposal for

¹⁷³ According to a survey conducted by the World Bank, over 80 per cent of managers and professionals replied that they need to solve problems, while less than 70 per cent of technicians reported that they deal with problem solving. In addition, about 40 per cent of craftsmen and machine operators reported that they had to solve problems (World Bank 2013a, p. 62). According to a survey of 121 Japanese firms conducted by JICA, only around 40 per cent of respondents replied that they require technicians to have logical thinking, while over 80 per cent required problem-solving skills for production engineers (JICA 2014c, p. 10).

¹⁷⁴ Fourteen firms of the 27 firms interviewed indicated high future demand for production engineers.

what we expect robots to do and whether introducing robots is the most effective option or not. [The Director, a Japanese Motorcycle Parts Supplier]

However, high perceived demand does not necessarily guarantee that many manager or engineer positions are available. Some interviewed employers, most of whom are from FIEs, reported that middle manager and engineer positions are limited, regardless of ownership or business type.¹⁷⁵ Despite the high demand expressed above, the Factory Manager of American Automotive Assembler B mentioned that they cannot promote many technicians to production engineer even if they obtain a university degree since limited positions are available:

Yes...During their spare time, they can get another university degree, and they want bigger jobs, which, actually we don't have enough, we don't have many engineer positions open for them

Only Maintenance Director A of a Japanese Automotive Parts Supplier which has been expanding business dynamically declared that they doubled the number of production, maintenance, and quality control engineers, as they have started producing more complex products. On the other hand, few other interviewed employers provided clear recruitment estimates. Some dynamic suppliers, which are expanding their businesses and attempting to move up value chains, provided recruitment forecasts, but they only plan to recruit a small number of production engineers per year (see Appendix 6H). This is in part because the recruitment of production engineers depends on the acquisition of new jobs such as new model production, not production volume.¹⁷⁶

We can get a rough image of the demand for production line operators by measuring production volume. However, the demand for production engineers depends on whether our factory expands because of new jobs (products) or existing jobs. The number of production line operators will increase in either case, but production engineers will be

¹⁷⁵ Refer to the interviews with JA4, FA2, JS1, JS6, FS1, FS2, and VS3.

¹⁷⁶ Refer to the interviews with JA4 and JS1.

required only when we have new jobs. [The Production Director, a Japanese Automotive Parts Supplier]

In short, many employers express high demand for production engineers, but they usually only recruit a small number of them on an as-needed basis.

6.3.2. Perceived Demand for Intermediate Workers

The perceived demand for intermediate workers varies depending on business type.¹⁷⁷ The interview data indicate that suppliers with business dynamism usually require more intermediate workers than assemblers do (see Appendix 6I).¹⁷⁸ In particular, those which produce small-lot goods in non-routine processes often have high demand for them. Several suppliers of these products explained that non-routine manufacturing requires more multi-skilled workers who can adapt quickly to various processes and products than standardised mass production does:

For large FIEs, they have standardised all processes. For example, a metal cutting machine operator needs to put material in and take products out. That is all. Just pressing a button. But here one machine processes many kinds of parts. So, workers need to understand how to change one product to another. They do the things that engineers do in big companies. [The Director, a Vietnamese Production Equipment Supplier]

The occupational structures of interviewed firms also show that the share of intermediate occupations is larger for suppliers, in particular among those producing small-lot products in non-routine processes. Table 6.1 shows the occupational structure of the four types of firms interviewed: (i) assemblers; (ii) suppliers which produce mass products; (iii) suppliers which produce both mass and small-lot products; (iv) suppliers which produce small-lot products.

¹⁷⁷ It should be noted that employers sometimes do not clearly distinguish between the demand for intermediate workers and elementary workers, classifying both of them as ‘direct workers’ who engage in the production process. Also see Chapter 7, Section 7.2.1.3.

¹⁷⁸ A European Motorcycle Assembler also indicated high demand for intermediate workers, probably because they produce various parts internally.

Table 6.1. Occupational Structure of Selected Firms Interviewed

Group	No	Code ^a	Pseudonym	Business Type	Product Type	Size	Total Manufacturing -related Employees	Occupational Structure (%)				
								Design Engineer	Production Engineer	Technician / Skilled Operator	Production Line Operator	Others
(i)	1	JA1	Japanese Automotive Assembler	Assembler	Mass	Very Large	1,872	0.0%	3.3%	13.2%	58.0%	25.4%
	2	VA1	Vietnamese Automotive Assembler	Assembler	Mass	Large	308	0.0%	2.6%	2.6%	94.8%	0.0%
	3	FA2	American Automotive Assembler B	Assembler	Mass	Large	535	0.0%	6.5%	0.0%	93.5%	0.0%
(ii)	4	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	1,652	1.1%	8.1%	30.3%	60.5%	0.0%
	5	VS1	Vietnamese Plastic Parts Supplier	Supplier	Mass	Very Large	1,260	2.1%	3.3%	6.3%	79.5%	8.7%
	6	FS3	European Automotive Parts Supplier	Supplier	Mass	Very Large	1,320	3.0%	14.1%	0.0%	69.5%	13.5%
	7	JS7	Japanese Electronics Parts Supplier	Supplier	Mass	Very Large	4,000	0.0%	1.3%	11.3%	87.5%	0.0%
	8	VS2	Vietnamese Electronics Parts Supplier	Supplier	Mass	Large	500	2.4%	1.2%	3.4%	93.0%	0.0%
	9	JS5	Japanese Heavy Machine Parts Supplier	Supplier	Mass	Small	61	0.0%	8.2%	24.6%	67.2%	0.0%
(iii)	10	JS3	Japanese Plastic Parts Supplier	Supplier	Mass & Small-lot	Very Large	983	1.6%	0.9%	21.7%	75.8%	0.0%
	11	VS4	Vietnamese Mould and Die Supplier A	Supplier	Mass & Small-lot	Large	370	1.4%	16.2%	20.3%	29.7%	32.4%
(iv)	12	JS6	Japanese Machinery and Equipment Supplier	Supplier	Small-lot	Large	337	5.3%	4.5%	71.2%	0.0%	19.0%
	13	JS2 ^b	Japanese Plastic Injection Mould Supplier	Supplier	Small-lot	Medium	165	21.2%	0.0%	78.8%	0.0%	0.0%
	14	VS8 ^c	Vietnamese Production Equipment Supplier	Supplier	Small-lot	Small	141	22.0%	1.4%	12.1%	36.2%	28.4%

Note

^a Data of firms which provided figures for all occupations are shown.

^b Firm JS2 did not separate design and production engineers and put both as 'design engineers'.

^c Firm VS8 mentioned that production operators are also regarded as skilled workers during the interview.

According to the table above, the share of intermediate occupations is larger for group (iv) – suppliers of small-lot products. It is over 70 per cent at Japanese Machinery and Equipment and Plastic Injection Mould Suppliers listed above.¹⁷⁹ In contrast, this percentage is lower for groups (i) and (ii) –assemblers and suppliers of mass-produced products. At the Japanese Automotive Assembler and Electronics Parts Supplier listed above, for example, it accounts for less than 15 per cent.¹⁸⁰

¹⁷⁹ The share of intermediate occupations accounts for 12.1 per cent of the total workforce at the Vietnamese Production Equipment Supplier listed above, but in fact the Director of this firm regarded production line operators (36.2 per cent) as skilled operators as stated in the above quote.

¹⁸⁰ The Japanese Heavy Machine Parts Supplier listed above has a high share of intermediate workers (24.6 per cent), because it has many high capacity machine tools that process precision parts.

Furthermore, the interview data show that large suppliers will also require more intermediate workers in the future if they upgrade their production processes (see Appendix 6J). Several suppliers indicated that automation will require a larger skilled workforce, including maintenance technicians as well as production engineers:

We want to increase the internal production of automated equipment for ourselves, so we do not need to import it from foreign countries. If we want to increase automated processes, we have to reduce line operators while increasing mechanical and maintenance staff...We will need engineers to design automation equipment as well as maintenance technicians. [The HR Manager, a Japanese Electronics Parts Supplier]

The interview data show that the recruitment plan for intermediate workers is slightly more predictable than for production engineers, which depends on new projects as mentioned above:¹⁸¹

Actually, we do not know the long-term [business plan] in the future. It (what we can predict) is around two or three years. So, I think operation workers, skilled workers are still more required. This is what we can confirm. In two or three years, we still need skilled people. [The Acting Director, a Vietnamese Automotive Assembler]

However, these dynamic suppliers may not employ many intermediate workers for two reasons. First, the employment scale is often small for small-lot product suppliers. Table 6.2 summarises the results of a questionnaire about firms' recent recruitment campaigns. It shows that suppliers of small-lot products have been employing fewer people than large mass products assemblers and suppliers.¹⁸² This means that since each firm does not employ many people, the aggregated demand size for intermediate workers depends on the degree of agglomeration of small-lot products suppliers. Nonetheless, there may not

¹⁸¹ Also see Section 6.6.2.

¹⁸² Several large mass-product suppliers (VS2 and VS6) have high dynamism and indicated high demand for intermediate workers, but they will also not recruit many workers over the next few years (see Appendix 6H)

be many of these suppliers in Vietnam because supporting industries are not yet developed, as mentioned in Section 6.2.2.

Table 6.2. Recruitment Result (2013-2016) in Selected Firms Interviewed

No	Code	Pseudonym	Business Type	Product Type	Size	Design Engineer	Production Engineer	Technicians	Production Line Operator	Others	Total
1	JA1	Japanese Automotive Assembler	Assembler	Mass	Very Large	0	20	1	494	38	553
2	VS1	Vietnamese Plastic Parts Supplier	Supplier	Mass	Very Large	32	13	37	1,146	54	1,282
3	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	7	57	121	1,157	0	1,342
4	FS2	Taiwanese Plastic Parts Supplier	Supplier	Mass	Large	12	32	136	410	0	590
5	VS2	Vietnamese Electronics Parts Supplier	Supplier	Mass	Large	4	3	24	0	0	31
6	JS5	Japanese Heavy Machine Parts Supplier	Supplier	Mass	Small	0	3	3	59	0	65
7	JS6	Japanese Machinery and Equipment Supplier	Supplier	Small-lot	Large	8	22	47	0	3	80
8	JS2 ^b	Japanese Plastic Injection Mould Supplier	Supplier	Small-lot	Medium	13	0	35	5	0	53
9	VS5	Vietnamese Mould and Die Supplier B	Supplier	Small-lot	Small	23	51	64	65	30	233
10	VS8 ^c	Vietnamese Production Equipment Supplier	Supplier	Small-lot	Small	23	0	0	44	15	82

Note

^a Data of firms which answers to the questionnaire are shown.

^b Firm JS2 did not separate design and production engineers and put both as 'design engineers'.

^c Firm VS8 mentioned that production operators are also regarded as skilled workers during the interview.

Second, the workforce needs of large suppliers could change, depending on whether they can realise their business plans despite the increasingly competitive business environment described in Section 6.2.1. This future business uncertainty also explains why most firms did not present recruitment forecasts for this research (see Appendix 6H and Section 6.6.2). In addition, it is hard to predict the impact of production process upgrading on skill demand. It can either negatively or positively affect it, as various papers have mentioned (The Economist 2016). Some researchers have predicted that automation will reduce employment, in particular at the intermediate occupation level, and cause job polarisation (Goos et al. 2009).¹⁸³ Others regard employment polarisation as a temporal

¹⁸³ See Chapter 3, Section 3.7 for a discussion of job polarisation in Vietnam.

phenomenon and expect that many intermediate workers will continue to be necessary for work that consists of routine technical and non-routine tasks (Autor 2015). This on-going discussion suggests that it is difficult to foresee the impact of automation on skills and occupational change (Mokyr et al. 2015; Brown et al. 2018). In fact, few interviewees asserted that they would employ a large skilled workforce to promote automation.

In summary, dynamic suppliers are likely to indicate high demand for intermediate workers, while assemblers do not. In particular, those producing small-lot products in non-routine processes often have high demand for these workers. However, they do not employ many of them. Large suppliers stated that they will have high demand for them in the future, but this is not guaranteed.

6.3.3. What Do Employers Mean by ‘High Demand’?

Extant research often assumes that skill demand is growing rapidly in Vietnam (e.g. World Bank 2013a). However, the above findings suggest that it does not account for the following three issues.

First, skill needs are considerably diverse even among firms in the same industrial sector. The interview data indicate that the demand for intermediate workers varies by business and product type. On the whole, they are required by dynamic suppliers. In contrast, few assemblers have high demand for them, probably because they do not have many production processes they could assist with.¹⁸⁴ Thus, it is misleading to report that firms uniformly require all kinds of skilled workers across professional and intermediate occupations.

Second, most firms are unlikely to employ many skilled workers at present and in the near future, even though some of them indicated ‘high’ demand. For one thing, many firms only have a limited number of professional staff positions, such as production engineers, available, even if employers often indicate ‘high’ demand for these workers.

¹⁸⁴ For example, Vind (2008) found that electronics assemblers in the South mostly focus on simple assembly processes.

Furthermore, dynamic suppliers, in particular those with non-routine process, stated that there is high demand for intermediate workers. However, they do not require many people since many of these firms are not very large. In addition, there are not many of these dynamic suppliers in Vietnam, where supporting industries are not sufficiently developed. Finally, employer perceptions about higher future skill demand are uncertain. The demand for production engineers depends on whether firms obtain new jobs or projects by winning competitions in supply chains. Some dynamic suppliers expressed high demand for technicians in order to upgrade production processes. However, it is hard to predict whether the introduction of new machines or automation will increase or decrease the number of skilled workers. In fact, some employers, including both FIEs and local firms, foresee no major changes in skill requirements or occupational structures despite their demand for skilled workers:¹⁸⁵

At this moment, I cannot talk much [about future skills requirement changes], because I do not have a clear plan. But I do not think we need any big change...It will gradually develop. I do not think we need any big jump. [The Director, a Vietnamese Production Equipment Supplier]

In short, skill demand in Vietnam is far more complex than the supply-side approach's simplistic assumption that employers need more skilled workers across professional and intermediate occupations. Employer skill needs vary by business and product type, in particular at the intermediate occupation level. In addition, employer expressions of 'high' skill demand cannot be always interpreted as a 'large' scale employment demand.

6.4. Employer Perceptions of Skill Shortages

Previous literature on Vietnam's skill Formation often argues that employers are facing a large skill shortage (World Bank 2013a; Goodwin et al. 2014; Nguyen et al. 2015). However, the previous section casts doubt on its core assumption that skill demand is

¹⁸⁵ Refer to the interviews with FA1, FA2, JS3, FS4, VS2, and VS8.

growing dynamically. Thus, this section aims to explain how employers actually view skill shortages.

6.4.1. Diversity of Skill Shortage Perceptions

To begin with, the interview data revealed that employers do not have unified perceptions of skill shortages. At one extreme, some large Japanese firms, which have been operating in Vietnam for about 20 years, reported no skill shortages for any occupation level (see Appendix 6K):

Well, I consider that we secured most of the engineers, technicians, and skilled operators we currently need...I have rarely heard that we face difficulty in recruiting engineers or production line operators. We usually receive many job applications once we post a vacancy notice. [The General Director, a Japanese Motorcycle Parts Supplier]

This may be because these firms have made efforts to train their employees. However, the current labour market also favours large employers regarding skills acquisition. Some large FIEs mentioned that they are not seriously concerned about skill shortages since the labour market is becoming less competitive:

Probably, not many new jobs are available in the labour market. I think that is why we can attract better quality candidates. I imagine that many people, even relatively competent people, are out of a job. [The GA Manager, a Japanese Motorcycle Assembler]

The Admin General Manager of a Japanese Plastic Parts Supplier also stated that they can attract a sufficient number of applicants for vacant positions because of soaring unemployment for educated people.¹⁸⁶

This means that these large FIEs which have been operating for a long time feel that the supply of skilled workers is sufficient. In addition, this can be because their skill demand

¹⁸⁶ In fact, the unemployment rate is not high in Vietnam. The unemployment rate was 3.02 per cent in 2017 and the average unemployment rate between 2000 to 2017 was 2.64 per cent, according to the author's calculation based on the data retrieved from the ADB Statistical Data System (ADB 2018). However, the unemployment rate for university graduates is relatively high (see Chapter 3, Section 3.5.1).

is not rapidly increasing in terms of volume as found in Section 6.3.¹⁸⁷ The rest of the employers interviewed have different perceptions regarding professional and intermediate occupations, as the following sections explain.

6.4.2. Skill Shortages Perceived for Professional Staff

The interview data indicate that employers have different perceptions depending on the type of professional staff position. Most of them are not seriously concerned about the shortage of managers and design engineers. Only a few Vietnamese suppliers indicated that they are currently facing difficulty recruiting competent managers (see Appendix 6L).¹⁸⁸ Several firms indicated difficulty in hiring design engineers (see Appendix 6M). They mentioned that it is hard to find experienced and qualified design engineers, even though there are many university graduates in the labour market. Nonetheless, the majority of interviewed employers did not report shortages of these workers, reflecting the situation that few firms conduct substantial R&D activities, as seen in Section 6.2.2.

On the other hand, many employers pay more attention to the shortage of production engineers, but the level of concern differs according to the following three factors (see Appendix 6N).¹⁸⁹

First, their perception differs by location. Several very large FIEs located further from Hanoi reported difficulty in securing competent production engineers. For example, the Factory Manager of a world-famous Japanese Automotive Assembler expressed difficulty in attracting enough applicants for a production engineer position since it takes about 50 minutes to commute to their factory from Hanoi.

¹⁸⁷ These firms also indicated no serious shortages of elementary workers. For instance, the Production Director of a Japanese Automotive Assembler also said that it is easy to attract male production line operators because they do not have enough job opportunities.

¹⁸⁸ However, the Deputy CEO of Vietnamese Motorcycle Parts Supplier B indicated shortages of ‘mid-level staff’, meaning professional-level managers and intermediate workers such as line leaders.

¹⁸⁹ In this thesis, engineers who are responsible for quality assurance and control are also included in the production engineer category, considering that all of them are involved in production.

The second factor is firm size. Some very large firms reported that they have no problem recruiting production engineers. In contrast, several smaller foreign-invested suppliers indicated difficulty in recruiting production engineers. The Sales Manager of a Taiwanese Plastic Parts Supplier explained that they cannot offer the same salary and allowance level as very large firms:

I think engineer is most difficult. Maybe they got a job in a big company (laugh)...
Because I think maybe their salaries are better than ours...Some workers I met, they have good educational level like university, famous university, but they live in Hanoi. And they request that our company send them a car every day...even if he or she is very good, due to the cost, we cannot hire them.

Finally, suppliers are apt to indicate that there is a shortage of production engineers. In particular, this is true for small and medium dynamic suppliers, which require production engineers to have specific engineering knowledge. The Director of a Japanese Machinery and Equipment Supplier declared that there are several production engineer vacancies and predicted that it will remain difficult to recruit engineers with sufficient engineering knowledge, such as in material sciences and casting (also see Appendix 6O).

The above analysis is also supported by the finding that large assemblers located in or near major cities are seriously concerned about the shortage of production engineers.¹⁹⁰ For one thing, they can attract many applicants since most of them are famous transnational corporations (TNCs). In addition, they apparently do not need production engineers with specific technical knowledge since their production lines are not fully mechanised yet, as the Managing Director of an American Automotive Assembler A said (see Section 6.2.2).

However, the firms which have indicated a small shortage of production engineers are not entirely satisfied with the quality of the applicants. Some employers stressed that

¹⁹⁰ Refer to the interviews with JA4, FA1, FA2, and FA3.

although they receive many applications, it is still difficult to find candidates who meet their skills requirements:

Actually, there are a lot of engineers, so many, but there are not many people who meet our requirements. I think in the labour market, there are so many university graduates, but we cannot find many graduates who satisfy our requirements and can work as real engineers. [The Acting Director, a Vietnamese Automotive Assembler]

Employers often attributed the shortage of competent production engineers to the poor quality of university education programs, which often have outdated training equipment and low-quality teaching staff:

...in Vietnam, in some universities, students are doing practice with very old machines, so when they come to our factory, the technology is very new for them. [The HR and PR Manager, Vietnamese Electronics Parts Supplier]

Moreover, some firms pointed out that the quality of university education has become worse, as the Director of a Japanese Machinery and Equipment Supplier, who has been working in Vietnam more than 10 years, stated:

In the recruitment process, the first exam is mostly about very basic arithmetic...Our minimum requirement is 70 points out of 100 points. Even if applicants cannot solve the university-level questions, they still get 85 points by answering all of the other questions (which do not require university-level knowledge) correctly ... We want to keep 70 points as the minimum score, but every year fewer and fewer people can clear this. Probably, only 20 per cent or fewer of the total number of applicants can get the minimum score. The level of applicants has been really poor in the past 3-4 years.

The Director of Vietnamese Mould and Die Supplier B attributed this problem to the situation that universities are accepting too many unqualified students.¹⁹¹ Accordingly, some employers, including FIEs and local firms, reported that there is an oversupply of

¹⁹¹ This issue is also recognised by the government. See Chapter 3, Section 3.4.2 and Chapter 5, Section 5.2.2.

university graduates. They found that some university graduates are applying for production line operator positions, as shown by Nguyen et al. (2015), who found high amounts of over-qualification at the elementary occupation-level:¹⁹²

We receive a lot of applications from university graduates for lower-level positions. So, referring to this situation, we may say that the number of university graduates is much higher than the demand, but I do not know whether it is true or not. And they still accept the working conditions and salaries of lower levels, even if we do not want to hire them.

[The Director, Vietnamese Mould and Die Supplier A]

In short, employers feel that competent production engineers are rare in Vietnam, while the degree of the shortage differs by location, size, and business type.

6.4.3. Skill Shortages Perceived for Intermediate Workers

The interview data show that assemblers and suppliers have different perceptions regarding the skill shortage for intermediate workers (see Appendix 6P). Assemblers, which are mostly large TNCs, are not seriously concerned about the shortage of intermediate workers, which is in line with the low demand they see (see Section 6.3.2):¹⁹³

It is not so difficult to find people [for manufacturing operation] here...Yes [we can find operators for engine manufacturing]. It is not hard to find people...We cannot say it is very easy, but it is something we can find in the [labour] market. [The HR Director, a European Motorcycle Assembler]

In contrast, some suppliers, including FIEs and local firms, stated that there is a shortage of intermediate workers in line with the high demand outlined in Section 6.3.2. In particular, local suppliers often underscore the difficulty they face in securing team

¹⁹² Nguyen et al. (2015, p. 30). Their survey responses indicated that 53.9 per cent of elementary workers are overeducated.

¹⁹³ As an exceptional case, the HR Manager of a Japanese Electronics Assembler B indicated difficulty in securing competent 'operation engineers' who take care of tasks usually done by junior production engineers or technicians. Since this firm has been producing some plastic parts and plastic injection moulds internally, they are likely to share a similar perception with suppliers.

leaders and skilled machine operators because of increasing competition with newly-established large FIEs:

Since many companies require CNC (computer numeric control) machine operators, it is very competitive to recruit them. The supply does not meet the demand...Now the demand is very high. For example, one large foreign-invested electronics assembler just imported about 1,000 CNC machine tools. Most of the CNC operators here moved to that firm...Actually, we also face a quality problem with CNC operators. For example, if we interview 10 people, we can only find 3-4 qualified people. [The Director, a Vietnamese Production Equipment Supplier]

However, the above concern does not necessarily mean that there are large skill shortages. The suppliers cited above reported that they can attract enough applicants for vacancies, although they are not satisfied with their quality. This is probably because they do not employ many intermediate workers, as seen in Section 6.3.2.

Furthermore, there is another group of suppliers not concerned about the shortage of intermediate workers. These companies are all Japanese firms, including dynamic suppliers which have indicated high demand for intermediate workers:¹⁹⁴

We do not face a shortage with skilled technicians because we basically train them. Even if their scores on recruitment exams are low, we can still train them if they get 50 per cent. We can manage to recruit technicians who are trainable. We do not have any vacancies for technicians. [The Director, a Japanese Machinery and Equipment Supplier]

Although they are not entirely satisfied with the quality of applicants, they are confident in their ability to improve a new employee's skills through internal training. As McGuinness et al. (2017) explained, the improvement of firm-level training reduces skill shortages as well as gaps. For example, a Japanese Automotive Parts Supplier runs its own training centre, while a Japanese Plastic Injection Mould Supplier and a Japanese Machinery and Equipment Supplier reported that they provide systematic on-the-job and

¹⁹⁴ Refer to the interviews with JS1, JS2, JS3, JS4, JS5, JS6, and JS7.

off-the-job training for both professional staff and intermediate workers. This is in accordance with several previous studies which reported that FIEs in general have higher training capacity than local firms (Friedman 2004; Nguyen and Truong 2007; Cox and Warner 2013, p. 1; World Bank 2017).

In addition, few employers are concerned about future shortages of skilled intermediate workers. Only the Production Director of a Japanese Automotive Parts Supplier foresees that the shortage of skilled female supervisors for machining processes will grow, due to gender-biased job assignment which prioritises male operators (see Appendix 6O). Nonetheless, no other interviewees expressed serious concerns regarding future intermediate worker shortages.

To sum up, suppliers are more prone to face shortages of skilled intermediate workers than assemblers. However, they are not seriously concerned about the size of these shortages. Accordingly, few suppliers reported large shortages of TVET graduates, often recruited as technicians or skilled operators, despite recent long-term TVET course enrolment declines.¹⁹⁵ Instead, employers typically focus on the quality of TVET programs, as many of them reported poor training facilities and low-quality teachers.¹⁹⁶

6.4.4. Features of Perceived Skill Shortages

The findings in this section suggest two aspects of employer perceptions of skill shortages which previous literature on Vietnam's skill formation system did not highlight. For one thing, they do not have the same overall view on this issue. Some employers, in particular large FIEs which have been operating in Vietnam for a long time, stated that they do not have a skill shortage at all. Others reported a skill shortage of production engineers, but their perceptions vary by their size, location, and business type. Assemblers and suppliers

¹⁹⁵ See Chapter 3, Section 3.4.1 for data on TVET enrolments. An exception is the Director of Vietnamese Mould and Die Supplier B who noted the insufficient supply of long-term TVET course graduates (vocational college or secondary courses). Also see Chapter 3, Section 3.4.1 for the details of Vietnam's education system.

¹⁹⁶ Thirteen of the 27 firms interviewed mentioned that neither TVET nor university programs meet their basic requirements (FA2, VA1, JS1, JS2, JS3, JS6, JS7, FS4, VS1, VS2, VS4, VS6, VS7)

have different perceptions regarding skill shortages of intermediate workers. While the former is not seriously concerned about shortages, some suppliers expressed difficulty in securing a sufficient number of technicians and skilled operators. On the other hand, most Japanese suppliers are less concerned about the shortage of intermediate workers, mainly due to confidence in their training capacity.

Furthermore, even if some employers have indicated a skilled worker shortage, they are unlikely to struggle with large-scale ones. Most firms are able to attract enough applicants, but they have difficulty in finding people who fully meet their skill requirements. Several local suppliers reported hard-to-fill vacancies in part because of skill shortages, but most of them have only a few vacancies for skilled occupations (see Appendix 6Q). In other words, employers are finding skill shortages not because of volume, but due to the rarity of sufficiently qualified skilled workers. In particular, they find that competent production engineers are rarer than technicians:

It is more difficult to find qualified engineers, despite the large number of university or college graduates in the labour market...It is difficult to find qualified technicians, but it is easier to find them than engineers. [A HR Staff Member, a Taiwanese Electronics Parts Supplier]

The interview data provided several explanations as to why firms can attract enough applicants, even if they are not all fully qualified, while minimising skill shortages. First, from the employers' perspective the labour market is becoming less competitive (see Section 6.4.1). One reason for this is the increasing supply of educated people, in particular university graduates (see Section 6.4.2). It can be inferred that employers may fill intermediate jobs with university graduates even if the supply of TVET graduates is not rapidly increasing, since some employers reported increasing numbers of over-qualified workers. Another reason for the lack of competition in the labour market is the slow growth of skill demand (see Section 6.3.3). Second, skill requirements are not changing drastically because technological development is incremental (see Section 6.2.2). In other words, skill-biased technological change is not gaining momentum in the

machine manufacturing industry because of the incremental adoption of advanced technologies. Therefore, the majority of employers are not seriously concerned about future skill shortages:

In the future, we will not have serious challenges even if we expand our production, because the plastic injection moulding process does not require a large skilled labour force and the metal casting process does not require as a high level of skills as die-casting does.

[The Director, Vietnamese Mould and Die Supplier A]

In summary, employers are not fully satisfied with the quality of the skill supply, but they can still keep skill shortages small since skill demand is not increasing or changing as dynamically as the supply-side approach literature assumes (e.g.Pompa 2013; World Bank 2013a).

6.5. Employer Perceptions of Skill Gaps

This section analyses how employers perceive skill gaps i.e. whether workers possess the skills to perform their assigned tasks. Existing research often pointed out wide skill gaps and large skill shortages in Vietnam (e.g.World Bank 2013a; Goodwin et al. 2014). However, as Section 6.3 shows, skill demand is not increasing within all firms and skill shortages are not as significant as has been suggested. The focus in this section is on employers' perspectives on skill gaps.

6.5.1. Diversity of Skill Gap Perceptions

According to the interview data, employers have diverse perceptions of skill gaps, as they do of skill shortages. Skill gaps are likely to be very narrow at FIEs which have been operating in Vietnam for around 10 years or more (see Appendix 6R). Several large FIEs mentioned that they are not concerned about skill gaps for any occupation. For one thing, they have already developed comprehensive and systematic internal training programs:

With comprehensive and systematic internal training, we are able to cope with new people if they have very basic electric and mechanical engineering knowledge. We can train them

if they study Japanese industrial high school-level skills and knowledge. [The HR Manager, Japanese Electronics Assembler B]

In addition, several of them do not require very high skills since most of their processes are highly standardised or labour-intensive:

Another thing is that we are not expecting so many [skills]. Certainly, it is ideal if we can recruit competent people with good skills and knowledge, but we are not really expecting that we can do so. We feel alright, because we just expect the current level (of available workforce) ...We are not expecting too much...Like other firms, we are not operating highly sophisticated things. We are not doing R&D here. [The GA Manager, a Japanese Motorcycle Assembler]

On the other hand, other firms reported skill gaps in certain occupations. The rest of this section examines employer perceptions of professional staff and intermediate workers and analyses what issues underlie their perceptions, following the structure of the previous section.

6.5.2. Perceived Skill Gaps for Professional Staff

Employers observe skill gaps for various positions at the professional occupation level. Some of them indicated that their top and middle managers do not have sufficient management skills (see Appendix 6S). Regarding design engineers, some local suppliers attempting to develop new products or expand their business reported a lack of problem-solving skills, entrepreneurial thinking, and mechanical engineering skills (see Appendix 6T).

However, the interview data indicate that employers pay higher attention to production engineer skill gaps than for other professional staff (see Appendix 6U).¹⁹⁷ In particular, large manufacturers of mass products are usually concerned about the lack of competent production engineers. This is not only because they anticipate production engineers will

¹⁹⁷ Thirteen of the 27 firms interviewed.

lead productivity improvement activities (see Section 6.3.2), but also because it takes time to train them:

But engineering staff, technical staff, I think they are pretty far from what our company wants. So, we have, we really have a difficulty to have competent people who are ready to work. It will take maybe two years for a staff member to be performing how we expect them to. [The Factory Manager, an American Automotive Assembler B]

Both large assemblers and suppliers observed skill gaps among production engineers, but the interview data indicate that they focus on different skill set aspects. Assemblers are likely to pay more attention to gaps in cognitive and social skills.¹⁹⁸ The HR Manager of American Automotive Assembler A mentioned that their production engineers lack communication skills, while their technical skills are satisfactory. More explicitly, they emphasised a shortage of problem-solving and logical thinking skills among production engineers. The Production Director of a Japanese Automotive Assembler stressed that these skills are far more important than specific technical skills:

We do not place much importance on whether applicants acquire specific technical skills or not...Speaking in an extreme way, it is fine that they do not have any technical skills like a blank canvas...Rather than this specific knowledge, we need people who can immediately respond to what we want and consider things logically based on it...Many people do not recognise contradictions in their explanations...They often apply totally different and contradictory logic or their own ideas to examine one series of problems.

Some suppliers also expressed the importance of cognitive and social skills such as teamwork and problem-solving. However, at the same time, they stressed the importance of technical skills. For instance, a HR Staff Member of a Taiwanese Electronics Parts Supplier articulated that technical skills are more important for production engineers than soft skills like cognitive and social skills, which can be learned on the job:

¹⁹⁸ See Chapter 2, Section 2.2 for the main skills type to which this thesis refers: (i) cognitive; (ii) social; and (iii) technical skills. In addition, some interviewed employers also pointed out the lack of foreign language skills among production engineers. This finding refers to the interviews with JA1, FA1, VA1.

Firms need people with both soft and technical knowledge, but its importance may differ by job. Regarding engineers, the basic technical knowledge in the relevant fields is a more important requirement than soft skills, which can be improved later. Staff in the accounting or administration departments need more soft skills.

In short, employers often express concern about production engineers' insufficient skills. However, the scope of skill requirements differs between assemblers and suppliers. While the former give more attention to cognitive and social skills such as problem solving, suppliers also stress the importance of technical skills.

6.5.3. Perceived Skill Gaps for Intermediate Workers

The interview data show that employers have different perceptions of skill gaps at the intermediate occupation level, depending on: (i) whether they are FIEs or local firms; and (ii) whether workers are required to engage in routine or non-routine jobs (see Appendix 6V).

FIEs are likely to perceive narrow skill gaps, in particular for skilled operators who are engaged in routine processes such as machining for very specific tasks.¹⁹⁹ The HR Director of a European Motorcycle Assembler showed satisfaction with the skills of machine operators who are mostly TVET graduates:

They are OK. We are very proud that we see workers have good qualifications, techniques and behaviours. Also, we compare, when people come from no vocational training, we saw that they need to be trained in some behaviours. This vocational training school also trains and tries to give not only technical training but also training in behaviours and working rules. This is very important.

However, it is hard even for FIEs to secure intermediate workers who have sufficient skills to manage non-routine jobs. General Director A of a Japanese Plastic Injection Mould Supplier, which produces small-lot products in non-routine process, mentioned

¹⁹⁹ A Vietnamese Automotive Assembler (VA1) also reported a narrow skills gap.

that the quality of their machine operators does not meet their requirements. Similarly, Deputy Maintenance Director A of a Japanese Automotive Parts Supplier expressed that their maintenance technicians do not have sufficient skills to handle various production facility problems:

I am satisfied with the number of people, but skill level varies by each person (maintenance technician). The current skill level of our Vietnamese technicians is far too low. They meet only 30 per cent of our requirements...I think there is a very large gap between their current skill level and our requirements.

An exception is a Japanese Machinery and Equipment Supplier, which reported no skill gaps for its technicians, even for those engaging in non-routine processes. The above supplier's director showed confidence in their internal training programs developed through long-term operation (see Section 6.4.3).

In contrast to FIEs, some local suppliers reported that their intermediate workers do not have sufficient cognitive, social, and technical skills to carry out both routine and non-routine tasks. For example, in contrast to the European Motorcycle Assembler mentioned above, the Deputy CEO of Vietnamese Motorcycle Parts Supplier B lamented that their workers who have graduated from TVET programs lack discipline:

They [TVET graduates] do not have discipline to follow what is standardised. And it takes so much money, effort, and time for companies like us to set this up for people, because they do not learn at schools. They do not learn at home...many of them have absolutely no discipline.

Several foreign-invested assemblers also pointed out that skill gaps are wider for local suppliers. Therefore, the HR Director of a European Motorcycle Assembler explained that they need to provide training for those suppliers.

The above findings indicate that employers have diverse perceptions of skill gaps at the intermediate occupation level, depending on ownership and job type. FIEs usually find narrow skill gaps, but foreign-invested suppliers with more non-routine positions face

wider skill gaps than those with standardised production processes. On the other hand, local suppliers are likely to struggle with wider skill gaps than FIEs for both routine and non-routine positions.

6.5.4. Reasons for Diverse Employer Views about Skill Gaps

Most previous research on Vietnam's skill formation has concluded that firms face wide skill gaps at both the professional and intermediate occupation levels (World Bank 2013a; Goodwin et al. 2014). However, the above findings indicate that employers perceive skill gaps differently depending on the following factors.

First, the business type influences skill gap perceptions. Assemblers and suppliers perceive skill gaps differently because they upgrade production processes in different ways. Assemblers, in particular those focusing on the domestic market, focus more on productivity improvement without increasing investment in hard technologies. This causes them to pay more attention to cognitive and social skills. In contrast, some dynamic suppliers are more eager than assemblers to invest in hard technological development including automation, as found in Section 6.2.2. Accordingly, they pay high attention to technical as well as advanced cognitive skills such as problem-solving ability, which are required to maintain and upgrade production equipment and facilities. However, it is difficult to find production engineers with a high-level mix of cognitive and technical skills in Vietnam.

The second factor is the main job type in firm manufacturing operations. Firms with more non-routine jobs are likely to face wider skill gaps at the intermediate occupation level than those with more routine jobs because they require different skill sets for intermediate workers. These workers who can conduct non-routine tasks require a combination of specific vocational and mid-level cognitive skills such as literacy, numeracy, adaptability, problem solving, and common sense (Autor 2015). However, it is apparently difficult to find intermediate workers who have those skills and can handle non-routine tasks in Vietnam:

In my company, our products are all different, so it is not easy for people who want to do the same thing every day to work in our company. They will get more pressure. To produce one product, they need one kind of skill, but to produce another, they need another skill. They have to use a different set of skills every day and every time. So, the pressure is higher. [The Director, Vietnamese Production Equipment Supplier]

Finally, the size and ownership of firms matters in attracting skilled technicians and operators and keeping initial skill gaps narrow. While most large assemblers and suppliers are able to recruit a skilled workforce, small and medium suppliers usually face challenges in attracting competent candidates and end up employing workers whose skills do not meet their standards. General Director A of a Japanese Plastic Injection Mould Supplier mentioned that competent workers rarely come to SMEs like theirs. The interview data show that local suppliers are facing larger challenges in attracting competent candidates than foreign-invested suppliers:

There are many applicants, but not many who meet our requirements. We have some disadvantages. First, the location is far. Second, we are a Vietnamese company, so talented people do not want to work for Vietnamese companies but rather for foreign companies. I want to stress that it is my own perspective that people prefer to work for foreign companies...For my company, we provide the same working conditions and salary levels that foreign companies do. [The General Director, a Vietnamese Mould and Die Supplier]

Furthermore, small and medium suppliers are more apt to worry about high job turnover and poaching of trained workers by large firms, which leads to skill gaps (UKCES 2010a). Some of them reported that their professional staff and intermediate workers are subject to poaching by newly-invested large FIEs with higher salaries (see Appendix 6W):²⁰⁰

²⁰⁰ As an exceptional case, the Director of a Japanese Machinery and Equipment Supplier explained that they can retain skilled workers because they pay them higher salaries than other firms in consideration of their skill levels.

We have a problem that our staff are poached by other (large) FIEs, because we cannot pay as high salaries as they do. For example, one of our managers was poached by a Korean firm who offered a salary 2.5 times higher than ours. In such a case, we cannot retain them and have no choice but to give up [retaining them]. [General Director A, a Japanese Plastic Injection Mould Supplier]

In contrast, large firms often express less concern about job turnover and poaching, consistent with their perceptions that the labour market is less competitive.²⁰¹ In particular, large FIEs are confident that turnover of their skilled workers will be low. Deputy Maintenance Director A of a Japanese Automotive Parts Supplier mentioned that job turnover has recently been low, probably because they have managed to provide opportunities for promotion and new jobs. In addition, several employers mentioned that the turnover is lower among professional staff than intermediate and elementary workers, whom they consider easier to replenish.²⁰²

The above findings suggest that firms' desire for upskilling is one factor that causes wide skill gaps, considering that small and medium suppliers with non-routine processes, which often attempt to climb up value chains, often face wider skill gaps. In other words, skill gaps found in dynamic firms are an indicator of a dynamic economy (World Bank 2013a). One concern is that a lack of dynamic suppliers is hampering Vietnam from achieving further economic growth and industrialisation (see Section 6.2.3). This may be because chronic skill gaps caused by high job turnover and poaching are hindering some small and medium suppliers from climbing up value chains.

²⁰¹ Ten of 23 large and very large firms interviewed (JA2, JA3, FA1, VA1, JS1, JS3, JS4, JS6, VS4, VS7).

²⁰² There appears to be poaching among FIEs. Cox and Warner (2013, p. 187) found that the turnover of senior staff is higher in Japanese firms than US firms (Cox and Warner 2013, p.187). In addition, they identified a 'brain flow' of senior staff from SOEs to Japanese and US firms, and Japanese firms to US firms, but no case of movement in the opposite direction.

6.6. How Do Employers Identify Skill Needs and Mismatch?

The previous section analysed how employers perceive skill demand and mismatch, but one question is how they are identifying skill shortages and gaps as well as skill needs. A key assumption of the supply-side approach is that employers clearly understand their skill needs (e.g. ADB 2009). This section assesses to what extent the above assumption explains the capability and behaviour of firms operating in Vietnam by examining: (i) how firms are identifying current skill demand and mismatch; (ii) how they are forecasting future skill demands; and (iii) to what extent skill demands made by employers can be consolidated at the firm or industrial sector levels.

6.6.1. Assessment of Current Skill Mismatch and Demand

In theory, skill shortages can be measured by the number of skill shortage vacancies, which are vacancies due to difficulty finding people who meet each firm's skill requirements (UKCES 2010a,2014; McGuinness et al. 2017).²⁰³ Skill gaps can be assessed by evaluating employees' skills against internal skill requirements (Cedefop 2010a).

However, the interview data indicated firms have difficulty assessing skill shortages and gaps. Regarding skill shortages, most interviewed firms could not present skill shortage vacancy data separated from hard-to-fill vacancy data (see Appendix 6Q).²⁰⁴ Furthermore, the interview data show that instead of keeping vacancies open for a long time, employers usually recruit the best available candidates from applicants and try to train them even if they do not fully meet the skill requirements.²⁰⁵

²⁰³ See Chapter 2, Section 2.2 for the definition of skill shortage vacancy and hard-to-fill vacancy.

²⁰⁴ Only 6 of the 27 firms interviewed, which are all parts suppliers, provided skill shortage vacancy data for this research. The average amount of time needed to fill professional vacancies in Vietnam is 2.5 weeks, which is shorter than in advanced ASEAN countries including Malaysia, Thailand, Indonesia, and the Philippines (World Bank 2012a, p. 41).

²⁰⁵ Refer to the interviews with JA2, JS1, JS3, FS3, FS4, VS1, and VS7.

Since we are running a business, we need to fill vacant positions to keep our operation running [even if a candidate does not fully meet our requirements]. [The General Director, Japanese Electronics Assembler A]

This recruitment practice reduces skill shortage vacancies but increases internal skill gaps at firms. In other words, skill shortages are so ‘short-lived’ (McGuinness et al. 2017) that employers cannot catch them at the exact moment they occur since they are instantly ‘internalised’ as skill gaps.

As for skill gaps, some firms are making efforts to measure them (see Appendix 6X), but they are struggling to find a workable system. Several Japanese firms expressed difficulty establishing skills evaluation systems:

In reality, I have not grasped to what extent our employees have the required skills...It would be ideal if we can assess skills levels quantitatively, for example through paper tests, but we have not managed to do that, because it is difficult. Therefore, in reality we have not developed a skills assessment system as of now. [General Director A, a Japanese Plastic Injection Mould Supplier]

Therefore, some firms are relying on crude or indirect measures to evaluate employees’ skills. Several very large suppliers reported that they assess skill gaps during periodic performance reviews, but they did not explain how much detail they go to in examining individual skills. Other suppliers mentioned that they refer to product quality to measure internal skill levels; if there are many defectives, they conclude that their employees’ skill levels are not high enough.

On the other hand, some large FIEs reported that they measure employee skills according to detailed skills evaluation standards which were developed with their headquarters’ resources.²⁰⁶ In particular, they are confident in the evaluation systems for elementary and intermediate workers who engage in routine jobs:

²⁰⁶ Two local suppliers (VS2, VS6) are trying to learn the skill evaluation systems that large FIEs use through business relationships with them.

We have clear skills evaluation criteria for skilled operators and technicians. There is a requirement that workers cannot go to the next levels without passing tests which are administered depending on the number of years they have worked. This is same as our system in Japan, because we produce same goods, based on same knowledge, quality, and drawings, regardless where we produce them. Thus, we measure skills with the same standards everywhere. [The Production Director, a Japanese Automotive Parts Supplier]

However, their systems are still not perfect. The skill levels of professional staff, who engage in more non-routine tasks, are often evaluated subjectively. The Production Director of a Japanese Automotive Parts Supplier stated that they do not have detailed skill evaluation criteria for engineers and rely on supervisors' judgement, unlike the evaluation of elementary or intermediate workers. In order to reduce arbitrariness, several TNCs are trying to set up clearer skill evaluation criteria for professional staff. The HR Manager of American Automotive Assembler B mentioned that they recently introduced more objective criteria for professional staff based on competency mapping. Nonetheless, such firms are rare even among the large firms interviewed. More fundamentally, advanced cognitive skills or soft skills are often very hard to assess due to the vague scope and definition of these skills (Grugulis and Stoyanova 2011).

The above findings indicate that it is not easy for firms to precisely and objectively assess skill shortages and gaps. Skills shortages are hard to measure because not many firms manage to separate genuine skill-shortage vacancies from other recruitment difficulties (McGuinness et al. 2017), and skill shortages are often hidden in skill gaps. Firms are not always capable of developing a comprehensive skill evaluation system in assessing skill gaps. In particular, it is hard even for large FIEs to objectively evaluate their professional staff's skills due to the vague scope of advanced cognitive skills. In short, skill mismatch and demand expressed by employers can be subjective and ambiguous. Their determinations are not necessarily supported by compelling evidence obtained through objective and systematic assessments.

6.6.2. Forecasting Skill Needs

One way to forecast skill demand is to make a long-term recruitment plan, but the interview data indicated difficulty in precisely forecasting this. Some large mass-products manufacturers reported that they are making one to five-year recruitment plans especially for production line operators, in reference to the production volume predicted in mid-term business strategies (see Appendix 6Y). Nonetheless, they revise those plans frequently as their business plans change. For instance, the Factory Manager of American Automotive Assembler B mentioned that they have a five-year recruitment plan, but they need to revise it every year as their business fluctuates. In addition, it is even more difficult to make a recruitment plan for professional staff such as production engineers because the demand for them depends on the volume of new types of jobs, as the Production Director of Japanese Automotive Parts Supplier explained (see Section 6.3.2).

Other firms, which include some small suppliers, do not have recruitment forecasts at all due to two main difficulties.²⁰⁷ First, as the business cycle is becoming shorter, it is getting harder to predict long-term skill demand:

In the past, we used to have a long-term and reliable business plan, but recently the business cycle has become shorter. Looking at the business forecast data, it may be reliable only for two months ahead. I cannot trust the data for the third month...The forecast sometimes shows big business, but it disappears suddenly. [The General Director, a Japanese Heavy Machine Parts Supplier]

The second difficulty is related to the young labour force in Vietnam. Some employers mentioned that since the average age of employees is still low, not many people are reaching retirement age. For example, the GA Manager of a Japanese Motorcycle Assembler said the average age of their employees is around 30 years old. It is difficult

²⁰⁷ In their survey of SMEs, Nguyen and Bryant (2004, p. 608) also found that only 15.7 per cent of respondents have a human resource plan.

to forecast how many people they need to replace regularly due to Vietnam's young population, as the General Director of a Japanese Motorcycle Parts Supplier explained:²⁰⁸

In Japan, we could forecast recruitment for five to six years ahead by drafting a human resource distribution chart based on the number of people who will reach retirement age and the production volume forecast... Observing the human resource pyramid, there are not many people who are reaching the retirement age here... So, we recruit people only to fill in a vacancy when somebody quits a job.

In summary, forecasting long-term skill needs is not straightforward. Some firms attempt to make a recruitment plan, but they need to revise it frequently as business situations change. In addition, Vietnam's young workforce makes this task harder due to low replacement needs from natural retirement. Furthermore, no employer reported the existence of a forecast on what skill sets, including cognitive, social and technical skills, would be required in the future. These findings cast doubt on employers' ability to articulate future skills requirements, as Payne (2018) found in his research in the UK.

6.6.3. Consolidation of Skill Needs

Even if individual firms overcome the above challenges and collect precise information about current and future skill demands, another challenge remains. The interview data indicate difficulty in consolidating skill needs at the firm level because each department or division has different needs:

Since they (skills requirements) differ by each division, it is difficult to say what skills are lacking in general. [Deputy Maintenance Director A, a Japanese Automotive Parts Supplier]

This is likely to be because of the nature of skill demand rather than immature information management systems. For example, Deputy Maintenance Director A of a Japanese

²⁰⁸ In this sense, it is easier to forecast skills demand in developing countries. For example, Cedefop (2018b) stated that the need to replace retired workers accounts for the bulk of job openings in European countries.

Automotive Parts Supplier added that even their training centre in Japan faces difficulty in consolidating internal training needs since their company has many divisions and each of them has different opinions on skill needs.

In short, employer skill needs are not only ambiguous and unpredictable but also often too diverse to be consolidated into one skill demand per firm. Previous studies which assumed that firms can determine their skill needs (e.g. ADB 2009; Almeida and Robalino 2012) failed to fully articulate these characteristics of skill demand perceived by employers.

6.7. Conclusion

The findings in this chapter suggest three characteristics of skill mismatch and demand perceived by employers in the machine manufacturing industry. First, employers do not perceive large skill mismatch as uniformly as existing research argued (e.g. World Bank 2013a; Goodwin et al. 2014). Employer perceptions of skill shortages and gaps vary considerably depending on their length of operation, business type, process or job type, ownership, and size.

Second, while employers indicate that there is a lack of skilled workers such as competent production engineers, this does not necessarily mean that the skill shortage is large in scale. This is mainly because skill demand is not growing as dynamically as the supply-side approach assumes due to intensified competition in supply chains and the limited scale of domestic markets. As a result, some firms are struggling to increase production and hence controlling employment:

There will not be many firms [which want to recruit more people]. Unless there are more new investments or business expansion, most jobs have been already taken. Thus, I regret to say that this is a difficult time for schools...I think there are not many new jobs available in the labour market...young people cannot get a job, not because they seriously lack skills but because not many firms can afford to hire them. [The GA Manager, a Japanese Motorcycle Assembler]

The above quote indicates that firms would not be able to absorb a large number of skilled workers even if they became available. In other words, skill supply cannot create demand as human capital theory assumes (see Lloyd and Payne 2002). Previous studies on Vietnam's skill formation (e.g. World Bank 2013a; Goodwin et al. 2014) overlooked the lack of dynamism in skill demand, mixing up the quantity and quality issues perceived by employers.

Finally, skill mismatch and demand expressed by employers are often subjective and ambiguous. It is not easy for firms to precisely identify current and future skill needs. In addition, since skill needs vary considerably inside firms, it is hard to consolidate them as 'one' firm's skill need. This casts doubt on the feasibility of the supply-side approach suggestion that educational establishments should provide education and training programs corresponding to employer skill needs (Pompa 2013; World Bank 2013a; ADB 2014; Goodwin et al. 2014). If employers' skill needs are so ambiguous and diverse, what demand should educational establishments try to satisfy?

In addition to the above demand-side problems, this chapter identified a potential driving force for upskilling in Vietnam. Some suppliers are dynamically expanding their operations and attempting to move up value chains by investing in higher technologies, and hence require a skilled workforce. In particular, suppliers producing small-lot goods in non-routine processes are likely to require not only professional staff but also intermediate workers who engage in non-routine processes. This means that these dynamic suppliers can provide 'job ladders' (Konczal and Steinbaum 2016, pp. 23-24) for people who intend to ascend from elementary to intermediate occupations. Furthermore, non-routine manual jobs are often less vulnerable even if automation is further promoted (Autor 2015; Dvorkin 2016; ILO 2017a).²⁰⁹ However, the number of such dynamic suppliers is still likely to be limited in Vietnam, as several employers

²⁰⁹ According to Dvorkin (2016), non-routine manual jobs have been increasing, despite automation and offshoring in the US labour market. In contrast, routine manual jobs have been decreasing. This indicates that firms with more non-routine processes often require more skilled workers, including those at the intermediate occupation level.

mentioned that supporting industries are still weak compared with advanced ASEAN countries such as Thailand (also see Mori 2006; VDF 2007; JETRO 2017).²¹⁰ This immaturity of supporting industries can be an impediment to inclusive upskilling in Vietnam.

²¹⁰ According to JETRO's survey on Japanese firms operating in Asia, the local procurement rate of parts and material is 33.2 per cent in Vietnam, while it is 56.8 per cent in Thailand, 45.2 per cent in Indonesia, 42.2 per cent in the Philippines, and 38.2 per cent in Malaysia (JETRO 2017, p. 44).

Chapter 7. Educator Perceptions of Changing Skill Demand

7.1. Introduction

Previous studies on Vietnam's skill formation often note education and training programs are not teaching students the skills necessary to catch up with the changing demands resulting from technological innovation and industrialisation. In order to solve this problem, they suggest that educational establishments improve education and training programs in accordance with employer skill needs (World Bank 2013a; ADB 2014; Goodwin et al. 2014). Chapter 5 found that most policymakers interviewed for this research also understand the problems of Vietnam's skill formation model in this way.

However, the above supply-side approach argument, which focuses on employer perspectives, neglects to analyse educator perception of skill demand and supply, assuming that they should and can provide educational programs which respond to employer skill needs (Lloyd and Payne 2002,2003). In order to obtain a holistic picture of Vietnam's skill formation landscape, it is necessary to understand their views, as Goodwin et al. (2014) has noted. In addition, contemporary skill mismatch research often ignores the perspectives and interests of students (Cappelli 2015).²¹¹ It assumes that young people should make a 'rational' and realistic decision to meet employer skill needs if they have sufficient labour market information and proper guidance from educators (Almeida and Robalino 2012; World Bank 2013a; Packard and Nguyen 2014; Musset and Kurekova 2018). However, such research often omits in-depth analysis on the extent to which educators can influence young people's career and education decision-making. This research did not conduct interviews with students because of the difficulty in acquiring sufficient and accurate data from them, as explained in Chapter 4. Instead, it

²¹¹ Cappelli (2015) pointed out that the perspectives of students and employees are missing.

attempts to analyse educator perceptions of their students' educational and career aspirations, and decision-making processes.²¹²

This chapter explores educators' understanding of the current and future skill demand and supply landscape and how they are trying to adjust skill supply, mainly by analysing qualitative data obtained through in-depth interviews with 14 people from 12 educational establishments, including universities and technical and vocational training and education (TVET) institutions.²¹³ Section 7.2 examines educator perceptions of skill demand and supply issues and attempts to understand what informs these views. Section 7.3 explores the ways they are trying to respond to changes in perceived skill demand and the conclusion is presented in Section 7.4.

7.2. Educator Understanding of Skill Supply and Demand

The findings in Chapter 6 indicated that employers do not necessarily perceive large-scale skill shortages and skill gaps, which goes against the findings of preceding studies and the supply-side approach (e.g. World Bank 2013a; Goodwin et al. 2014). In particular, many of them are not worried about the shortage of intermediate workers. On the other hand, as reported in past research, policymakers feel that there is a skill mismatch. They stress skill shortages and gaps for intermediate occupations in particular (see Chapter 5). In order to identify the similarities and differences between key actors' perceptions, this section examines how educators recognise: (i) skill demand; (ii) skill supply; (iii) the balance between them. It also examines the basis for their perceptions.

²¹² Also see Chapter 9, Section 9.5.2.

²¹³ See Chapter 4, Section 4.3.2.3. for interviewee profiles. The research also analyses reference materials obtained during the field research and educators' answers to the researcher's questionnaires. In addition, in this thesis, TVET institutions means vocational or industrial colleges interviewed. Industrial colleges are usually under the Ministry of Trade and Industry (MOIT).

7.2.1. Perceptions of Rising Skill Demand

7.2.1.1. Growing Skill Demand for Intermediate Workers

In general, the educators believe that the demand for skilled manufacturing workers is high:²¹⁴

In Vietnam, the demand for human resources is high in both the business and engineering fields. Currently, there are many companies in the engineering field in our province, such as companies in electronic engineering, mechanical engineering or chemical engineering. These companies have high demand for labour force. [The Vice Rector, Private University A]

However, they feel that the demand is different for professional staff such as managers and engineers, who are usually university graduates, and intermediate workers such as technicians and skilled operators, who are presumed to be TVET graduates.²¹⁵ Many educators claim that the demand for engineers is small:²¹⁶

...I think most companies require a limited number of engineers. [The Vice Rector, Public Vocational College E]

In particular, some educators pointed out that few organisations besides SOEs and governmental research institutions require design engineers. On the other hand, they reported the demand for production engineers is larger than for design engineers, especially in FIEs, which are regarded as key drivers of industrial development:

...companies often bring their machines to Vietnam and they need a kind of worker who can operate and maintain these machines rather than those who can participate directly into the designing process of the machines...They do need (production) engineers,

²¹⁴ Six of 12 interviewed educational establishments (PU1, RU1, PV1, PV2, PV4, RV1).

²¹⁵ See Chapter 3, Section 3.3.2 for the details of the occupational structure in the manufacturing industry as defined in this thesis and common educational qualification requirements by occupation. The linkages between occupations and educational qualifications were also reconfirmed in the interviews with employers and educators in this research.

²¹⁶ Six of 12 interviewed educational establishments (PU1, PU2, RU1, PV4, PV5, PV8).

because they want to improve their machines once they buy them and in my opinion, the highest demand is for this type of workforce...FIEs have a higher demand for production engineers because the number of FIEs in this field is larger than that of Vietnamese companies. [The Vice Rector, Private University A]

In contrast to engineers, many educators claim that there is a high demand for intermediate workers such as technicians and skilled operators.²¹⁷ At several universities, the management staff stated that the demand for intermediate workers who have graduated from long-term TVET courses is higher than for university-graduated engineers.²¹⁸

I think at the university level or engineers, I can see the increasing trend of employers' demand, but, of course, it is not as big as the technician level...I think the highest demand is for technicians, meaning graduates from vocational secondary and college levels. [The Vice Rector, Public University A]

TVET institutions often cited high employment rates for their students as a signal of high demand (see Appendix 7A), although the reliability of the data is questionable (see Section 7.2.4). For example, the Vice Rector of Public Vocational College F mentioned that about 90 per cent of their students acquire jobs right after graduation. In particular, they observed that the demand for mechanical technicians and machine operators is higher than for other trades such as electrical technicians:

...you can see that the students who take the machining course, even before their graduation, most of the companies already come here to recruit them. So, 100 per cent of students can get a job after graduation... (Firms require people) Mostly in the mechanical, welding and metal cutting sectors...In fact, each company has to have at least one or two

²¹⁷ Nine of 12 interviewed educational establishments (PU1, PU2, PV2, PV3, PV4, PV5, PV6, PV7, PV8).

²¹⁸ Refer to the interviews with PU1 and PU2. All universities interviewed for this research run TVET courses such as professional and vocational college or secondary-level courses as well as a four-year university course. The long-term TVET courses include vocational college and vocational secondary courses (see Chapter 3, Section 3.4.1.).

electrical technicians who work to maintain the electrical system. [The Rector, Public Vocational College D]

Furthermore, educators often have positive prospects on future demand for intermediate workers. Many of them anticipated that skill demand for TVET-graduated intermediate workers will increase in the future, while that for university-graduated engineers will remain small.²¹⁹

I think (vocational) skills training and development will be essential in the future, since we need more skilled workers rather than university graduates. [The Vice Rector, Public Vocational College E]

The above positive view on growing skill demand is aligned with the findings of previous research, although past research reported high demand for engineers as well as intermediate workers (World Bank 2012a,2013a).

7.2.1.2. Perceived Drivers of Skills Demand

Educators regard technological progress as a key driver of expanding employment opportunities for intermediate workers. Several of them reported that firms are requiring more skilled workers who can operate high-technology machines and maintain automated equipment:

I may name some new technologies like CNC, machine tools, or 3D-printers which workers require a higher skill level to operate. [The Vice Rector, Public Vocational College B]

Moreover, they anticipate technological development will accelerate the demand for intermediate workers with higher-level skills in the future, according to the interview data:

²¹⁹ Eight of 12 interviewed educational establishments (PU1, PU2, PV2, PV4, PV5, PV6, PV8, RV1).

I think in the future, because of the development of technology and basic knowledge, I think the requirement for skills will be higher. [The Rector, Public Vocational College D]

In particular, the Vice Rector of Public University B expects the number of large firms which utilise higher technology to increase in the future, due to competition accelerated by the further integration to the global market:

In my point of view, in the future, the number of small companies will decrease, and the number of large companies will increase. So, they will have higher technologies. That's why they will have higher skill demand, and the government will soon agree to the TPP (Trans-Pacific Partnership) and it will also accelerate the demand for higher skilled workers.²²⁰ So, Vietnam has to change.

Educators apparently anticipate two main events which will promote technological progress and increase skill demand. For one thing, increasing FDI is expected to stimulate the demand for a skilled workforce. The Vice Rector of Private University A anticipated that more firms will relocate their production bases from China to Vietnam:

I think it (skill demand) will either stay the same or increase, because the number of companies in the technical field seems to be increasing. For example, some companies which are now investing in China may divert their investment to Vietnam. Therefore, the demand for technical workers might increase.

In addition, several educators predict that the integration to the regional and global market through participation in the TPP and the AEC will increase skill demand:

...in the next year, ASEAN will implement the agreement on the labour market that will allow people in 8 specific occupations to move freely across ASEAN countries. That will provide opportunities, but also challenges for vocational training. According to one report which assessed the impact of ASEAN integration, the demand for unskilled workers will increase by 28 per cent, while the demand for skilled workers will increase by 13 per cent.

²²⁰ See Chapter 5, Section 5.2.1. for the current status of the TPP.

So, I think in the next few years, the demand for skilled workers will be higher. And Vietnam has integrated into ASEAN. So, we also have to prepare for it. [The Rector, Public Vocational College D]

In fact, the figures in the above quote indicate that the demand for unskilled workers will grow faster than for skilled workers.²²¹ However, they are not seriously concerned about the slower growth of demand for skilled workers. This issue will be examined in Section 7.2.4.

Those two factors were also recognised by the government (see Chapter 5). However, educators suggested two more elements which policymakers interviewed for this research did not articulate. For one thing, they indicated that the development of supporting industries, which consist of parts and material suppliers, is increasing the demand for intermediate workers:²²²

I said that there is increasing demand for mechanical technicians, because the number of companies in supporting industries in [Province B] and the surrounding areas is increasing. [The Vice Rector, Public Vocational College F]

Several vocational college management staff members explained that parts suppliers would require more intermediate workers than large assemblers:

I do not think that assemblers require highly skilled workers, but other companies, such as machinery manufacturers, may need high-skilled workers. [The Vice Rector, Public Vocational College B]

Moreover, the Rector of Public Vocational College D anticipated that the local government's industrial policies would stimulate the demand for skilled workers:

²²¹ Interviewed educators probably referred to the recent report published by ILO and ADB. See ILO and ADB (2014).

²²² See Chapter 3, Section 3.3.1 for the relationship between supporting industries and skills demand.

...the local government approved an industrial master plan that focuses on the shipbuilding, electric equipment, electronics, and machinery sectors. So, I think the demand for workers in those sectors will increase. [The Rector, Public Vocational College D]

This implies that some educators share similar perceptions about what drives skill demand with employers interviewed for this research, considering that these two additional drivers are also mentioned by employers the author spoke with (see Chapter 6). Most of these educators are working for vocational colleges under local governments which are relatively active in implementing industrial policies (see Chapters 5 and 8).²²³ For example, Public Vocational College F is under Provincial Government B, which has been attempting to link supporting industry development policies and TVET promotion policies.²²⁴ This may be an effect of emerging local industrial development initiatives described in Chapter 5.

7.2.1.3. The Basis of Perceived Skill Demand

How do educators form this perception of growing skill demand? The interview data indicate that they attempt to identify skill demand depending on two main types of sources.

First, many educators stated that they make efforts to obtain primary information about skill needs directly from employers.²²⁵ Some of them try to systematically collect skill needs information from firms through surveys or interviews. Others gather skill needs information through occasional interactions with firms such as company visits, monitoring of student internships, job fairs, and alumni meetings. However, it may not be easy to obtain skill needs information from firms. Few educators provided concrete

²²³ Public Vocational College G (PV7) is under Provincial Government A which is trying to attract FDI. Public Vocational College B (PV2) is under a northern metropolitan city whose government has sectoral industrial strategies, according to the Head of Regional Office of Ministry C. See Chapter 5, Section 5.3.2 and Chapter 8, Section 8.3.5.

²²⁴ Also see Chapter 5, Section 5.3.2 and Chapter 8, Section 8.3.5. Public Vocational College E (PV5) is also under Provincial Government B.

²²⁵ Eight of 12 interviewed educational establishments (PU1, RU1, PV2, PV3, PV4, PV7, PV8, RV1).

evidence that they have collected and analysed industry skill needs information obtained through the means mentioned above.²²⁶

Educational establishments may also learn skill demand by examining the employment situation of their graduates. Nevertheless, most of them have not studied it comprehensively. Although educators often report high employment rates (see Appendix 7A), it is uncertain how reliable these figures are, considering that few provided compelling proof.²²⁷

Second, some educational establishments are trying to learn industry skill needs through secondary information sources. One of the potential data providers is employer organisations such as business associations. For instance, the Rector of Public Vocational College H reported that they collected skill needs information in partnership with the Ho Chi Minh City Branch of the VCCI, which received technical assistance from the NHO (Confederation of Norwegian Enterprises). Nevertheless, it is rare that business associations are able to collect skill needs information without foreign technical assistance, considering that few other interviewees reported having done so.²²⁸ Alternatively, several educational establishments are approaching industrial zone management companies which regularly interact with their customers:

...sometimes industrial zones' management boards (or companies), especially those of the Japanese industrial zones...may know in advance the fields in which companies will invest. Therefore, they can forecast the demand for human resources in each sector. Then, they come here to inform us about this forecast so that we can formulate appropriate strategies. [The Vice Rector, Private University A]

²²⁶ The author found that only Public University A published a survey report, but this was only possible due to technical assistance provided by the Japan International Cooperation Agency (JICA). Also see Chapter 8, Section 8.2.1. about the difficulty in collecting skills needs information.

²²⁷ The author found that only Public University A published a survey report which comprehensively analysed the employment situation. This survey was conducted with technical assistance from JICA.

²²⁸ The author also discovered that Public University B collected skills needs information in cooperation with the Japanese Business Association of Ho Chi Minh City and with technical assistance from JICA.

However, some of them are struggling to develop close relationships with industrial zone management companies, as the Vice Rector, Public Vocational College D observes:

Besides, I also have a good relationship with the management boards of industrial zones...Through those management boards, we can get the labour demand information of enterprises inside the industrial zones...But I think that the relationships with industrial zones' management boards are not as strong and close as we expected.

The above situation is leading educators to rely on more easily accessible information sources – policies or reports published by the government. Half of interviewed educators reported that they predict skill demand trends by referring to government skills and industrial policies:²²⁹

When I mentioned that demand from enterprises is increasing, first we base this prediction on government strategies, because the government is trying to focus on the mechanical industry. So, that means the demand must increase. [The Rector, Public Vocational College C]

This explains why educators and policymakers have a similar understanding of skill demand. Both of them consider the demand for intermediate workers to be growing, based on the optimistic targets and scenarios promoted in government policies.²³⁰ However, government policies do not necessarily provide accurate information about skill demand, as explained in Chapter 5. This indicates that educators may face a gap between optimistic skill demand prospects and reality (see Section 7.2.4).

7.2.2. *Imbalanced Skill Supply*

Educators appear to consider that skill supply is not following the increasing demand for intermediate workers perceived above. Several educators reported that the number of

²²⁹ Refer to the interviews with RU1, PV3, PV5, PV7, PV8, and RV1. Not only public educational institutions but also private ones rely on government information, given that two interviewed educators from private educational institutions also mentioned that they rely on government information.

²³⁰ See Chapter 5, Section 5.2.4.

TVET students who could become technicians or skilled operators is not increasing a lot, while the number of university graduates who could become engineers is steadily increasing:

The tendency is that the number of university students is increasing, but that the number of students in courses lower than university is decreasing...Yes, (the number of TVET students is not increasing). So, that is why some colleges cannot recruit (enough) students. Especially, vocational training programs are having difficulty recruiting enough students, especially vocational secondary schools...Not only this university, but others, too. [The Vice Rector, Public University A]

In particular, courses that require more physical work are usually unpopular among young people. Several educators stated that they have more students in electric, electronic and mechatronic courses than machining or welding courses (also see Appendix 7C).

Most educators attribute the decrease in applications for TVET courses to people's preference for university degrees and the excessive number of universities opened recently.²³¹

Now it [the total number of students] has decreased (from 2,000) to 1,300. You may already know that now there's a kind of trend that people prefer to go to university than vocational college. Since there are a lot of new universities that have opened, they have more chances to go to university. [The Rector, Public Vocational College D]

On the other hand, a few educators were optimistic that some young people have started switching from university courses to TVET programs:²³²

I think now people are changing their minds. Normally, there was a small number of people who graduated from high schools and came to the college, but this year the rate of upper secondary school students applying to the college is higher than in previous years.

²³¹ Ten of 12 interviewed educational establishments (PU1, RU2, PV1, PV2, PV3, PV4, PV5, PV7, PV8, RV1).

²³² PV4, PV6, PV8.

I think the people have changed their minds and have started not going to university. [The Vice Rector, Public Vocational College D]

According to them, this is because people have started realising that TVET graduates have better job opportunities than university graduates, even though they did not provide compelling evidence for this (see Section 7.2.4).²³³

So, many high school students and their parents know that they should attend vocational training courses to get a good job. [The Rector, Public Vocational College H]

In addition, Public Vocational College H, located in the Southeast Region, managed to increase the number of students.²³⁴ This is in part because of their effort to attract more lower-secondary graduates to vocational secondary courses, according to the Rector of the College:²³⁵

It (the number of students) is increasing by about 30 per cent every year, especially in (vocational) secondary courses which provide both academic (theoretical) and vocational (practical) training... We have more students attending the three-year training program after graduating from lower-secondary school. At the moment, we have only 19 students attending 2-year training programs after graduating from upper-secondary school.

This effort by Public Vocational College H is likely to be linked with provincial industrial policies which aim to increase the amount of higher value-added industries and expand the demand for skilled workers (see Chapter 5). Another vocational college (Public Vocational College F) which indicated an optimistic view is promoting TVET under provincial policies which address both the supply and demand sides (see Section 7.2.1.2).

²³³ Also see Chapter 3, Section 3.5.2. for the reliability of TVET graduate employment data.

²³⁴ This finding may not necessarily mean that TVET institutions in South Vietnam are securing sufficient numbers of students. See Chapter 5, Section 5.2.2..

²³⁵ See Chapter 3, Section 3.4.1 for the Vietnamese educational system.

However, only a fraction of young people may be switching from universities to TVET programs, considering that most educators stressed that many people still prefer to attend universities rather than TVET programs (also see Section 7.3.3):²³⁶

It is not easy (to recruit students for TVET courses), because the Vietnamese tend to respect higher degrees and firms tend to recruit more low-skilled workers. [The Vice Rector, Public Vocational College G]

Moreover, in Vietnam, it is uncertain to what extent TVET graduates are working as skilled workers in industry. In fact, TVET programs are likely to focus more on poverty reduction than industrial upgrading. The majority of TVET graduates come from vocational primary courses, but they are rarely working as intermediate workers in the industrial sector.²³⁷ According to the interview data, students in vocational primary courses consist of two main groups: (i) self-employed workers in rural areas; and (ii) company employees sent to acquire specific skills. There is no concrete data available for the proportion of these two groups, but it is likely that the first group accounts for the majority and most of them are not working in higher value-added sectors such as the machine manufacturing industry, according to the interview data:

I cannot give you a concrete answer because it depends on the year and course, but my observation is that most of them (vocational primary course students) are from rural areas and are (already) a certain age like a middle age...we also have short-term courses. We consider them vocational primary courses but provide them when requested by companies. [The Rector, Public Vocational College A]

In fact, some employers interviewed for this research mentioned that they do not recruit vocational primary graduates for intermediate worker roles. They prefer to hire vocational college or secondary graduates for these positions:

²³⁶ All 12 interviewed educational establishments.

²³⁷ A vocational primary course is a course that lasts less than one year. More than 80 per cent of all TVET students graduate from vocational primary courses (see Chapter 3, Section 3.4.1.)

For people who work in manufacturing, we require people who studied welding, machine processing, or assembling in vocational secondary or college courses... Technical workers can only be vocational secondary or college course graduates, not vocational primary course graduates. [The Director, a Vietnamese Production Equipment Supplier]

Such findings cast doubt on the effectiveness of the government's 'Project on Vocational Training for Rural Labour Forces by 2020' which aims to shift the labour force from agriculture to industry.²³⁸ Indeed, Tran (2017b) reported that the effect of the project is very modest.²³⁹ It would be hard to achieve two different objectives, industrialisation and social equity, with only one skills and training policy (Ashton and Sung 2015).

In short, educators consider that the supply of intermediate workers, who are supposed to be graduates from long-term TVET courses, is not sufficient, while the number of university graduates who have trained to become engineers is becoming excessive. A few of them were optimistic that people are reevaluating TVET programs, but most of them are likely to believe that the current skill supply trend will continue. This view of the supply-side problem is almost identical to that of policymakers interviewed for this research (see Chapter 5).

7.2.3. Educator Perceptions of Skill Mismatch

The interview data show that educators observe three kinds of skill mismatch in Vietnam, in accordance with the perceptions of skill demand and supply described above. First, several educators stated that there is a significant shortage of intermediate workers as a result of increasing demand and insufficient supply of long-term TVET course graduates:

I think in general demand for skills is very high, but the supply cannot meet the demand...the number of students who want to take (professional) college courses and

²³⁸ Also see Chapter 5, Section 5.3.1.

²³⁹ According to the interview data, policymakers may be also wondering whether this project is accelerating the shift of the labour force from agriculture to industry. The Department Director of Ministry B explained that the target workers for the project were too old to do industrial sector work, had not acquired skills required by manufacturing firms, and were reluctant to work far away from home.

above has increased, whereas enterprises have greater demand for students who have taken (vocational) college and lower level courses. So, that is why we cannot supply enough...meet the demand of enterprises...I think maybe the highest mismatch is at the technician level, that means people from vocational training. [The Vice Rector, Public University A]

In particular, the Vice Rector of Public Vocational College E expressed concern that the supply of mechanical technicians has not caught up with the demand in terms of quantity, given that the machining course is unpopular among young people.²⁴⁰

The number of students in mechanical courses is the highest at this college, but every year the number of college graduates has not met the labour market demand. We do not have enough students because not many people want to study mechanical engineering in general.

The Vice Rector of Public Vocational College D explained that this is because mechanical technician jobs are not valued by parents who have a strong influence on their children's education and career paths:

...their parents just say that the work in the mechanical sector is very hard and tough and they wanted their children to have easier jobs. So, they prefer that their children study electric control. So, I think it's also the mindset or perception that the job of mechanical technicians is always hard and difficult.

This indicates that young people may not always select trades or majors because of the availability of job opportunities (also see Section 7.3.3).

The second sort of skill mismatch is oversupply and over-qualification of university graduates, which is caused by the combination of low demand and poor quality of university graduates. The Vice Rector of Private University A mentioned that since the demand for engineers is small, many of their graduates need to start their careers as

²⁴⁰ Also see Section 7.3.3.

technicians. Several vocational college staff members also reported that many university graduates have recently come to TVET courses in order to acquire job-specific skills, even though they did not provide details such as the number of students and the courses in which these students enrolled:²⁴¹

There is a huge number of unemployed university graduates and now most of them are trying to come to vocational training colleges to get skills to find jobs. [The Vice Rector, Public Vocational College E]

Finally, educators perceive wide skill gaps. They feel that both TVET and university students do not have sufficient skills to meet employers' requirements:

Even in my university, we still cannot meet the demands of enterprises. Here I mention both in quantity and quality...And, many universities can provide engineering education, but companies still lack engineers. I think the point is that, even though they have graduated from university, students cannot meet the demands of enterprises. [The Vice Rector, Public University A]

In particular, some educators, half of whom are from universities, pointed out a lack of cognitive and social skills, which they call 'soft skills,' including foreign language ability as well as communication, teamwork, and time management skills.²⁴² Several educators mentioned that skill gaps are wider for soft skills than hard skills such as technical skills:

For skills, I can see that they (manufacturing firms) require soft skills more than hard skills, because students now are very passive. So, they need people to be more active and have better a learning attitude...I think this is quite similar to other universities. I think it is mainly because, even though they have a mismatch in both soft and hard skills, the gaps

²⁴¹ For example, it is unclear which course (e.g. vocational college or vocational primary) those students enrolled in.

²⁴² All interviewed universities reported a lack of soft skills (PU1, PU2, RU1), while 3 of 8 interviewed TVET institutions mentioned it (PV1, PV5, PV8).

are wider for soft skills. So, they need to narrow the gap. [The Vice Rector, Public University A]

This perception is in part incorporated into their strategies for reforming education and training programs (see Section 7.3.1.1)

In summary, educators appear to perceive both skill shortages and skill gaps. Regarding the size of the skill shortage, educators indicated different views by occupation. They believe that there is a large shortage of qualified intermediate workers such as technicians who have graduated from TVET programs, while the number of university-graduated engineers exceeds the demand. As for the quality of skill supply, educators observed that their students do not have enough skills to meet employer requirements. In particular, they are paying increasing attention to university and TVET students' lack of soft skills, such as cognitive and social skills.

This means that educators and policymakers interviewed for this research share very similar perceptions of skill mismatch (see Chapter 5). Furthermore, their views are also close to the findings of previous studies (e.g. World Bank 2013a; Goodwin et al. 2014), even though educators interviewed for this research do not perceive a large shortage of engineers. Furthermore, many educators attribute this skill mismatch to two factors which are often claimed by the supply-side approach. For one thing, education and training cannot keep pace with increasing skill demand due to technological change (e.g. Goldin and Katz 2008). In addition, young people fail to choose education and career paths which meet employer skill needs, due to insufficient understanding of the labour market (e.g. Almeida and Robalino 2012).

7.2.4. Conflicting Feelings about Skill Demand

According to the above findings, increasing skill demand for intermediate workers is one of the key foundations of perceived skill mismatch. However, the interview data suggest that some educators hold conflicting feelings regarding this prevalent notion about growing skill demand. While indicating increasing demand for intermediate workers,

some educators stated that the demand for unskilled production line operators is still higher than for skilled workers, mostly based on observations of nearby firms' recruitment activities (see Appendix 7B):²⁴³

...there are many industrial sectors which do not require high levels of education or skills. Firms in those sectors need just simple-skill workers. Then, they do not need to pay higher salaries for higher skilled people. Also, they can get those workers very easily. I think that is the reality in the labour market in Vietnam. [The Rector, Public Vocational College C]

Educators also have conflicting feeling about FIEs, which are anticipated to require more skilled workers (see Section 7.2.1.2). Some of them are disappointed that FIEs do not have strong aspirations for upskilling. The Vice Rector of Public Vocational College B found that FIEs prefer to recruit unskilled workers and are not motivated to train them:²⁴⁴

And compared with Vietnamese companies, I can see that foreign companies prefer to hire unskilled workers. Then, they do not provide them with much training. So, workers can do only very specific work. So, when they leave these companies, they can do only limited tasks.

In particular, several of them indicated that large foreign-invested assemblers usually focus on unskilled workers:²⁴⁵

As you may know, [a large Korean electronics assembler] is now recruiting a huge number of workers in Vietnam, but they use only unskilled workers. How long will they recruit that large of a labour force? After 2 or 3 years, they may release (dismiss) these workers and what will happen to them? [The Vice Rector, Public Vocational College E]

²⁴³ Five of 12 interviewed educational establishments (PV2, PV4, PV5, PV6, PV7).

²⁴⁴ This opinion is in line with ActionAid and Oxfam (2012) which found that most unskilled workers who are operating simple processes do not consider that skills they learned in the work place are valuable and transferable because those skills are required only in the companies where they were learned.

²⁴⁵ These 3 TVET institutions (PV4, PV5, PV6) are located in 2 provinces in Red River Delta region, which have been attracting FDI for a long time.

Ironically, many TVET graduates are likely to be working for those assemblers, as the above Vice Rector explained:

Also, recently, [a large Korean electronics assembler] recruited a lot of students, but we still cannot meet their requirements in terms of numbers of workers.

TVET students are often recruited as operators or assemblers when entering firms and look for an opportunity to be promoted to technician, according to the Vice Rector of Public Vocational College F.²⁴⁶ This implies that educator perceptions of increasing demand for intermediate workers are not based on solid evidence but wishful thinking, since the high employment rate does not necessarily guarantee that TVET students are working as intermediate workers. The consensus view among most educators is that the demand for ‘direct workers’, including elementary and intermediate workers, is higher than for ‘indirect workers’, who are mainly professional staff, as the Rector of Public Vocational College C mentioned:

I think there is a trend of increasing demand for direct production workers, which means people who work at production sites. I can see that the demand for direct workers who have graduated from vocational training is increasing,

However, it may be hard for educators to clarify whether the demand for intermediate workers or elementary workers is increasing. For example, the Vice Rector cited above expressed difficulty in knowing what positions the college’s students obtain after graduation (also see Section 7.2.1.3).

In short, most educators perceive growing skill demand at the intermediate occupation level as the supply-side approach assumes, but at the same time they are uncertain whether firms, in particular large FIEs, require more skilled workers. This concern is pointed out by the demand-side approach, which argues that training more skilled workers does not automatically assure that employers will utilise them (Ashton and Sung 2015). However,

²⁴⁶ This is consistent with statements made by some firms interviewed for this research (see Chapter 6, Section 6.4.2).

this uncertainty is likely to be hidden behind the pervasive positive view supported by the current policies. In other words, the assumption that firms are requiring more skilled workers is so powerful that some educators struggle to challenge it even if they are not fully convinced of it.

7.3. Educator Attempts to Meet Perceived Skill Demand

The previous section found that interviewed educators perceive that the quality and quantity of intermediate workers is insufficient. What actions are they taking to address this? According to the interview data, they are apparently trying to: (i) improve training programs, in particular TVET programs, in accordance with industry skill needs; (ii) develop partnerships with firms; and (iii) encourage more young people to participate in TVET programs and work as intermediate workers.

7.3.1. Enhancing Economic Relevance of TVET Programs

7.3.1.1. Closer Attention to Employer Skill Needs

According to the interview data, educational institutions are attempting to enhance the ‘economic relevance’ of TVET programs, which means that students should acquire the skills required by employers and obtain jobs after graduation (Almeida and Robalino 2012). Most educators expressed the intention to provide education and training programs in accordance with employer skill needs:²⁴⁷

Since an educational establishment is also a service provider, our product is human resources which meet the demands of the market. So, employer demands, and requirements are the priority of our college. That is an important factor. [The Vice Rector, Public Vocational College B]

²⁴⁷ Nine of 12 interviewed educational establishments (PU1, PU2, RU1, PV1, PV2, PV5, PV6, PV8, RV1).

In particular, private educational institutions may decide that it is crucial to meet industry skill needs in order to differentiate them from public schools:²⁴⁸

Some private schools visit companies to collect information more often because we cannot survive if we supply poor quality graduates, but only a few schools do this and the rest, such as public schools, just develop programs based on their own strategies. [The Vice Rector, Private University A]

In order to meet employer skill needs, educational establishments are gradually adjusting their education and training programs at their own discretion.²⁴⁹ Many educators stated that supervisory ministries such as MOET and MOLISA have been vesting them with more discretion to revise their curricula:²⁵⁰

...MOET just provides the framework for the programs which have compulsory subjects like politics, finance and so forth. Besides these, we have room for optional courses that we can include in our programs. MOLISA also has a kind of framework, 30 per cent of which has room for the colleges to design their own courses. From July of this year (2015), the new Law on Vocational Education and Training will come into effect...It does not stipulate the framework for the training programs, but it states that there are skills standards and requirements for certain jobs or certain workers. Based on those skills standards, (vocational and industrial) colleges should have more discretion to design their own training programs to meet the standards. [The Vice Rector, Public Vocational College E]

With increasing discretion, half of interviewed educational establishments reported efforts to adjust their education and training programs in accordance with employer skill

²⁴⁸ In her case studies in South Vietnam, Tran (2017a) indicated that private universities tend to be more active in engaging in external stakeholders, including employers, in order to improve generic skills education.

²⁴⁹ The government is likely to be giving more autonomy to educational establishments. See Chapter 5, Section 5.3.1.1.

²⁵⁰ Eight of 12 interviewed educational establishments (PU2, RU1, PV4, PV5, PV6, PV7, PV8, RV1).

needs (see Appendix 7D).²⁵¹ For one thing, the research found that several universities are trying to improve the structure and content of some technical courses by studying the skill needs of relevant employers, with assistance from a foreign aid organisation.²⁵² Public University A revised the curricula of some mechanical, electric and electronic engineering courses by studying the skills required by firms which often recruit its graduates. After receiving input from a large oil refinery management company, Public University B improved the curricula of the chemical engineering course.

In addition, several TVET institutions appear to be improving their practical lessons. For example, the Rector of Public Vocational College A explained their pilot program to remove the boundaries between theoretical and practical courses, which are usually taught as separate classes:

...we combine theoretical and practical courses. It means that one teacher should cover both the theoretical and practical classes. So, this is the main change.

The Vice Rector, Public Vocational College E reported that they increased the amount of practical lessons:

Regarding the change in the training programs, in the year 2014, we revised the training and education programs, and the number of credits in our college increased from 95 to 110. It means that around 15 new ones were added, mostly in the field of practical production skills

Furthermore, several educational establishments have developed courses related to cognitive and social skills, aiming to reduce the perceived skill gap. Private University A and Public Vocational College H recently launched new courses related to basic production management methods and occupational health and safety. They have been receiving input from small foreign-invested suppliers through regular meetings facilitated

²⁵¹ Six of 12 interviewed educational establishments (PV1, PV2, PV4, PV6, PV8, RV1).

²⁵² Refer to JICA (2014b). The author also referred to other project activity reports, which are not named here in order to keep the interviewees anonymous.

by a Provincial Industrial Zone Authority.²⁵³ A few interviewees also expressed the intention to strengthen training in basic knowledge and skills including soft skills:

From my point of view, companies require workers to have basic and professional skills. Special skills should be developed based on basic skills taught by vocational colleges. Without basic skills and knowledge, trainees cannot obtain higher or special skills. [The Vice Rector, Public Vocational College F]

Nonetheless, there is the possibility that the majority of instructors still focus more on specific technical skills rather than general skills such as basic engineering knowledge or soft skills, in particular at TVET institutions, according to the Rector of Public Vocational College D:

...we also understand that companies need students to have very basic knowledge, but normally schools think that basic knowledge is just a simple thing and they ignore it, and they try to teach students new and complicated things, but actually at companies, newcomers need basic knowledge first. Sometimes there is a mismatch of perception between enterprises and schools.

In 2010, MOET issued a policy to oblige universities to provide ‘soft-skills’ training, which includes communication, teamwork, computer, and foreign language skills (Tran 2017a, p. 2). On the other hand, it seems that the government has not issued a concrete policy for TVET programs to strengthen ‘soft skills’.²⁵⁴

7.3.1.2. Drivers of Curriculum Reform

The above findings indicate that educators are becoming more inclined to improve TVET programs in accordance with employer skill needs, in line with the supply-side approach. In reality, however, the curriculum reform may not fully meet industry skill needs.

²⁵³ These activities have been carried out with technical assistance from JICA. Refer to the project activity reports, which are not named here in order to keep the interviewees anonymous.

²⁵⁴ There is the possibility that university teachers also tend to focus more on specific and technical skills. Mori et al. (2012) found that teachers in one industrial university tended to presume their graduates lacked technical skills, although employers reported that their graduates had a greater lack of general skills.

Despite their willingness, representatives from the half of the interviewed educators did not articulate which skills needs they are incorporating into their education and training programs. Some educators mentioned new courses such as mechatronics and IT which were added to help fulfil employers' and society's needs:

We added the mechatronics course because of market demand. We have been providing machining and electronics courses, but because of society's demand for technology such as robots, we combined these courses and developed the mechatronics course. Last time, we did not have the IT course, but now we have it because of technological development. The mechatronics course was developed because of companies' requirements. [The Rector, Public Vocational College A]

Nonetheless, whether they added these courses purely due to employer needs is questionable. In fact, some educators perceive higher demand for mechanical technicians or skilled machine operators than mechatronics technicians (see Section 7.2.1.1). Several educators explained that they launched these new courses in accordance with government instructions:

In the future, we plan to open new courses such as electronic, machine processing, and mechatronics...We found higher demand for mechanical and electronic workers from employers. In addition, [the Provincial People's Committee] instructed us to open those courses. [The Rector, Public Vocational College G]

Furthermore, several educators reported that they have been importing curricula as well as skills standards and skills assessment methods from various countries such as Australia, Germany, Malaysia, South Korea, and Japan mainly through official development assistance (ODA) projects:²⁵⁵

From the year 2015, we have had 5 curricula which are internationally equivalent. These programs were borrowed from Australia and we also sent our staff to Australia to be

²⁵⁵ Refer to the interviews with PV2, PV6, and RV1. In their interview, Private Vocational College A mentioned that they are conducting national skills tests with assistance from Japanese aid organisations.

trained. And the curricula and programs at our college are adjusted according to the Australian programs. (Those curricula are about) mechatronics, electric installation and control, IT application software, graphic design and industrial electronics²⁵⁶. [The Vice Rector, Public Vocational College B]

The above Vice Rector was confident in his college's ability to synthesise different countries' models:

So, surely, we would have some difficulties, but we think we can overcome...As you may know, Vietnamese people are quite flexible. Therefore, we'll try to learn from different experiences. For example, from the Australian Model, we'll try to learn skills standards which are applicable for any other countries. Also, from Japanese projects, we would like to improve our technological capacity in terms of equipment and we also want to learn the Japanese model of culture and organisation. And I think there would be no conflicts between two of them.

Nevertheless, he did not articulate how those other countries' models can be aligned with Vietnamese employer skill needs, which is the foundation of the supply-side approach.

In short, educators are becoming more eager to improve training programs based on industry skill needs, according to the supply-side approach. However, they have not started reforming curricula based on their own analysis of local employer skill needs. Instead, they appear to often depend on government instructions and other countries' models. This raises three questions about the supply-side approach solutions. The first issue is the feasibility of obtaining sufficient skill needs information and developing curricula in accordance with the perceived needs of employers. For instance, employers, who would be a primary information source, often face constraints in assessing and forecasting skill needs (see Chapter 6). Second, even if educational establishments managed to develop such curricula, they would not necessarily help people develop careers in the long run and make their lives better (Payne 2002). Finally, it is uncertain

²⁵⁶ The Government of Vietnam purchased the training package from the Chisholm Institute in Australia (Chisholm Institute 2014, p. 13).

how feasible and effective it is to engage in ‘policy borrowing’, which is the process of transferring one country’s ‘best practices’ to another country with different economic, social, cultural, and institutional contexts (Turbin 2001, pp. 107-109). These issues will be discussed in Chapters 8 and 9.

7.3.2. Developing Partnerships with Firms

The interview data show that educational establishments are trying to strengthen partnerships with firms, in accordance with the supply-side approach. Some educational establishments, mostly universities, reported that they have set up designated units to enhance cooperation with industry:²⁵⁷

To get future demand on skills and human resources, we have to restructure our organisation. We created a new centre. It is called the Center for Enterprise Partnership and Vocational Skill Assessment. And the main task of this centre is to develop relationships and get information from enterprises. Of course, we are working on promoting this centre. We are now developing...a way to systematically...get information from enterprises and form cooperation between the university and industry. [The Vice Rector, Public University A]

But what sort of partnership activities are they developing? Mori (2013b) and JICA (2014b) explained that the partnerships between educational establishments can roughly be divided into 6 steps, which consist of: (i) recruitment activities such as job vacancy advertisements and job fairs; (ii) employment support activities such as company visits by students and special lectures by graduates working in firms; (iii) capacity development of students such as internships and lectures by company experts; (iv) capacity development of educational establishments such as training for teaching staff by company experts and curriculum development with input from firms; (v) capacity development of company employees such as short-term training courses for company employees organised in educational establishments; and (vi) joint research (see Figure 7.1).

²⁵⁷ Three universities (PU1, PU2, RU1) and 1 vocational college (PV3).

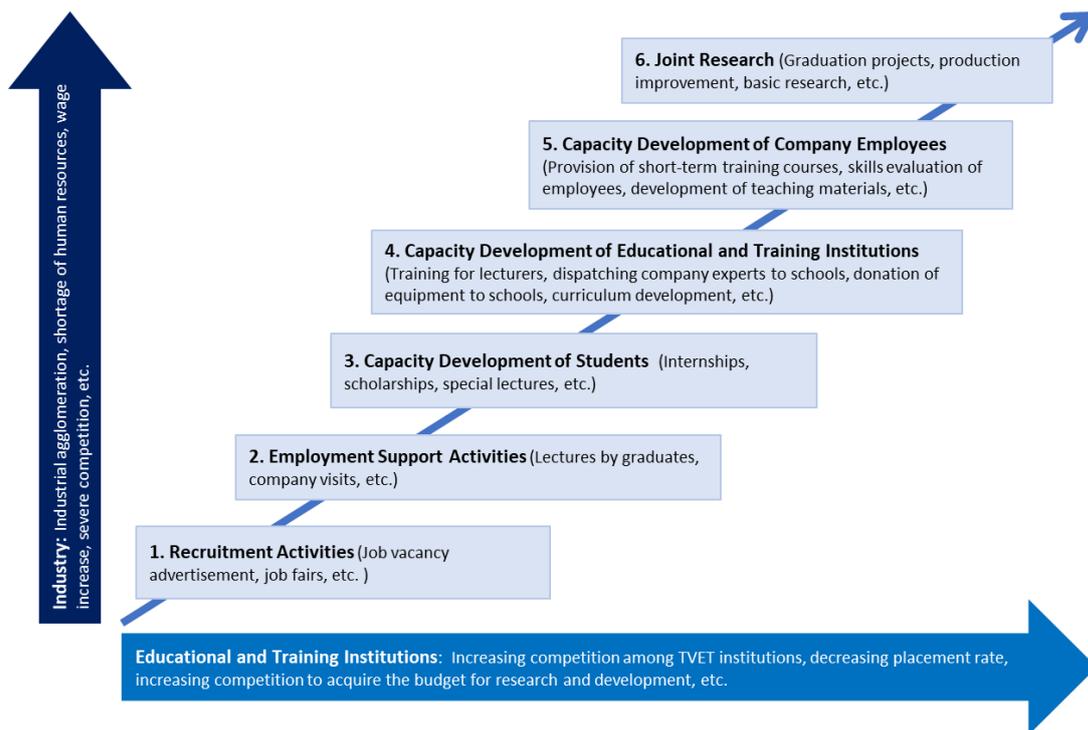


Figure 7.1. Basic Steps of Partnership Development between Educational Establishments and Industry

Source: The author modified based on Mori (2013b); JICA (2014b).

It is presumed that firms are usually more motivated to cooperate with or invest in educational establishments when they face shortages of skilled workers and the poaching of trained workforce accelerates due to rapid industrial agglomeration (Mori 2006).²⁵⁸ If skilled workers are often poached by their competitors, firms are discouraged from investing in internal training (Stevens 1996).²⁵⁹ At the same time, firms start increasing their expectation that educational establishments will supply trained workers. This can be simply because they need to fill vacancies or because they are attempting to reduce training costs by transferring part of training responsibilities to the education side (Cappelli 2015). On the other hand, educational establishments become more active in

²⁵⁸ Also see the quote from the interview with the General Director of Japanese Electronics Assembler A in Chapter 8, Section 8.2.2 about firm incentives to cooperate with educational establishments. In the framework of market failure theory, poaching is said to discourage firms from investing in internal training (Stevens 1996), but it may encourage firms to strengthen relationships with educational establishments in order to hire workers who are ready to work.

²⁵⁹ See Chapter 2, Section 2.4.1 about poaching externalities. Also see Keep (2006) for a critical account.

approaching firms once they face greater competition in securing enough students or government financial support (Burchill 2001). In fact, educators may have started paying close attention to employer skill needs since they have already faced these challenges (see Section 7.3.3).²⁶⁰ This section reviews the current employer engagement situation according to this framework.

Some educators reported employer engagement in the capacity development of students (step 3 of Figure 7.1). Internship programs are a popular form of partnership, as some educators reported that they are organising them with firms, in particular large electronics, motorcycle, and automotive assemblers.²⁶¹ While reporting that it is often difficult to find firms that will accept students as interns, the Vice Rector of Public Vocational College E presented a case of an organised internship program with a SOE:

Companies do not want to receive students more frequently, because they only want to receive students who have already acquired skills...But there are also some successful cases in which some companies are active in the training process. For example, now we have a kind of a joining program with VINACOMIN (Vietnam National Coal and Mineral Industries Group) that specialises in coal-mining. In this program, all the academic and theoretical courses are provided at our college, while the practical lessons are carried out in the company. I think this is a very successful case. [The Vice Rector, Public Vocational College E]

Some interviewees described their attempts to acquire employer assistance in improving their training capabilities (step 4 of Figure 7.1). Several of them are trying to mobilise financial and in-kind contributions from firms such as scholarships and equipment donations. Half of interviewed educational establishments reported attempts to obtain technical advice from firms for curriculum improvement.²⁶²

²⁶⁰ Also see Chapter 8, Section 8.2.4 and Section 8.3.2.

²⁶¹ Five of 12 interviewed educational establishments (PV4, PV5, PV6, PV8, RV1).

²⁶² Six of 12 interviewed educational establishments (PU1, PU2, RU1, PV2, PV5, PV8).

In our college, there are different faculties and some departments under them. The heads of the departments are experts in their fields. They have very good contact with companies and have information about some sector's development and the requirements from companies...Based on their information and recommendations, we will make decisions by organising a conference where experts from enterprises are invited to make comments on the programs we want to adjust. [The Vice Rector, Public Vocational College B]

Some educational establishments stated they are trying to provide short-term training courses for firms (step 5 of Figure 7.1), aiming to not only improve the capacity of teachers but also earn additional income:²⁶³

We know one firm has very high rate of defectives. So, we try to find out the cause of the defectives...we assure them that if they pass our courses the defective rate will decrease very quickly. We also have different ways to do it. We work with firms and try to solve their problems. We also conduct PR activities. By doing this, our teaching staff can have extra income. This provides incentives for the teaching staff of our college. [The Vice Rector, Public Vocational College F]

Nonetheless, the research could not clarify how regularly such training courses are provided for firms.²⁶⁴ In addition, Friedman (2004) reported the majority of firms do not utilise external training institutions such as vocational training institutions to train their employees.

In short, the above findings suggest that educational establishments are becoming more willing to develop partnerships with firms. However, it is still uncertain to what extent they are succeeding in mobilising firms' support, in particular in improving their education and training programs. For instance, the majority of interviewees did not

²⁶³ Refer to the interviews with PU1, PV1, PV5, PV6, and RV1. The government urges TVET institutions to obtain training and recruitment contracts with firms. See Chapter 8, Section 8.3.3.

²⁶⁴ Only Public University A provided an annual schedule of training courses to the author during the interview.

provide solid evidence of how technical advice from firms improved specific courses.²⁶⁵ Thus, most cooperation activities between educational establishments and firms are likely to be limited to recruitment and employment related activities such as job fairs and internships, as previous studies found (Friedman 2004; Mori 2013a; World Bank 2013a).²⁶⁶ Assuming that educational establishments have been approaching firms as they reported, this may indicate not many firms are motivated to contribute to education and training reform since they do not perceive a significant skill shortage, as found in Chapter 6. This issue will be examined further in Chapter 8.

7.3.3. Increasing the Supply of Intermediate Workers

In parallel with the improvement in the quality of TVET programs, educational establishments are implementing two strategies to increase the quantity of intermediate workers: (i) attracting more young people to enter TVET programs; and (ii) encouraging more TVET students to become intermediate workers after graduations.

Several educators assumed that most young people want to go to university in part because young people have limited information on what sort of job opportunities they may obtain after completing a university or TVET course:

The first reason is the perspective of Vietnamese. They cannot imagine the purpose of going to university or vocational training. They have no idea what graduates could do after each training level. So, they just try to get the highest educational qualification possible... That is because they are so confused about their future career that they just take the highest education they can. [The Rector, Public Vocational College H]

²⁶⁵ The author obtained convincing evidence that Public University A, Public University B, Private University A, and Public Vocational College H engaged firms in curriculum improvement, which included the names of the firms which provided technical advice (also see Section 7.3.1). However, those educational establishments were connected to firms mostly with technical assistance from JICA.

²⁶⁶ Also see Chapter 3, Section 3.6.3.

Accordingly, the Rector of Public Vocational College H, which is located in the Southeast region, ascribed the unpopularity of TVET programs to their insufficient efforts to disseminate information on the benefits of joining the programs.

...I think, first, TVET programs are not popular, maybe because training institutions have not made enough efforts. Maybe training programs are not attractive or TVET institutions have not provided enough information for prospective students to help them judge whether training programs meet their needs.

Therefore, some educators stated that they are carrying out PR activities to recruit more applicants for their TVET courses by targeting young people and their teachers:

...The official recruitment season is in August. So, every March we invite lower secondary and upper secondary school students and their teachers to our school and let them visit our workshops and provide consulting about future careers. We sometimes arrange study tours to enterprises. For example, recently we invited them to visit [a Japanese company] in the Nhon Trach Industrial Zone. After the visit, the number of applicants increased by 50 per cent. Last year we only had 30 students, but this year we have 45 students in the machining course. [The Rector, Public Vocational College H]

Several educational establishments have been specifically targeting lower-secondary students, since many upper-secondary students prefer to go to university:

We have been trying to attract lower secondary school graduates...There is the situation that people who graduate from upper secondary schools do not want to obtain a vocational secondary degree. That is why it is very hard to attract those people. [The Vice Rector, Public Vocational College F]

However, the interview data imply that the provision of more job opportunity information may not be enough to attract young people to TVET programs. In contradiction to the above perception on insufficient labour market information, several educators mentioned that young people have already obtained access to labour market information, even though it may not be precise:

Students have a certain level of information about salary and job opportunities through graduates of this college, families, and relatives. [The Rector, Public Vocational College G]

The previous literature on Vietnam's skill formation system assumes that young people rely on inaccurate information obtained through their personal networks (World Bank 2013a), but this above quote implies that it may not be always true. This may mean that many young people are applying to universities while knowing that they would have better job opportunities by joining TVET programs, as the Vice Rector of Public Vocational College D stated:

Yes, in one way, the enterprises here have high demand for workers or a labour force, but on the other hand, students still prefer to go to the university, even though it's difficult for them to get a job after graduation. And you can see that the students who study in the machining course, even before their graduation, most of the companies have already come here to recruit them. So, 100 per cent of students can get a job after graduation.

Educators often attribute this behaviour to lack of career aspirations and insufficient understanding of the labour market among young people, which leads to an irrational or unrealistic decision in the framework of the supply-side approach (Musset and Kurekova 2018):²⁶⁷

Few students have a kind of dream or desire for their career. Most of them come here, because they just want to have a skill to get a job, but it's not because they love that career path. Of course, there are some, but not the majority. [The Vice Rector, Public Vocational College D]

²⁶⁷ Refer to the interviews with PU1, PV1, PV4, and PV7. This argument that young people lack career aspirations is also common in developed countries (Musset and Kurekova 2018). Spohrer et al. (2017) argued the British government has been attempting to raise the career aspirations of young people from disadvantaged backgrounds, regarding them as a deficit in the framework of the neoliberal governance which requires flexible and agile individuals. See Chapter 2, Section 2.4.1 about the concept of 'rational decisions' presumed by the supply-side approach.

Accordingly, several educational establishments are attempting to provide career guidance for their students as a means to convey precise labour market information to them and assist them in acquiring suitable jobs:

I also try to teach students about other possible career options in the future. When companies approach the college for recruitment, we try to let students know what the companies are like and what kind of opportunities they may have. These kinds of activities help students select where to work. [The Rector, Public Vocational College A]

However, young people may not be totally lacking career aspirations. Instead, they have their own criteria for deciding their career and education paths besides job availability. In contrast to the earlier statement, half of interviewed educators stated that young people are pursuing their careers with some objectives:²⁶⁸

...Anyway, one of the features of vocational college students is that they tend to do something related to what they learnt at the college and I think their ultimate goal is to have jobs with stable incomes. [The Vice Rector, Public Vocational College B]

In particular, in making an education or a career decision, most young people pay attention to social factors, in addition to economic factors such as the entry level salary (Brown et al. 2001). Young people and their families are likely to care that the social status of bachelors' degree holders is much higher than that of TVET graduates in Vietnamese society:

I think that is because of people's mind-set. Even though I said that the people's attitude toward vocational training is changing and they are sending their kids to vocational training, in fact in their minds, they still hope their children can go to university, but they have to accept the fact that their children cannot go to university and they become more realistic. So, they send their children to vocational training. Maybe the social image of people from universities is higher. [The Vice Rector, Public Vocational College D]

²⁶⁸ Six of 12 interviewed educational establishments (PU1, RU1, PV1, PV2, PV6, PV7).

This difference in social status is likely to be caused by the ‘academic-vocational divide’ (Fisher and Simmons 2012, p. 38; Brockmann and Laurie 2016, p. 2) happening in the Vietnamese education system, as reported by the World Bank (2015).

In short, educators are attempting to reduce information asymmetry between young people and employers, as the supply-side approach proposes (Booth et al. 1996; Almeida and Robalino 2012; Pompa 2013; World Bank 2013a). Nonetheless, this may not be enough to increase the supply of intermediate workers. The interview data indicate that better labour market information may not necessarily be encouraging young people to work in intermediate jobs, because their decisions are affected not only by job availability but also by social status, which differs considerably between TVET and university. Policymakers interviewed for this research indicated that the government has started restricting the number of university students (see Chapter 5), but its policy effects are not evident as far as educators observe (also see Chapter 8).

7.4. Conclusion

This chapter suggests that educational establishments mainly perceive three types of skill mismatch in Vietnam: (i) a skill shortage of intermediate workers who graduated from TVET programs; (ii) an oversupply or over-qualification of graduates from university engineering programs; and (iii) a gap between employer requirements and the skills of both university and TVET graduates. Educators attribute these skill mismatches to insufficient quantity and quality of skills in conjunction with growing skill demand accelerated by the factors such as increasing FDI inflow, regional economic integration, and technological development. In short, they share a very similar understanding of skill mismatch with government officials, mainly because their perceptions are based on government policies and reports rather than direct input from employers. Accordingly, educators are attempting to implement skill formation strategies which focus on supply-side solutions such as incorporating industry skill needs into TVET programs, developing partnerships with firms for training program improvement, and carrying out PR activities

and career guidance in order to encourage more young people to attend TVET programs and become intermediate workers (also see Chapter 5).

This supply-side strategy relies on the human capital theory assumption that firms are willing to recruit more skilled workers once they become available (Lloyd and Payne 2002). However, many firms are unlikely to require a large skilled workforce at present, according to the findings in Chapter 6. This casts doubt on the feasibility of current skill formation strategies. Indeed, Brown et al. (2001) pointed out that the supply-side approach is vulnerable to the fluctuation of skill demand. In fact, some educators had conflicting feelings about the prospect of skill demand, expressing both high anticipation and suspicion. Some local government officials also suspected whether firms, in particular large FIEs, require increasing numbers of skilled workers (see Chapter 5), but this scepticism is more evident among educators.²⁶⁹ This implies that educators are facing more direct challenges in mobilising support from employers in order to materialise current skill formation strategies (see Chapter 8).

Nonetheless, this scepticism is outweighed by their optimism that skill demand is increasing, which is supported by the current policy direction. In other words, despite their uncertain feelings about the demand side, educators are following policymaker perceptions of skill mismatch, which are heavily influenced by the supply-side approach. As a result, educators are likely to be put in the difficult position of implementing skills policies which focus solely on the supply side without integrated intervention in the demand-side. There is evidence that several TVET institutions are benefiting from local industrial policies which stimulate skill demand in terms of securing students and aligning their perceptions of skill demand with employers, but they may still be exceptions (see Chapter 5). The challenges posed by current skill formation strategies will be examined in more detail in Chapter 8. Furthermore, Chapter 9 discusses why the supply-side approach has become more prevalent than the demand-side approach in Vietnam.

²⁶⁹ Some interviewed government officials in provinces which have recently started attracting FDI also expressed similar suspicion about growing skills demand (see Chapter 5).

Chapter 8. Skill Formation Challenges and Policy Responses

8.1. Key Actors' Perceptions of Skill Mismatch

The previous chapters examined how three key actors, namely policymakers, educators, and employers understand skill mismatch in Vietnam. It shows that the majority of interviewed policymakers and educators perceive large skill shortages and gaps. In addition, most of them expect this skill shortage to increase with growing skill demand resulting from regional integration, FDI inflow, and technological innovation. In contrast, employers are likely to be less concerned about these skill mismatches. Their perceptions reflect the finding that not many firms require increasing numbers of skilled workers.

In short, there is a perception gap on the skill demand and supply balance among key actors. In particular, there is a large gap regarding perceptions of intermediate-level occupations: policymakers and educators believe there is large skill mismatch at this occupation level, while employers consider this less of a concern (see Appendices 8A and 8B). This perception gap casts doubt on the feasibility of the current skill formation strategy, developed in accordance with the supply-side approach, which assumes that employers suffer from serious skill shortages and require many skilled workers (OECD 2013b; Pompa 2013; World Bank 2013a; ADB 2014; Goodwin et al. 2014).

This chapter examines the challenges perceived by all three key actors in implementing the measures prescribed by the supply-side approach and the viability of solutions proposed by the government based on interview data. Section 8.2 analyses the key challenges in realising the supply-side approach. Section 8.3 examines what countermeasures the government proposes to overcome those challenges and whether those measures will work. The conclusion is presented in Section 8.4.

8.2. Challenges in Realising the Supply-Side Approach

This study has shown how policymakers and educators are attempting to improve TVET programs in accordance with their perceptions of employer skill needs and skill mismatch:

... I think the ultimate objective should be to provide people with high skills to meet the demands of the market. And it means that TVET graduates will find a job after graduation and satisfy all the requirements of the companies or employers. So, it means that we need to increase the effectiveness of the education process. [The Vice Department Director, Provincial Government C]

Whether TVET programs can be reformed corresponding to employer skill needs depends on the following four main conditions, as outlined in the literature proposing a supply-side approach (e.g. ADB 2009; Almeida and Robalino 2012; Pompa 2013; World Bank 2013a). First, policymakers and educators obtain sufficient information regarding employer skill needs. Second, they involve firms in developing and running education and training programs. Third, educational establishments have access to institutional support in identifying strategic partners, in addition to their own efforts. Finally, educational establishments attract a sufficient number of students to take courses which meet employer skill needs by providing people with sufficient labour market information. However, the interview data shows that policymakers and educators are struggling to meet these conditions, as the following sections explain.

8.2.1. Lack of Accurate Information on Skill Needs

There is a consensus among policymakers and educators that the quality of current TVET programs is not adequate to meet employer skill needs.²⁷⁰ They view one of the major obstacles to improving the quality of TVET programs as insufficient information on

²⁷⁰ Seven of 12 interviewed governmental organisations (NG01, NG03, NG04, NG06, NG07, LG02, LG03) and 2 of 12 interviewed educational establishments (PU1, PV4).

current and future skill demand.²⁷¹ Some of them ascribed this problem to firms' uncooperative and irresponsible attitude toward their attempts to collect skill needs information:

Many companies just complain that the students from vocational training schools cannot meet their requirements, but when we asked them what their specific requirements are in order to learn their skill needs and to provide training programs to meet them, none of them could provide the answers. [The Vice Rector, Public Vocational College D]

The Vice Department Director of Provincial Government C complained that firms often neglect their legal duty to provide detailed skill need information:

...according to the law, companies should provide information to concerned departments or ministries...companies should make the reports annually or every six months...But normally we don't have such kind of information. Even if some companies send the reports, they often send very simple reports without filling in all necessary or required information. Therefore, it is quite hard for us to adjust policies and forecast labour demand at the provincial level.

In short, policymakers and educators believe asymmetric information on skill needs impedes them from improving TVET programs, in accordance with market failure theory, which assumes that employers have skill needs information at hand (Booth et al. 1996; Almeida and Robalino 2012; World Bank 2013a).²⁷² Accordingly, policymakers and educators often presume that this information gap is mainly caused by firm negligence in disclosing the details of their skill requirements. However, they are unaware of employer constraints in assessing and forecasting skill and training needs (see Section 8.3.1).

²⁷¹ Two of 12 interviewed governmental organisations (local government - LG02, LG03) and 8 of 12 interviewed educational establishments (PU1, PU2, RU1, PV4, PV6, PV7, PV8, RV1).

²⁷² Also see Chapter 2.

8.2.2. Employers' Roles in TVET Reform

Employer engagement is a pillar of the supply-side approach (ADB 2009; Almeida and Robalino 2012; World Bank 2013a; Kis 2017). However, policymakers and educators are likely to struggle to involve firms in improving education and training programs. The interview data show that cooperation between firms and educational establishments mostly focuses on the early steps of partnership such as recruitment related activities and internships rather than curriculum development or collaborative training (see Appendix 8C).²⁷³ Some educators reported that they are trying to invite firm staff to the curriculum improvement meetings and encouraging firms to send their employees to their short-term training courses. However, their attempts are unlikely to deliver successful results, considering that these firms did not report such cooperation with TVET institutions. Half of the policymakers and educators interviewed attributed this situation to firms' reluctance to participate in TVET reform.²⁷⁴

...enterprises are not aware that they have to engage in and improve (education and training) activities, because they get graduated workers from this system. They think it is automatic. You train, and I get graduates and I do not have to pay anything. They just think about how to improve productivity and how to sell products, but they do not think about how to improve human resource development activities. [The Officer A, National Policy Institution A]

Employers interviewed for this research often suggested the quality of education and training programs be improved by taking into account their skill needs, in line with previous research and reports (e.g. OECD 2013b; World Bank 2013a; Goodwin et al. 2014). However, this does not mean that all of them are eager to be involved in education

²⁷³ Also see Chapter 7, Section 7.3.2.

²⁷⁴ Six of 12 interviewed governmental organisations (NG02, NG03, NG04, NG05, LG02, LG03) and 6 of 12 interviewed educational establishments (PU2, RU1, PV2, PV4, PV5, RV1).

reform.²⁷⁵ They often consider it the responsibility of the government and educational establishments, as Tran (2015) pointed out. Without facing serious skill shortages, most of them do not find a benefit in engaging in the education reform proactively. This tendency is salient for cooperation with TVET institutions since they do not face serious challenges in securing intermediate workers.²⁷⁶

In Japan, firms go to ask educational establishments to introduce students when the economy is good and we need more people, while educational establishments come to ask us to recruit their students when the economy is depressed...Therefore, Vietnamese TVET institutions should visit firms more actively on their own for PR and learn what kind of people firms require now instead of relying on others' efforts. However, as far as I can tell from what they said, they are not willing to do so. [The General Director, Japanese Electronics Assembler A]

As a result, policymakers and educators are becoming frustrated by some firms' attitudes toward the TVET reform; they consider them to be uncooperative and irresponsible. This frustration comes from their assumption that firms should be more willing to work with them since they require more skilled intermediate workers. It is based on the positive scenario of industrialisation and upskilling depicted in national strategies which are strongly influenced by the supply-side approach (see Chapter 5).²⁷⁷ This approach often assumes that developing countries which undertake trade liberalisation and receive increasing FDI inflow experience skill-biased technological change (see Almeida 2010; Srour et al. 2013, p. 5). Accordingly, most past studies on Vietnam's skill formation reported that firms require skilled workers and will need more of them in the future in

²⁷⁵ The World Bank (2012c, p. 15) also reported that 'the voice and the participation of business and industry in establishing and implementing workforce development priorities is passive, ad-hoc and quite limited'.

²⁷⁶ In particular, large assemblers often worry less about intermediate workers' skills shortages and gaps. See Chapter 6, Section 6.4 for further details.

²⁷⁷ See Chapter 5, Section 5.2.4. and Chapter 7, Section 7.2.4.

order to adapt to new technologies and climb up value chains (ILO 2008b; World Bank 2008,2012a; Pompa 2013; World Bank 2013a; Goodwin et al. 2014).

However, the findings of this research do not support the above assumption (see Chapter 6). Skill demand is not growing rapidly due to intensified competition in supply chains and the limited scale of domestic markets. Furthermore, skill-biased technological change is not gaining momentum because of incremental and uneven adoption of new technologies. In this situation, firms would not actively contribute to the TVET reform, even if the government provided incentive policies, as the Deputy Director of National Policy Institution A pointed out. This demand-side problem has not been sufficiently acknowledged by the preceding literature on Vietnam's skill formation, which often focuses on supply-side problems such as educational establishments' incapability to incorporate industry needs (e.g. OECD 2013b; World Bank 2013a; ADB 2014).

8.2.3. Who Can Coordinate Skill Demand and Supply?

In general, educational establishments need the assistance of skill demand and supply coordination institutions to identify strategic corporate partners when they face difficulty in mobilising employer engagement, as mentioned in the previous section. These coordination institutions can be either governmental or non-governmental intermediary organisations such as business associations, but in the framework of the supply-side approach, employer-led organisations are expected to lead the improvement of education and training. This is because this approach assumes that the market function is superior to government interventions, which often end up in failure (Booth et al. 1996; Almeida et al. 2012b).²⁷⁸ In this framework, since firms are a prudent agent of the market, employer-led organisations are regarded as the most effective coordinators (OECD 2017a).²⁷⁹

²⁷⁸ This approach, which emanates from human capital theory, also comprises market failure theory, but it still considers that the government intervention should be limited to assisting the markets in providing appropriate signals, encouraging employers to provide on-the-job training, and urging TVET institutions to follow industry's skill needs. See Chapter 2, Section 2.5.1.

²⁷⁹ Also see Chapter 2. For example, in the UK, Sector Skills Councils are supposed to be led by employers (Payne 2008). In addition, Gekara and Snell (2017) explained a case in which the Government of Australia handed more control to employers in establishing Skills Service Organisations.

However, all three key actors perceive that Vietnamese employer-led intermediary organisations do not have enough capacity to facilitate partnerships between the demand and supply sides. For instance, they reported that the VCCI does not really represent the voices of their member firms, since it is more like a semi-governmental organisation (see Truong and Rowley 2013):²⁸⁰

... even if we said in the law that associations represent the interests of the members, I think the work and the function of Vietnamese associations are quite formal in general. So, they do not address the needs of members. Associations mostly rely on government support in terms of finance and others. So, I think their voices are not so strong. [The Vice Department Director, Provincial Government B]

In particular, business associations may fail to incorporate the opinions of SMEs, which account for the majority of firms in Vietnam:²⁸¹

Even now, firms with a large number of employees are leading the chamber of commerce. They have more political power. Thus, the government will go to talk with them... There could be a difference between what large firms want and what SMEs like us require. [The General Director, Japanese Heavy Machine Parts Supplier]

Consequently, both firms and educational establishments do not count on support from business associations and attempt to seek partners by themselves, according to the interview data.²⁸² The policymakers and educators still anticipate that business associations will play more active roles in upskilling in the long run. Indeed Goodwin et al. (2014) suggested that the VCCI make more efforts to link employer skill needs with TVET programs. However, they are not expecting business associations to start making significant contributions to upskilling in the near future.

²⁸⁰ VCCI is affiliated with the Vietnam Father Front, which is a liaison body between the non-governmental organisations and the Communist Party of Vietnam (Truong and Rowley 2013).

²⁸¹ See the foot note no. 92 in Section 4.3.2.2

²⁸² Refer to the interviews with PV4 and FA3.

On the other hand, some policymakers and educators see a slim chance of cooperation with foreign and provincial-level business associations. The Deputy Division Head of Government Agency B mentioned that foreign business associations such as the Japan Business Association Vietnam (JBAV) can play an important role to connect the government, companies, and workers in making better policies.²⁸³ However, as mentioned above, those associations may also be represented mostly by large assemblers, which are less interested in intermediate workers.²⁸⁴ Several educators reported that they have closer relationships with regional or local business associations than national-level associations.²⁸⁵ Nevertheless, the Vice Rector of Public Vocational College E pointed out that those business associations also lack the capacity to facilitate partnerships among key actors at this moment.

It may be common that private initiatives such as business associations may not automatically arise in developing countries (Ohno 2014). In this situation, the alternative is governmental intervention, as the demand-side approach proposes (Ashton et al. 1999; Brown et al. 2001). The national government apparently attempted to institutionalise a mechanism to coordinate skill demand and supply on a trial basis. According to the Department Director of Ministry B, a former Deputy Prime Minister established ‘the provincial council for workforce development’ to coordinate skill demand and supply in one Northern province on a pilot basis. This council consisted of representatives from firms and educational establishments and local government officials. It was assigned to provide policy proposals to the Chairman of the People’s Committee.

Nonetheless, this initiative was halted after the former Deputy Prime Minister left office. The above Department Director stated that this initiative could not be sustained because of the low commitment of relevant members and the lack of government strategies to

²⁸³ This may be because JBAV has been playing a leading role in the Vietnam-Japan Joint Initiative to Improve Business Environment (see Ohno (2009) and Chapter 3, Section 3.6.3).

²⁸⁴ See Chapter 6, Section 6.4.1.

²⁸⁵ ActionAid and Oxfam (2012) also reported a case of a district business association in Ho Chi Minh City that provided training for their member firm employees in cooperation with the Vocational Training Association.

maintain activities. These issues may be common challenges for national initiatives. The Deputy Director of National Policy Institution A also pointed out that multi-stakeholder dialogues for skill development may not function in Vietnam because relevant members have a low commitment to actively participating in the meetings on a regular basis and there is no designated agency to regularly organise such dialogues.

To summarise, no national institution seems to be regularly facilitating key actors' cooperation for upskilling in Vietnam, according to the interview data.²⁸⁶ The National Steering Committee on Training towards Society's Demand (NSCTSD) was established in 2008 as an inter-ministerial body for skill demand and supply coordination (World Bank 2012c; OECD 2013b, p. 5), but no interviewee recognised its activities or contributions.²⁸⁷

8.2.4. Increasing Social Pressures to Access Higher Education

Even if educational establishments managed to find a way to improve TVET programs in accordance with employer skill requirements, another challenge would remain. TVET institutions are facing difficulties in attracting young people (see Chapter 7).²⁸⁸ In fact, the enrolment in long-term TVET courses has been decreasing (see Chapter 3).²⁸⁹ The supply-side approach explains that this problem can be solved by disseminating more labour market information, provided that TVET institutions carry out training courses which meet employer requirements (Almeida and Robalino 2012; World Bank 2012d,2013a). Their logic is based on the human capital theory assumption that people will make a rational decision in a perfect labour market (Becker 1993b). In this case, they presume that the 'rational decision' is choosing to join TVET due to the availability of more job opportunities rather than going to university and being unemployed.

²⁸⁶ In particular this finding refers to the interviews with NG03, NG04, LG02, and LG03.

²⁸⁷ Also see Chapter 3, Section 3.6.3. about NSCTSD.

²⁸⁸ See Chapter 7, Section 7.2.2.

²⁸⁹ The total number of vocational secondary and college students decreased from 288,000 in 2009 to 239,000 in 2016. See Chapter 3, Section 3.4.3.

However, young people may still not join TVET programs, even with more labour market information. To begin with, this may show low demand for TVET-graduated intermediate workers (see Section 8.1). Furthermore, even if skill demand suddenly picked up and the labour market information indicated high demand for intermediate workers, social pressure to obtain a university degree would still make young people hesitant to attend TVET programs (see Chapter 7). The Deputy Division Head of Government Agency B explained that in Vietnamese culture, university graduates are highly respected, regardless of job availability for them. In contrast, the social status of TVET students is much lower than that of university graduates. This is likely due to the ‘academic-vocational divide’ in the Vietnamese education and training system (see Chapter 7 and Fisher and Simmons (2012, p. 38); Brockmann and Laurie (2016, p. 2) for the situation in the UK). Thus, the Vice Rector of Public Vocational College D stated that most young people and their families would not regard TVET as a primary choice even with the provision of more labour market information, as ActionAid and Oxfam (2012) found:²⁹⁰

I think it’s not only the reason of lacking information. The main reason is their parents. They would be proud if their children can enter universities. And if a neighbour’s children go to university but their kids don’t, they will be very disappointed. Therefore, they encourage their kids to pass the university entrance examination in order for them to feel proud and equal to other people.

Furthermore, the above social value may be linked to the low economic status of TVET graduates, which further discourages young people from joining TVET programs. Young people and their families often expect that a university degree will enable them to obtain a better job with decent working conditions, according to the Deputy Director of the Provincial Industrial Zone Authority in Province D.

In fact, several policymakers and educators reported that the salaries for TVET graduates are sometimes the same as those of upper-secondary graduates. Their perceptions are

²⁹⁰ Also see Chapter 7, Section 7.3.3. The low priority of TVET can be also found in developed countries which adopt the supply-side strategy on skill formation such as the UK (e.g. FE Week agitator 2011).

likely to reflect reality, as shown in the graph of average monthly earnings by educational qualification shown in Chapter 3. The interview data also indicate that some firms do not differentiate between TVET and upper secondary graduates in determining salaries. The HR Manager of Japanese Electronics Assembler B mentioned that in their salary schedule, TVET graduates fall into the same grade as upper secondary graduates:

We put TVET graduates in the lowest job grades along with upper secondary graduates...I have doubts about the capability of TVET institutions. I guess people who fail to enter upper secondary schools or universities join TVET institutions.

It is inevitable that young people would prefer to apply to universities if the salary level of TVET graduates is not much different from upper secondary graduates after a few years of training, as the Vice Rector of Public Vocational College D stated:

Maybe the social image of university graduates is higher...I think a small but important reason is the salary system. Even if you graduate from vocational colleges or from vocational secondary schools, you cannot get a much higher salary than unskilled workers who do not have any training or education. While the salary difference between university and vocational college graduates is very high, the difference between vocational college and general education graduates is low. And this small difference makes them think that they don't need to go to vocational college after completing secondary education.

The Official from Ministry C attributed the low wages earned by TVET graduates to their low productivity. This follows the neoclassical economic theory that assumes a worker's wage is equal to her or his marginal productivity, but it is naïve to consider that each worker's contribution to the output of the firm or office can be estimated (see Piketty 2014). Moreover, wages are considerably affected by social and institutional factors other than individual productivity (Wolf 2004). The wage gap between university graduates and TVET graduates may be widening beyond the productivity difference, since the

scarcity of qualified engineers and managers has caused salary levels to escalate, as the Deputy Division Head of Government Agency B implied:²⁹¹

In my opinion, the wage increase is not the same for all labour force and skill levels. First there is the lack of skilled workers (such as managers and engineers who have graduated from universities). So, skilled workers will ask for a much higher payment, and companies have to compete a lot in order to find qualified workers. They tend to pay more for really qualified people than in other countries (for people) with the same level of skills. That's also a problem in Vietnam.

The above findings indicate that the unpopularity of TVET programs is not caused only by the information problem. Young people may regard social status as a more important factor than job availability, even if the demand for TVET graduates is high. They may also be aware that wage levels and working conditions are affected by the social status of occupational or educational qualifications in Vietnam and hence consider intermediate jobs less rewarding, as shown by Wolf (2004, p. 331), who assumed that students and parents understand skill demand better than the government.²⁹²

8.3. Perceived Countermeasures and Feasibility

Despite the challenges in fulfilling the core requirements listed in the previous section, the interview data revealed that policymakers and educators still believe the supply-side approach's solutions can be realised if all key actors devote themselves to taking the necessary steps. They came up with four main countermeasures to reinforce the current policies: (i) collecting more skill needs information to improve TVET programs; (ii) promoting market-based reforms to improve the quality of TVET programs; (iii) mobilising more firm contributions to the TVET reform; and (iv) establishing an

²⁹¹ According to ILO and ADB (2014), the wage inequality is rising in many ASEAN member states, while the wage dispersion is relatively low in Vietnam compared with advanced ASEAN countries such as Singapore, Indonesia, and Thailand. Also see Chapter 6 about employer perceptions of the scarcity and rarity of professional staff.

²⁹² Also see Chapter 7, Section 7.3.3.

institution to coordinate skill demand and supply.²⁹³ This section examines how helpful and feasible those measures would be and what is missing in the current strategy.

8.3.1. The Availability and Applicability of Skill Needs Information

Policymakers and educators often consider skill needs information as a key solution to improving TVET programs in accordance with employer skill needs. This notion is strongly influenced by market failure theory, which underpins the supply-side approach (see Chapter 2). According to this theory, governments often fail to intervene in training programs operated by education and training institutions or firms because they have less information in amount and quality regarding skill and training needs than firms (ADB 2009; Almeida and Robalino 2012). Therefore, this theory regards the improvement of the labour market information system, which comprise macro-level data and information from employers, as a key solution to reduce skill mismatch (OECD 2010; ETF 2012; OECD 2017b). However, there are two questions: (i) is it possible to collect comprehensive information about employer skill needs?; and (ii) can TVET institutions fully incorporate it into their curricula if they obtain comprehensive data regarding skill information?

Policymakers and educators often anticipate that firms will provide more skill needs information. The Vice Department Director of Provincial Government C stressed that firms should comply with their legal obligation to provide a skill demand forecast to the government, as he stated in Section 8.2.1:²⁹⁴

Another thing the companies should do is to comply with the Law on Employment and provide information about their demand forecast to DOLISA and related government

²⁹³ Regarding the difficulty in attracting more TVET students described in Section 8.2.4, it seems that the government maintains current measures such as the provision of more labour information for young people, as mentioned in Chapter 5, Section 5.3.1. Also see Section 8.3.2.

²⁹⁴ Employers are responsible for reporting employment status to the government in employment logbooks, according to Labour Code (MOLISA 2014). In addition, the Law on Vocational Education and Training obliges employers to ‘provide information about demand for training and use of workers in the enterprise according to disciplines and demand for employment annually for the vocational education authority in Chapter IV (Vietnam National Assembly 2014). However, it seems that the implementation decree or circular to define the reporting procedure details has not been issues yet.

agencies. I know that companies have had so-called human resources development strategies for about 3-5 years. If we have such kind of information, we may have good policies and we will provide the information to workers and vocational training institutions.

Policy makers and educators apparently consider that firms should be able to articulate a long-term skill forecast as well as their current skill needs, as the above quote indicates.²⁹⁵ Thus, they tend to attribute the problem to either firms' unwillingness to share information or insufficient communication between TVET institutions and firms. This leads them to believe that training institutions affiliated with firms should face no information asymmetry problem with their parent companies, following the supply-side approach assumption of the effectiveness and flexibility of firm initiatives (Smith and Smith 2009; World Bank 2012d). The Department Head of Regional Office of Ministry C also presented several role models of education and training institutions established by SOEs, such as Petrolimex Vietnam and FPT Corporation, while noting that only very large firms may be able to afford to have their own training institutions.²⁹⁶

However, in general, firms cannot provide precise skill needs information for the supply side even if they want to do so (Holt et al. 2010; Grugulis and Stoyanova 2011; Payne 2018).²⁹⁷ Many employers interviewed are struggling to identify their current skill needs objectively and precisely, let alone future skill needs (see Chapter 6). In addition, skill demand is too diverse to consolidate not only by sector but also by firm. In fact, several educators reported difficulty in dealing with considerably diverse skill needs:

²⁹⁵ This might be even an overinterpretation of the supply-side approach's assumptions. This approach assumes that employers know their skills needs, as mentioned in Chapter 2. However, it may not assume that firms can foresee their long-term skills needs, as ADB (2009, p. 14) pointed out.

²⁹⁶ Petrolimex Vietnam, or the Vietnam National Petroleum Group is a large oil and natural gas company basically owned by the government (see Petrolimex 2017 corporate website). FPT is a large private IT company originally established by the government (see FPT corporate website). FPT established FPT University in Hanoi. Also see the case of VIGLACELA in Chapter 5, Section 5.3.1.

²⁹⁷ Holt et al. (2010) pointed out that the principal-agent problem often exaggerates recruitment needs. Grugulis and Stoyanova (2011) indicated difficulty in assessing advanced cognitive skills.

...there are so many Vietnamese companies that their demands are so different. For example, this company has its own demand, but others have different ones. So, it is difficult to determine one general direction for reforming our training programs. [The Vice Rector, Public University B]

TVET institutions belonging to firms are not entirely free from the difficulty in grasping employer skill needs, despite the advantage of close cooperation with their parent firms. The Rector of Private Vocational College A expressed difficulty in determining its skill needs:

The demand by factories today for a skilled labour force is high and diversified, as factories are constantly innovating (technologies) and being specialised. Therefore, from the perspective of a vocational training establishment, we find it difficult to meet the skill requirements...The first reason is that in some fields, the factories still hide their technology secrets.

Even with comprehensive skill needs information, TVET institutions would face a dilemma about whether they should follow employer skill needs or people's long-term skill needs. The Rector of Private Vocational College A wonders what sort of training they should give their students, predicting that the college's parent firm may require operators to have less skills in the future:²⁹⁸

...workers will have better knowledge and understanding as well as better skills, but their operation will be simpler and easier. I also foresee that in the future, the proportion of employees in our factories will consist of 10 per cent of engineers who operate and use new technologies and the rest who will mostly be workers working directly on production lines. So, the question here is, is it necessary for these direct workers to study a full two to three years of college courses, or should they even be required to attend secondary courses? Or do they just need to take short courses? This is a great challenge for

²⁹⁸ This college is affiliated to a Vietnamese Automobile Assembler, which was also interviewed in this research.

vocational training establishments in Vietnam in general and for our school in particular to meet the future demand for Vietnamese human resources.

In general, employers tend to focus on their immediate skill needs which often target specific tasks rather than long-term skills utilised for multiple tasks, since they need to make a profit as soon as possible for their survival (Ashton and Sung 2015; OECD 2016a). Accordingly, employers often require more job specific technical skills than general and transferable skills in Vietnam (ActionAid and Oxfam 2012; World Bank 2013a).²⁹⁹ This indicates the risk that, if a training program focuses only on employer needs, students may lose opportunities to acquire more transferrable skills which would enable them to adapt to different jobs, occupations, and industry settings in rapidly changing labour markets (Gekara and Snell 2017). For example, several educators interviewed for this research intended to strengthen ‘soft’ skills, including cognitive and social skills, in their TVET courses (see Chapter 7). However, those skills may not be targeted by TVET courses formed in accordance with employer skill needs.

In fact, this research indicated that large assemblers may not require intermediate workers to have advanced cognitive skills, such as problem-solving skills, which are highly transferable, as Vind (2008) also found in his case studies on the electronics industry (see Chapter 6).³⁰⁰ If TVET institutions design coursework according to employer skill needs, their graduates may have more limited chances of promotion to the engineer level. This is because these students often have lower learning abilities than university students upon matriculation, as the Director of a Japanese Machinery and Equipment Supplier, who has been trying to give university and TVET graduates equal training, reported:³⁰¹

²⁹⁹ World Bank (2013a, pp. 60-61) reported that employers consider job-specific technical skills as the most important skills among job-related skills, based on their survey on about 330 employers.

³⁰⁰ This research found that assemblers tend to expect professional staff to have those skills. See Chapter 6, Section 6.3.1 and 6.5.2.

³⁰¹ In addition, the Vice Rector of Public Vocational College D reported that TVET students tend to have lower academic knowledge than university students.

I wonder why, but if we teach both university graduates and others at the same time, in most cases, university graduates have better performance...They seem to have better learning ability...They can decide how to study and continue to study by themselves. In contrast, upper secondary or TVET graduates cannot study unless we keep teaching forever...I wonder why...When I talked this with my Vietnamese friends he said that people who graduated from upper secondary schools and did not aim to go to university probably stop studying when they were in upper secondary schools. This means that they did not develop learning ability.

Thus, conforming to employer skill needs may also result in reduced opportunities for social mobility.

Currently, policymakers encourage TVET institutions to obtain more training contracts from firms to meet their specific skill needs (see Section 8.3.3).³⁰² This policy direction may refer to the apprenticeship contracts promoted in some developed countries (OECD 2017b). Nonetheless, this policy may result in further reducing the career progression opportunities of TVET students and discourage young people from applying for TVET programs.³⁰³ The supply-side approach does not sufficiently explain that following employer demands may result in fewer career progression opportunities, while stressing the economic relevance of TVET programs.³⁰⁴ The concept of regarding education as preparation for employment is narrowly instrumental and restrictive and ignores its role in building people's dynamic capacity beyond employers' immediate needs (Livingstone 2010). In an extreme case, if firms do not require skilled workers, making educational policy around this may mean that people will not get any education or training beyond

³⁰² The findings in Chapter 7 also suggests the possibility that TVET institutions and the government interpret the supply-side approach's suggestion to mean that employers would prefer that they concentrate more on specific skills than general skills. See Chapter 7, Section 7.3.1.

³⁰³ In addition, the government has not issued a policy to promote training on advanced cognitive skills in TVET institutions, while it has already issued one to promote soft skills education in universities (Tran 2017a). See Chapter 7, Section 7.3.1.1

³⁰⁴ World Bank (2013a) also pointed out the importance of cognitive skills, but it did not explain that some employers do not require intermediate and elementary workers to have advanced cognitive abilities such as problem-solving skills.

what is needed for their current position, as the GA Manager of Japanese Motorcycle Assembler questioned:

The government's idea is to provide a workforce which satisfies industry demands, and that is a great plan in a sense, but when a firm said they do not need skilled workers (in a meeting), government officials said, 'so, we do not need to educate people'. I think that is something wrong. If the government sets a national target to educate people only up to the level a certain firm wants, no innovation will occur.

In short, skill needs information cannot be a panacea for improving TVET programs. Skills demands are ambiguous and unpredictable in their nature. It is unlikely that policymakers and educators can acquire sufficient and concise skill needs information, since employers face difficulty in identifying their skill needs precisely. Furthermore, even if they managed to obtain skill needs information, they would face the dilemma of employers' and students' conflicting needs. Previous studies on Vietnam's skill formation model raised supply-side problems such as lack of effort in collecting information (World Bank 2013a; ADB 2014). However, they neglected to highlight more fundamental problems related to the ambiguous and myopic nature of skill demand, which undermines a core assumption of the supply-side approach, namely that skill needs information is acquirable.³⁰⁵

8.3.2. Market-Based Reform and Vietnam's TVET System

Aiming to improve the quality of TVET programs, policymakers intend to carry out market-based reforms. According to the supply-side approach, these reforms should enhance the 'flexibility and adaptability' of TVET institutions (Almeida et al. 2012b, p. 61).

The first component of market-based reform is the provision of more autonomy. The interview data indicates that the government intends to increase the autonomy of TVET

³⁰⁵ For example, the OECD (2017b) reported that some developed countries are encouraging firms to analyse their skill needs, although they also noted that only a small number of employers in some other countries analyse and evaluate their skill needs on a regular basis.

institutions, in accordance with the supply-side approach assumption that it will enable TVET institutions to improve partnerships with firms and hence improve the economic relevance of education and training programs (World Bank 2013a):

The first thing I just want to mention is the Law on Vocational Education and Training approved by the national assembly recently. According to the law, vocational training institutions are given more autonomy in designing curriculum to meet firms' skill demand. I think it is the first step of an intervention that will cause vocational training institutions and companies to work more closely. [The Vice Department Director of Provincial Government B]

However, many TVET institutions may lack the internal capacity and resources to improve curricula on their own, as the Vice Rector of Public Vocational College D reported:

Before the new law was promulgated, vocational training institutions had to follow the curriculum framework designed by the GDVT (General Department of Vocational Training) and we could only change up to 30 per cent, but we can design 100 per cent of curriculums, with approval of the rector. But I think that to design the whole curricula by ourselves, we need time and capacity...And the second thing is that, most of the teachers or professors here graduated from university and they came here to teach, and they don't have practical experience. They don't understand how enterprises operate and what enterprises really want.³⁰⁶

On top of the capacity constraints, TVET institutions face low staff motivation. Some TVET institution management staff expressed the view that their instructors often lack the willingness to improve curricula according to employer skill needs.³⁰⁷ The Vice Rector of Public University A stressed the difficulty in promoting a change-oriented mind-set among the staff:

³⁰⁶ The GDVT was renamed as the DVET in 2017 (Government of Vietnam 2017a).

³⁰⁷ Six of 12 interviewed educational establishments (PU1, PV1, PV4, PV5, PV8, RV1).

The challenge now is how to change...internally change ourselves, because as I already mentioned, we are trying to move from the supply-oriented to demand-oriented education, but it is not easy to change the mind-set and behaviours of all people, all staff, to adopt the new strategy... Even at the higher level like the management level. Always the way of thinking is affected by the planned economy mindset. They just do what others do, but they do not have creative thinking.

The second component of the market-based strategy is the enhancement of competition among TVET institutions. The government is planning to decrease the financial support for TVET institutions and promote competition-based funding since the ultimate objective of this market-based reform is to reduce the costs to the government of supporting TVET programs (Gekara and Snell 2017).³⁰⁸

...the government provides budget support based on bidding. Training institutions should submit proposals and compete with each other...The government is trying to reduce their budget. Before, every public school received a certain amount from the annual budget. But now the government is trying to reduce the budget. [The Rector, Public Vocational College C]

In parallel, the government apparently plans to restructure TVET institutions:

For instance, now students want to enter universities, but they don't want to enter colleges or the vocational system. So, we have to re-arrange colleges and the vocational system, like we can group some schools to become one single school to reduce the number of schools, so that we can manage the system more easily...Yes, (we may) combine (some schools), and some of the colleges and vocational schools will be upgraded to universities. That's another way to restructure educational establishments under our ministry. [The Officer of Ministry C]

³⁰⁸ The state funding for vocational training constantly increased each year from 2001 to 2011, but decreased in the period of 2013 – 2014 (NIVT 2015).

However, TVET institutions regard this market-based policy as a serious challenge to financial sustainability (see Burchill (2001); Williams (2003) for the cases of the further education reform in the UK).³⁰⁹ Many interviewed educators reported that they already lack financial resources, in particular for upgrading their training equipment.³¹⁰ How can they secure enough funding with decreasing government financial support? One way is to increase tuition fees, which is often their main income source. Several interviewed educators pointed out that the current tuition fees are too low to cover their training costs:

...so, there is a big gap (between income from tuition fees and training cost). So, how can we train skilled workers if we do not have enough income to cover training costs? I think the gaps should be filled by the government. It is a big issue. Regarding the welding course, to meet the standards, each student needs to have one machine, but currently 5 students share one machine. So, there is a big gap. [The Rector, Public Vocational College A]

Nonetheless, many TVET institutions do not dare to increase tuition fees, since their students often come from lower income households and cannot afford to pay more.³¹¹

³⁰⁹ Burchill (2001) and Williams (2003) mentioned that the market-based reform of the further education sector in the UK led to competition among colleges and also resulted in the reduction of staff and the casualisation of employment (increase of part-time staff). On the other hand, the Vice Director of Public University A took the market-based reform as an opportunity. He is confident due to the university's popularity and its ability to provide the university course, which can attract more students, in addition to TVET courses.

³¹⁰ Refer to 8 of 12 interviewed educational establishments (PU1, RU1, PV1, PV2, PV5, PV7, PV8, RV1). OECD (2016b) reported that TVET is usually costlier than general education programs.

³¹¹ This also implies that children from rich families tend to go to universities. According to the Vietnam Household Living Standards Survey (VHLSS) in 2010, only 0.1 per cent of people in the poorest quintile have a college or university diploma and above, while 16.9 per cent of those in the richest quintile do (GSO 2010, pp. 10-11. 83-84). In fact, the tuition fees are not much different between vocational and higher education courses, most of which are run by public schools. The annual university tuition fee is 4-10 million Vietnamese dong (about USD 200 to 500), while the annual vocational college tuition fee is 5.3 million Vietnamese dong (about USD 265), according to the information provided by one interviewed expert and the NIVT (2014). This indicates a risk that more people would go to universities if TVET tuition fees increased.

Also, since students who join vocational colleges are from poor families, it is hard to collect higher tuition fees from them as resources which can improve the quality of training. [The Rector, Public Vocational College A]

Thus, most TVET institution managers requested the government provide more financial support for upgrading and maintaining training facilities as well as improving wages and welfare for teachers.³¹²

Another option is to secure a sufficient economy of scale by recruiting more students. According to the interview data, policymakers intend to reinforce ongoing promotion activities to assist TVET institutions in attracting more students, realising that many of them have already faced difficulties in securing students (see Section 8.2.4). They are also attempting to guide young people to not merely try to go to university but to find suitable education and career paths, assuming that young people are prone to make ‘unrealistic’ and ‘irrational’ choices (Musset and Kurekova 2018).

However, some educators pointed out that those policies are not effective enough, since the provision of more information on TVET programs and the labour market will not change the low social status of TVET students (see Section 8.2.4).³¹³ Therefore, educators are requesting stronger government intervention to divert young people from university to TVET programs. The government recently implemented several policies such as a change in the university entrance exam system (see Chapter 5), but the Vice Rector of Public Vocational College D asked for stricter control of the number of university students:³¹⁴

...I think the MOET is already aware of the labour market situation. So, they try to limit (the number of university students) or level up the entrance requirements of universities. But I think the solution of dividing people into two groups, one which goes to the

³¹² Six of 9 interviewed TVET institutions (PV2, PV5, PV4, PV7, PV8, RV1).

³¹³ Also see. Chapter 7, Section 7.3.3.

³¹⁴ Also see Chapter 5, Section 5.3.1.

universities and another which goes to the colleges, is not strong enough... 'Divide' here means the government should let people decide which educational path is most suitable for their capabilities. For example, if some people are good, they should go the university, but if they are not good enough, they should go to the vocational training... So, 'divide' here means the government should become stricter regarding university entrance, so that fewer people can go to university and more people will come to vocational training.

However, it is uncertain if the government will strengthen its control of the number of university students. This is because some in the government believe that the restriction on university enrolment should be removed as it discourages existing universities from improving the quality of education according to student demands (e.g. World Bank and Ministry of Planning and Investment of Vietnam 2016).

In summary, educators feel that the market-based reform strategy does not fit the Vietnamese TVET sector, in which the market mechanism is not functioning. In fact, some papers criticised this strategy for not working adequately even in developed countries which are supposed to have better market systems (e.g. Newman and Jahdi 2009; Marginson 2013). This reveals the difficulty in applying a market-based reform strategy to the TVET and higher education sectors regardless of the level of economic development. As a result of pursuing this infeasible strategy, some educators feel that the government has been merely shifting the responsibility of TVET reform to educational establishments, neither understanding their constraints nor providing them with sufficient support:

Actually, we do not get any specific support, except for a kind of management or administration (from the government). The government issued one document which mentioned that all universities have to improve their relationships with enterprises, but that is just a document. They do not give any money or instruction, or they do not have any program to connect universities to enterprises, no, nothing. But they give that direction and request all universities to follow it and strengthen the relationships with enterprises. [The Vice Rector, Public University A]

These findings indicate that the market-based reform strategy may cause the quality of TVET programs in Vietnam to deteriorate, which is a risk that the OECD (2016b) has noted. It may discourage TVET institutions from providing the courses requiring high levels of investment, regardless of the nation's skill needs for industrialisation. Furthermore, in order to mobilise financial or other sorts of support from firms, it may lead them to accommodate employers' immediate skill needs rather than provide opportunities to develop transferable skills required for people's long-term career development (Gekara and Snell 2017).

8.3.3. Compulsory Policies on Firms' Contributions

8.3.3.1. Excessive Anticipation of Firms' Contributions

According to the interview data, policymakers and educators increasingly anticipate that firms will make contributions to improve TVET programs in accordance with their requirements, even though they are currently struggling to mobilise employer engagement as seen in Section 8.2.2. This expectation depends on the optimistic assumption that firms will require more skilled intermediate workers due to technological progress. In particular, they expect firms to be involved in various education and training processes such as curriculum development, improvement of practical lessons, internships, development of skills standards and assessment, and teacher training.³¹⁵

On the other hand, some of them are becoming more suspicious about firms' voluntary initiatives for TVET reform:

I think that (insufficient support from firms) is because it takes them (firms) much time and money. Moreover, they don't have much motivation, because right now they can have more bargaining power than workers and benefit from the result of education and training. If there is a shortage of workers or employee quality problems, probably they will pay more attention to training programs...Something should be done to solve this problem.

³¹⁵ Four of 12 interviewed governmental organisations (NG04, NG05, NG06, LG04) and 7 of 12 interviewed educational establishments (PU2, PV2, PV5, PV4, PV7, PV8, RV1).

Surely, we cannot wait until something happens to the labour market, since it would take too long. [The Vice Rector of Public Vocational College B]

Thus, policymakers and educators have started claiming that firm contributions should be mandatory. The government is currently promoting training and recruitment contracts between firms and TVET institutions, aiming to realise TVET programs which correspond to employers' requirements.³¹⁶

If we want to improve the relationship between schools and enterprises, schools should contact enterprises to get a commitment or agreement, something like that. Schools have a commitment to ensure the quality of the human resource supply, and enterprises agree to receive some students from schools after graduation. Maybe enterprises will support schools to improve their training programs or support (provide) environment (opportunity) for practice. [The Officer, Ministry C]

Furthermore, half of interviewed educators suggested that the government impose stricter legal obligations on employers to contribute to the improvement of education and training programs.³¹⁷

Maybe another reason is that related laws and regulations are not strict enough to force companies to share the responsibility of education and training with the government and educational establishments. If the laws are not strict enough, then firms will keep acting like now, just complaining that the government cannot provide them with good quality students. And they just come here to compete to get the best students without paying any cost to train them. [The Vice Rector, Public Vocational College D]

However, such policies risk causing a strong backlash from employers. Several employers even disagreed with the policy of promoting training contracts between them and TVET institutions. The employers in this study widely believe that policymakers and

³¹⁶ This concept of training contracts or training orders is promoted by the Vocational Training Development Strategy for the period of 2011-2020 and the 2014 Law on Vocational Training and Education (Government of Vietnam 2012b; ADB 2014; Vietnam National Assembly 2014). Also see Chapter 7.

³¹⁷ Six of 12 interviewed educational establishments (PU1, PV2, PV4, PV5, PV7, RV1).

educators fail to understand the challenges firms confront in precisely identifying their current and future skill needs, let alone long-term recruitment plans:

...They (policymakers and educators) often questioned why firms cannot provide the exact number of people and skills we require...They even said, ‘many firms told us that they do not have a 5 or 10 year detailed recruitment forecast, but you should be saying that because you do not want to recruit people from us’...they may still be staying in another world (of planned economy) where they cannot imagine that firms do not have a precise recruitment forecast and recruit people according to it. In reality, business may go well or bad. So, it is impossible to recruit people according to a long-term plan when our business is not going according to the original business plan. They do not understand this logic. [The General Director of Japanese Electronics Assembler A]

This indicates that the enforcement of compulsory policies may result in expanding distrust between the demand and supply sides instead of forging partnerships.

8.3.3.2. Overlooking Potential Partners for TVET Reform

The approach for mandatory employer engagement is likely to stem from the frustration among policymakers and educators with firms’ uncooperative attitudes. Their frustrations may be caused by targeting the wrong group of firms to be the main partner for TVET reform.

Currently, policymakers and educators often favour cooperation with large firms such as monopolistic SOEs. The Deputy Director of National Policy Institution mentioned that they tend to interact more with large SOEs.³¹⁸ In addition, they presume that FIEs, in particular TNCs, which are often very large assemblers, are eager to contribute to skill formation.³¹⁹ Nonetheless, if they believe that TVET reform is a means to promote higher value-added production activities, it is questionable whether those firms are appropriate

³¹⁸ However, there is the possibility that educators’ perception of SOEs may differ by region or province. For instance, the Rector of Public Vocational College H reported no cooperation with SOEs, pointing out that SOEs do not provide many job opportunities for their students.

³¹⁹ However, the Vice Rector of Public Vocational College B noted that working conditions in South Korean firms are usually not as good as other FIEs.

partners for it.³²⁰ Most large SOEs are in the energy and infrastructure sector, not the manufacturing sector, which is the driving force of industrialisation³²¹ Large foreign-invested assemblers may not require many intermediate workers (see Chapter 6).

In contrast, they pay less attention to smaller FIEs and local private firms, even though they are the main constituents of supporting industries which require more intermediate workers.³²² In particular, they assume that local SMEs do not require many skilled workers and have lower incentives to cooperate with educational establishments:

There is a large difference between large firms and SMEs, and foreign and Vietnamese firms. Large and foreign-invested firms are more willing to cooperate with training institutions, but SMEs and Vietnamese firms are not willing to work with training institutions. [The Vice Rector, Public Vocational College C]

A few local suppliers indicated during the interviews that they are reluctant to interact with the government for skill formation. Indeed, Osterman (2008) pointed out that SME managers often have little time to engage in government initiatives and are more suspicious of their effects than large firms.³²³ However, this may not be applicable to all local firms or SMEs (see Froy et al. 2012). Several local suppliers indicated a willingness to cooperate with the government on the TVET reform. For instance, the Director of

³²⁰ Cox and Warner (2013) also argued that, despite high expectation on TNCs' role on upskilling, they are not always willing to bear burdens of training beyond their economic benefits.

³²¹ According to the World Bank (2008, p. 114), in 2004 about 70 per cent of workers in SOEs were trained, while around 30 per cent of FDI firm workers and about 25 of domestic private firm employees had training certificates. In addition, about one-third of SOE workers had higher education certificates, while the rates were about 15 per cent for FDI firms and 9 per cent for domestic private firms. On the other hand, the proportion of skilled workers grew faster in FIEs and private firms than SOEs from 1998 to 2004. Furthermore, SOEs generally do not take advantage of them for productivity improvement (Friedman 2004).

³²² See Chapter 6, Section 6.3.1.

³²³ Refer to the interviews with VS4 and VS8. It is presumed that they distrust the government for some reasons, considering that they are cooperating with foreign aid agencies such as Japan International Cooperation Agency (JICA) and Japan External Trade Organization (JETRO). According to Osterman (2008, p. 207), other difficulties in working with SMEs include: (i) programmes such as career ladders may have limited applicability in smaller organisations; and (iv) it can be resource intensive to work with a large number of small firms as opposed to a smaller number of larger firms (also see OECD 2017a, p. 43). The first point may not apply to some small and medium suppliers interviewed for this research, since they are more eager than large assemblers to recruit intermediate workers (see Chapter 6).

Vietnamese Mould and Die Supplier B expressed an eagerness to interact with officials of a provincial department of industry and trade.

Thus, the government may be overlooking an opportunity to leverage dynamic local parts suppliers to further engage employers in TVET reform. Instead, it excessively focuses on very large firms like SOEs and TNC assemblers. In fact, the Managing Director of Vietnamese Motorcycle Parts Supplier A reported that although they offered cooperation for the improvement of training programs, the government did not respond to their proposal:

We made some proposals during workshops or meetings with stakeholders at the provincial level... We proposed to the local government that training organisations work with us to set up and design training curriculums and programs because we have equipment and can teach practical skills. Training institutions have teaching materials and teaching knowledge. But it has never been put into practice. We do not work together.

The first step is to work together for the development of human resources.

Young and dynamic SMEs are creating more jobs than large firms in Vietnam as well as in the global market and contributing to technological innovation, which leads to upskilling (Froy 2013; Packard and Nguyen 2014; ILO 2017c), but it seems Vietnamese policymakers are not aware that they can be a driving force for upskilling.³²⁴

8.3.4. Coordination of Skill Demand and Supply

Policy makers are likely to realise the necessity of improving coordination among key actors for upskilling. According to the interview data, the government is currently preparing to establish Sector Skills Councils (SSCs) as national-level coordination institutions, following the UK model. SSCs will be launched on a trial basis in the electricity, mining, and tourism sectors, with assistance from foreign donors and

³²⁴ ILO (2017c) reported that younger enterprises as well as SMEs tend to have more rapid job growth than larger and older enterprises. In general, many SMEs in Vietnam are considered young, since the country's private sector emerged after the Doi Moi policy in the late 1980s. According to the data shown by Packard and Nguyen (2014, p. 18), about 25 per cent of Vietnamese firms are 5 years old or less and about 50 per cent of them are 10 years old or less.

international organisations such as the British Council and the ILO.³²⁵ According to the National Officer of International Organisation A, it is likely that large SOEs such as EVN (Vietnam Electricity), VINACOMIN (Vietnam National Coal and Mineral Industries Group), and VIGLACELA, a large construction company, will be the main representatives from industry to SSCs except for the tourism sector. This is probably because of the government's closer relationship with large SOEs, as found in Section 8.3.3.

However, the extent to which SSCs will function in Vietnam is uncertain, given that they do not always work even in the country where the model was developed (see Chapter 9; Payne (2008); Keep (2015)). The government has not issued a policy to define the implementation structure of SSCs, according to Officer A of National Policy Institution A.³²⁶ More importantly, it is unclear how suitable this model is to the economic, social, and institutional contexts of Vietnam. The SSC model basically relies on employer initiatives, but many firms have weak motivation to engage in TVET reform (see Section 8.2.2). The research found no concrete government solutions for mobilising engagement of FIEs and local private firms, which are the important constituents in the manufacturing industry.³²⁷ Furthermore, business associations may not have sufficient capacity to lead activities, even though the government may need their support to encourage firms to participate in the SSCs (see Section 8.2.3). This raises the question of how this 'policy borrowing' from developed countries would work (Turbin 2001). This issue will be discussed in the following chapter.

Realising the difficulty in launching national coordination institutions, several policymakers suggested that skill demand and supply coordination institutions should also be developed at the local or regional level. In fact, this research identified several

³²⁵ A Sector Skills Council is an employer-led institution for skills development in the UK (Payne 2008).

³²⁶ The government stipulated employers' responsibility to participate in SSCs for implementing VQF (see the Article 2. 6 b) of Government of Vietnam 2016a). However, the author could not find out any other policy for implementing SSCs.

³²⁷ FIE employment has been expanding rapidly, while local private firms account for the large majority of total employment. See Chapter 3, Section 3.3.2.

local or regional government initiatives for coordinating skill demand and supply. For example, the Department Head of the Regional office of Ministry C described their efforts to facilitate cooperation between firms and educational establishments, noting that they have not succeeded in developing long-term cooperation for upskilling. In another case, the Deputy Director of a Provincial Industrial Zone Authority explained their efforts and willingness to facilitate cooperation between firms and educational establishments:

If some companies want training courses for their workers, they come to consult with our training centre and it introduces some schools to companies. There are two ways. First, [their training centre] can introduce companies and schools to each other and facilitate partnerships. Second, we cooperate with schools to develop training programs according to companies' needs.... So, the most important role for us is to be an intermediary to bridge the gap between schools and companies.

The above Industrial Zone Authority has also been facilitating meetings of a consortium which consists of Private University A, Public Vocational College H, and representatives from some small and medium foreign-invested suppliers, aiming to improve training courses on basic production management and occupational health and safety.³²⁸

However, these active local initiatives are limited to the places where industrial agglomeration is proceeding more quickly. The above two cases are found in a southern metropolitan city and one of its neighbouring provinces which have rapidly industrialised, taking advantage of large FDI inflow.³²⁹ Many other provinces may not have a unit to proactively facilitate multi-stake holder partnerships, as the Department Director of Ministry B stated:

In the provinces, there's no agency which takes care of workforce development. Not even the Department of Planning and Investment (DPI), No. When you are a businessman from

³²⁸ An interview revealed that this industrial zone authority has been acting as a coordinator of JICA's grass-root project. Also see JICA (2014a); PREX (2016).

³²⁹ The Regional office of Ministry C is in a southern metropolitan city and the Provincial Industrial Zone Authority is in Province D right next to the city. The southern metropolitan city received the largest FDI inflow on the accumulated base and Province D is in fourth place, according to GSO (2018c).

Japan, you go to some provinces. You make contact with a People's Committee, make contact with the DPI for the registration. You have a plan, you have money. But when you ask about the workforce, nobody answers you...Even if you have workforce training available, you don't have the environment for education. It's difficult to get talented workers.

The above director also pointed out that many local governments do not have sufficient capacity to facilitate stakeholder dialogues:

Now in Vietnam with the decentralisation, provincial governments have been given more authority...We hand over the power, but the people in province, they don't have the capacity. The central government have not empowered them enough...We should build their capacity before the decentralisation, before assigning new jobs and new functions to them.

In short, policymakers have not made a clear and comprehensive road map to establish a workable skill demand and supply coordination institution at either the national or local levels.

8.3.5. Industrial Policy and Skills: Stakeholder Perspectives

The previous sections highlighted the fact that policymakers and educators are struggling to involve employers in TVET reform since there are not many firms which are increasing skill-intensive production or requiring many skilled workers. Putting this the other way around, if there are more dynamic firms which attempt to climb up the value chain and need a more skilled workforce, it will be easier for policymakers and educators to mobilise contributions from firms (Almeida and Cho 2012). In fact, several local initiatives to coordinate skill demand and supply are found in regions with relatively high industrial agglomeration (see Section 8.3.4).³³⁰ This explains why employers tend to pay close attention to industrial policies not only for business expansion but also for national

³³⁰ Another factor which may motivate firms to cooperate with or invest in education and training institutions is the poaching of skilled workers, which is accelerated by rapid industrial agglomeration (Mori 2006,2013a). Also see Chapter 7, Section 7.3.2.

upskilling. The GA Manager of a Japanese Motorcycle Assembler articulated that in the current context of sluggish expansion of skill demand, proactive industrial policies are more important than conforming to employer skill needs:

Without doing something drastic now, the current situation (of sluggish growth in skills demand) will continue. The issue of the job shortage I talked about before is really serious. Most jobs are filled, since there are few vacancies regularly created by retirement...If we cannot expect further growth of the manufacturing industry, which used to provide massive job opportunities...it would be an important decision for the government to not merely rely on firms' job creation efforts. Vietnam would not have bright prospects if the government were still only discussing 'following industry skill demand'. Considering this (how to stimulate job creation) is a far more important theme, isn't it?

However, current industrial policies are ineffective from the employers' perspective. Some employers find little benefit in current industrial policies.³³¹ They argued that the current policies are neither effective, realistic, nor consistent enough to support their business expansion. Therefore, employers often request that the government formulate more strategic and consistent industrial policies with a long-term vision.³³² In particular, they propose implementing more effective policies to develop supporting industries, in relation to skill development.³³³ The Managing Director of a European Automotive Parts Supplier explained that the development of supporting industries will create more demand for a skilled workforce:

Vietnam today lacks a supplier industry, but Vietnam needs to develop a supplier industry as well, they need more skilled people in all fields.

³³¹ Eleven of the 27 interviewed firms (FA1, FA2, FA3, JA2, JA4, JS2, JS5, VS2, VS4, VS6, VS8) raised this point. A few interviewed firms reported that they received government support in business expansion. A Vietnamese Automotive Assembler reported that they have been receiving special support in investing in factories in an industrial zone such as personal income tax exemptions. A Vietnamese Plastic Parts Supplier is receiving investment subsidies from a local government, but the General Director indicated dissatisfaction with the industrial policies in general at the same time.

³³² Twelve of the 27 interviewed firms (JA4 JA3, JS1, JS2, JS5, FA3, FA2, FS3, VS1 VS4, VS5, VS8).

³³³ Nine of the 27 interviewed firms (JA3, JA4, JS2, JS5, FA3, FS3, VS1, VS4, VS8).

In fact, this research found that parts suppliers which produce higher value-added products in non-routine processes are likely to require a more skilled workforce, including intermediate workers (see Chapter 6). Accordingly, some suppliers expressed a willingness to engage in some elements of TVET reform, such as improvement of the national skills evaluation system (see Appendix 8D), although they complained the government is not very supportive of their proposals.

We requested [the responsible government agency] to develop a national skills test for machinery maintenance...We told them that we will provide cooperation for it...However, [the responsible government agency] merely asked us to take care of everything as usual. Probably they want to expand the national skills tests, but it is the government who does not make the effort. [The Deputy Maintenance Director A, Japanese Automotive Parts Supplier]

Some educators are aware of this tendency. The Vice Rector of Public Vocational College B mentioned that the suppliers of higher value-added parts, which include smaller firms, tend to be more committed to skill development than assemblers.

Regarding your question on the nationality and the sector, it is not very visible, but my observation is that European companies like those from Germany and American companies are not operating assembly processes but try to invest in (higher value-added) production processes in Vietnam.... I hope for more Japanese SMEs to come to Vietnam, because I think they are more motivated to invest in Vietnam. And from the point of view of human resources management, with the small and medium Japanese companies, the Vietnamese labour force has more opportunities to be upgraded in those companies than big companies.³³⁴

³³⁴ In fact, an interview revealed that this college is cooperating with a Vietnamese Production Equipment Supplier on internship and recruitment.

In fact, the government has issued a series of supporting industry development policies, but some employers criticised those policies for being neither effective nor accessible:³³⁵

The government says that they have a lot of incentives, but in fact it is very difficult to take advantage of those incentives. For example, they say that they provide soft loans for supporting industries, but it is difficult to apply for that loan. Actually, loans for manufacturing activities should be more attractive, because at this moment it is easier for some house building companies to access the loan scheme. But it is difficult for manufacturing companies to access the loan scheme. [The Director of a Vietnamese Production Equipment Supplier]

Some of them even claimed that the inconsistent policies are causing adverse effects, providing the recent policy to limit the import of second hand machine tools as an example.

The above findings indicate that employers expect the government to address both the skill supply and demand sides for upskilling in Vietnam. The demand-side approach indicates this outcome because it stresses the importance of industrial policies (Ashton et al. 1999; Ashton and Sung 2015; Brown et al. 2015a; Payne 2018).³³⁶ Preceding studies on Vietnam's skill formation (e.g. World Bank 2013a; ADB 2014; Goodwin et al. 2014) tended to omit employers' high expectations for improvement of industrial policies in the context of upskilling.

However, policymakers are not responding to employers' calls for more effective industrial policies to stimulate skill demand. Several policymakers and experts raised capacity constraints, the absence of a designated agency for policy implementation, and lack of inter-ministerial coordination as obstacles to designing and implementing effective industrial policies. Nonetheless, none of them provided concrete solutions for innovating the demand-related policies. The little attention they pay to the demand-related

³³⁵ Also see Chapter 3, Section 3.6.2. about supporting industries development policies.

³³⁶ See Chapter 2 Section 2.4 about the details of the demand-side approach which stresses the necessity of government intervention in both skills demand and supply side.

policies is consistent with the supply-side approach, which basically discards industrial policies as an ineffective tool (see Chapter 2).

Another issue is the weak integration of demand and supply policies. In Vietnam, skill formation policies are not synchronised with industrial policies, as the Department Director of Ministry B implied:

...Because the policies of human resource development are not coordinated, aligned with other policies...We should not look at only for human resource development, we should look at the comprehensive picture.

This is in part because skills policymakers are not very aware of industrial policies. For example, the Vice Director of the Labour Department in Provincial Government C did not know whether the province has a supporting industry development policy or not, even though the provincial government established an industrial park designated for parts suppliers as a part of their policy to promote supporting industries.³³⁷

Certainly, the above findings do not mean that all skills policymakers neglect industrial policies. This research found several cases of skills policies being linked to industrial policies at the local level (see Appendix 8E). For instance, the Vice Department Director of Provincial Government B in the North, which started industrialisation by attracting FDI relatively earlier, reported that they have been trying to promote long-term TVET courses to achieve the provincial target to develop supporting industries:³³⁸

In [Province B] we have comprehensive policies of development, and under them, we have different components, for example, an industrial development component. The industrial development policies consist of different policies, for example, human resources, an industrial zone for industrial development and also the supporting industry, and so on. So, I think our vocational training policy and also the supporting industry

³³⁷ Refer to Vietnam Business Forum (2009,2014).

³³⁸ For example, a Japanese Automobile Assembler, a Japanese Motorcycle Assembler, and a European Motorcycle Assembler have large factories in this province. Accordingly, this province has been attracting investment from parts suppliers in the automotive and motorcycle sectors.

development are under the general strategy of provincial development...Our policies are somehow related very closely and linked.

The close coordination of skills and industrial policies is also likely to help TVET institutions secure enough students (also see Chapter 7). Two public vocational colleges in the above Province B apparently managed to attract more lower secondary graduates to vocational or professional secondary courses than other provinces, as the Vice Rector of Public Vocational College E reported:³³⁹

...in Vietnam, not many people enrol in professional secondary training, but in [Province B], the situation is slightly different. Thirty per cent of secondary and elementary education graduates go to (professional or vocational) secondary courses.

A similar linkage of provincial industrial policies to promote higher value-added industries and the promotion of TVET was also reported by the Provincial Industrial Zone Authority in Province D in the South.³⁴⁰

However, these cases may not be representative of the overall situation in Vietnam. Considering that other interviewees did not report such synchronisation of skills and industrial policies, it is presumed that most skills policymakers are rather inactive in integrating skills and industrial policies.

8.4. Conclusion

This chapter found that Vietnamese policymakers and educators face various challenges in realising the solutions provided by the supply-side approach. They are struggling to identify employer skill needs, promote employer engagement in designing and implementing training courses, and guide more young people to join TVET courses.

Despite these challenges, the government is likely to believe that supply-side solutions should work if all key actors make adequate efforts to realise them. In general,

³³⁹ PV5, PV6.

³⁴⁰ See Chapter 5, Section 5.3.2 and Chapter 7, Section 7.2.2.

policymakers attribute the current problems to a lack of labour market information and insufficient effort on the supply side. Accordingly, they intend to collect more skill needs information, adopt a market-based reform strategy to promote autonomy and competition among educational establishments, and import SSCs as a skill demand and supply coordination mechanism, even though the effects of these strategies and models are controversial even in the countries from which they originate (e.g. Payne 2008; Marginson 2013; Keep 2015). Furthermore, policymakers and educators are inclined to oblige firms to contribute more to the TVET reform rather than relying on firms' voluntary initiatives. This may reflect their increasing frustration with employers' attitudes, which they regard uncooperative and irresponsible.

However, those countermeasures would still not enable them to reform TVET programs in accordance with employer skill needs. The findings of this research indicate that the challenges reported by policymakers and educators originate from insufficient recognition of the fundamental flaws of the supply-side approach.

First, providing more labour market information cannot be a panacea for improving education and training programs and attracting young people to TVET programs, in contrast to the supply-side approach assumption. It is hard to obtain skill needs information in a form which can be incorporated into education and training programs, not because employers are hiding it but because it is ambiguous and diverse in its nature. This means that skill need information is not as tangible as the supply-side approach assumes. Even if educational establishments managed to grasp skill needs information, they would face a conflict between the narrow and myopic employer skill needs and the broader skill needs for people's long-term career development and social mobility (Payne 2002). Furthermore, the low social status of TVET graduates would still lead young people to apply to universities regardless of job opportunities, even if more labour market information were disseminated.

Second, employers are not always willing to engage in education and training reform. What makes employers reluctant to engage in TVET reform is not their irresponsibility

but the fact that skill demand is not growing as dynamically as the supply-side approach assumes. This research found that many firms in the machine manufacturing industry do not require a large skilled workforce because they are struggling to climb up value chains and are adopting new technologies incrementally. In this situation, uniformly forcing all firms to contribute to the TVET reform may cause strong opposition from employers. In addition, the SSC model which relies on employers' voluntary initiatives may not work in Vietnam's current manufacturing sector where employers' initiatives are weak and employer-led organisations do not have enough capacity to act as coordinators. In fact, this model is not functioning well even in developed countries such as the UK because of low employer commitment to these activities (Payne 2008; Keep 2015) and lack of motivation to recruit workers with the highest level of qualifications (Lloyd 2008).

Finally, a market-based reform strategy may not always strengthen the flexibility and adaptability of TVET institutions (Marginson 2013). Many TVET institutions may lack the capacity to improve curricula on their own. Furthermore, the market mechanism does not seem to be functioning well in the Vietnamese TVET sector. People prefer to attend university regardless of job opportunities due to the low social status of TVET graduates. TVET institutions may not be able to increase the tuition fees as their students tend to come from low income households. This indicates the necessity to consider the social aspects of skill formation in Vietnam.

Therefore, imposing a supply-side approach without understanding these flaws may not help Vietnam become a high-skilled economy, but could result in increasing distrust among key actors, which the Vice Rector of Public University A reported:

Currently, both sides complain about each other. Enterprises say that students' skills levels are low because educational institutions cannot provide enough skills for students. But educational institutions say that, since firms neither cooperate with them nor provide them with information, they cannot know what firms want them to provide.

Figure 8.1 summarises the structure of mutual distrust. Policymakers and educators tend to criticise firms for being uncooperative and irresponsible regarding the improvement of

education and training. On the other hand, employers claim that policymakers and educators do not understand the slow growth of skill demand and the constraints in providing precise information on their current and future skill needs. Moreover, some educators feel that the government has been merely shifting the responsibility for realising the supply-side solutions to them under the banner of the market-based reform without providing adequate support. In short, what disconnects key actors is the distortion caused by adopting the skill formation strategy which does not fit Vietnam’s context, not the lack of labour market information as previous research has concluded (e.g. World Bank 2013a).

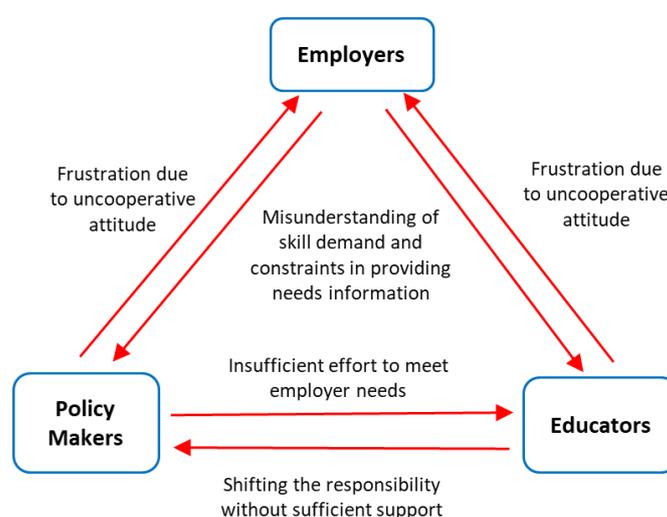


Figure 8.1. Structure of Mutual Distrust among Key Actors

If the supply-side approach does not work in Vietnam, how should Vietnam’s skill formation model be reformed? This chapter indicated a few clues to break through the above policy challenges in terms of stimulation of skill demand and the development of coordination institutions. Some parts suppliers with dynamic business strategies are relatively eager to contribute to TVET reform. Employers suggest that the government stimulate skill demand with effective industrial policies. The coordination mechanism may work better at provincial than at the national level.

Nonetheless, current policies do not focus sufficiently on those potential breakthrough points. Why are they adhering to the supply-side approach? As an alternative strategy, the demand-side approach proposes synchronising skill supply- and demand-related policies by industrial sector (Ashton and Sung 2015), but Vietnamese skills policymakers

are hesitant to tackle the skill demand-side issues. The following chapter will discuss this question and explore which skill formation model would enable Vietnam to achieve upskilling.

Chapter 9. Conclusion: Achieving Dynamic Skill Formation in Vietnam

9.1. Flaws and Limitations of the Supply-Side Approach

Previous studies often claimed increasing skill mismatch in Vietnam, in particular skill shortages and gaps, and attributed it to the insufficient performance of the supply-side (e.g. World Bank 2013a; Goodwin et al. 2014). However, this argument highlights only part of the employer perspective of Vietnam's skill formation model. Therefore, with the goal of providing a holistic picture of the challenges confronting Vietnam, this research analysed empirical data through interviews with the demand- and supply-side actors connected to the machine manufacturing industry, based on three research questions: (i) how do employers, educators, and policymakers perceive skill mismatch in Vietnam?; (ii) what are the mechanisms and challenges of the current Vietnam's skill formation system? Is it functioning adequately to coordinate skill demand and supply and enable the country to become an inclusive high-skill economy?; and (iii) if the current focus on supply-side solutions is inadequate, how can Vietnam reform its current skill formation system to achieve inclusive upskilling? The key findings are summarised as follows.

In investigating the first question, this research found that perceptions of skill mismatch differ between the supply and demand sides (see Chapter 8). As argued in existing research, policymakers and educators often perceive large skill shortages and gaps, in particular for intermediate workers (see World Bank (2013a); Goodwin et al. (2014); Chapters 5 and 7). In addition, most of them expect this skill shortage to expand as skill demand increases because of regional integration and the increasing inflow of FDI accompanying technological progress. In contrast, employers are less concerned about these skill mismatches, although their perceptions vary considerably depending on their length of operation, business type, process or job type, ownership, and size (see Chapter 6). This is mainly because not many firms require large numbers of skilled workers. In addition, technological progress is incremental at most firms. This tendency applies to

foreign-invested firms, which policymakers and educators often expect to be a driving force for upskilling.

The current skills formation strategies are formed based on misaligned perceptions among key actors. In order to reduce this perceived skill mismatch, policymakers and educators are adopting the supply-side approach – underscored by notions of human capital theory, market failure theory, and skill-biased technological change theory (see Chapter 8).³⁴¹ In this approach, skill supply is supposed to create its own demand (Lloyd and Payne 2002). Accordingly, this approach attributes skill mismatch to the poor performance of education and training and recommends that educational establishments improve their curricula in accordance with employer skill needs (ADB 2009; Almeida and Robalino 2012; OECD 2013b; Pompa 2013; World Bank 2013a).

However, policymakers and educators are struggling to materialise the solutions prescribed by the supply-side approach because of two fundamental challenges to its key assumptions.³⁴² First, firms do not necessarily require a large number of skilled workers in Vietnam (see Chapter 6). This research found that skill-biased technological change is not gaining momentum in the machine manufacturing industry, even though previous studies often assumed that it takes place in developing countries which undertake trade liberalisation and receive increasing FDI inflow (Almeida 2010; Srour et al. 2013; World Bank 2013a). This is because they are facing a highly competitive global supply chain and a smaller domestic market with insufficient economies of scale for investment in new technologies. In other words, a lack of growth dynamism is causing structural stagnation of skill demand.³⁴³

Second, it is hard for key actors to acquire skill needs information. Skill demands are ambiguous, diverse, and unpredictable in their nature. Many firms interviewed for this research struggle to objectively assess their own skill needs, consolidate diverse

³⁴¹ Also see Chapter 2 regarding the definitions of this approach.

³⁴² See Chapter 8, Section 8.4

³⁴³ Konczal and Steinbaum (2016) argued that the decline in business dynamism has led to structural decline of labour demand in the United States. The situation is similar in Vietnam, but the research did not find that skills demand is declining, although its growth is slow.

requirements, and predict future skill needs (see Chapter 6). This means that skill needs information is not as asymmetric as market failure theory explains, but precise and comprehensive information is not available even at the employer side (Holt et al. 2010; Grugulis and Stoyanova 2011). Without realising those flaws, policymakers are clinging to the supply-side approach by urging educational establishments to meet ‘intangible’ employer skill needs through the promotion of autonomy and competition. The one deviation is the emerging regulatory approach to oblige firms to contribute to TVET reform, which is a consequence of frustration with the pursuit of unachievable tasks. This policy direction is likely to result in increasing mutual distrust among key actors.

The above findings indicate that the foremost challenges to Vietnam’s upskilling are not large skill shortages and gaps, but the lack of dynamism in skill demand and mutual distrust among key actors caused by misperceptions of the nature of skill demand. In particular, the sluggish growth of demand for intermediate workers is concerning in Vietnam, where many workers still hold elementary occupations.³⁴⁴ The slow growth of intermediate jobs may expand job polarisation between a small number of highly-educated professional staff and the large number of unskilled workers, in accordance with recent global labour market trends (Goos et al. 2009; Autor 2015; ILO 2017a; Cedefop 2018b).³⁴⁵ This will impede social mobility for disadvantaged classes in society (Brown et al. 2001) and hence make it difficult to achieve ‘inclusive skill development’ benefiting the entire population (Brown 1999; Payne 2002).

Furthermore, improved education and training creates an over-qualified workforce when there is no corresponding increase of demand for these skills. This is becoming common in emerging economies such as China (Mok and Qian 2018) as well as developed ones (Eddington and Toner 2012; Cedefop 2018a,b). In fact, Handel et al. (2016, p. 67) reported that 70 per cent of surveyed workers are overeducated in Vietnam. Nonetheless like their counterparts in other countries, Vietnamese policymakers are

³⁴⁴ See Chapter 3, Section 3.3.2.

³⁴⁵ Vind (2008) previously reported this phenomenon based on research about the electronics industry in the South.

trapped in a skill mismatch paradigm created by the supply-side approach, in particular for intermediate occupations, without compelling evidence (McGuinness et al. 2017).

In short, regarding the second research question, Vietnam will not be able to achieve industrialisation along with inclusive skill upgrading by sticking to the supply-side approach, since it has neither acknowledged the above flaws nor provided effective countermeasures to fix them. Accordingly, this leads to the third research question: how can Vietnam reform its current skill formation system? One way the government can break through this deadlock is to proactively stimulate skill demand with industrial policies and facilitate coordination among key actors, as suggested by the demand-side approach (Ashton et al. 1999; Brown et al. 2001; Ashton and Sung 2015; Brown et al. 2015a).³⁴⁶ In particular, this government intervention is a core element for skill formation in developmental states (Ashton et al. 1999; Ashton 2004). However, this approach has not penetrated Vietnamese policymakers as far as the supply-side approach has.

Two questions arise from the above research findings. First, why do Vietnamese policymakers adhere to the supply-side approach? Second, what form of the demand-side approach is feasible in Vietnam? The rest of this final chapter examines these questions, aiming to identify ways to develop the dynamic skill formation model for further industrialisation and inclusive economic growth in Vietnam. Section 9.2 attempts to figure out why policymakers are sticking to the supply-side approach. Section 9.3 explores an alternative skill formation strategy suitable for Vietnam. Section 9.4 discusses what institution would need to coordinate skill demand and supply in order to achieve more integrated and interactive policy formulation, and the conclusion is presented in Section 9.5.

³⁴⁶ The OECD tends to publish literature on skills mismatch along with the supply-side approach, but their recent publication also stressed the importance of stimulating skills demand with industrial policies. See OECD (2017b) .

9.2. Policymakers, Educators and the Supply-Side Approach

The research findings provide two possible reasons Vietnamese policymakers adhere to the supply-side approach despite the challenges they are facing. One is a belief that the skill formation models of developed countries are superior and can be applicable to developing countries. Another possibility is that they are not aware that the demand-side approach is an alternative, or they are less convinced of it.

9.2.1. Myth of Developed Countries' Skill Formation Models

Vietnamese policymakers often concentrate on importing various components of skill formation models from advanced countries mainly through ODA projects (see Chapters 5 and 8). In particular, the government is keen to adopt the market-based solutions of the supply-side approach such as SSCs, CBT based on regional and national common skills and qualification frameworks, improvement of the labour market information system, and the promotion of autonomy along with the reduction of budgetary support for educational institutions (Newman and Jahdi (2009); Marginson (2013) for a critical account of market-based reform). Policymakers are likely to believe that these measures function perfectly in developed countries:

As I know, in Vietnam, you cannot invite experts from well-known companies, just from very small and not famous companies... The context of Vietnam is different from the UK. As I know, in the UK, each Sector Skills Council consists of many companies. So, they work together to develop national occupational standards. Therefore, the quality is good and it is more effective in the UK. [The Officer A, National Policy Institution]

However, supply-side solutions do not work perfectly even in developed countries. For example, SSCs in the UK face challenges in engaging many non-committed employers, particularly in sectors with high concentrations of SMEs (Payne 2008; Keep 2015). Developing functionable common skills and qualification frameworks is quite complicated work because definitions of 'skills' differ considerably, in particular across countries (e.g. Clarke and Winch 2006). In addition, Payne (2002) argued that British vocational training programs provide limited training in skills which contribute to long-

term career development and social equality since they are tied to employer needs and their competency-based training ideology.³⁴⁷ The narrow scope of this training is likely to generate a workforce polarised between a few intermediately and highly skilled people and a larger number of low-skilled employees in industries focused more on cost than skill development (Brown et al. 2001; Payne and Keep 2011). Vietnamese policymakers are not fully aware of this possible consequence of adopting the solutions prescribed by the supply-side approach.

This indicates that ‘transfer brokers’ of policies (Stone 2001) are not conveying recent discussions on the imperfections and diversity of developed countries’ models. In Vietnam, the research findings indicate that foreign donors are one of the main policy transfer brokers. In particular, some influential bilateral and multilateral aid organisations are apparently inclined to transfer the supply-side approach, given the active transfer of its components such as SSCs and CBT through ODA projects, other technical assistance activities, and research which has occurred (ADB 2009; OECD 2013b; World Bank 2013a; Carbonnier et al. 2014; Goodwin et al. 2014).³⁴⁸ The delusion regarding the superiority of developed countries’ skill formation systems is likely to be amplified since these organisations are recommending their donor countries’ models without explaining the drawbacks and thoroughly analysing their applicability to Vietnam.³⁴⁹

Similarly, large TNCs often propose the adoption of their host countries’ skill formation models (VBF 2015,2016).³⁵⁰ For example, the Managing Director of a European Automotive Parts Supplier recommended that Vietnam apply the German Dual Training system of apprentice training, which works based on the strong leadership of employer

³⁴⁷ Payne (2002) compared the British English vocational training curricula with Norway’s, which he described as based more on broader purposes such as equality, social justice, democratic participation, and personal development for all.

³⁴⁸ The ILO, ADB, British Council, and the governments of Australia and New Zealand are providing the Vietnamese government with technical assistance to introduce SSCs, CBT, the National Qualifications Framework (NQF), and labour market information systems (see Chapter 5, Section 5.3.1.).

³⁴⁹ This sort of aid may fall into ‘indirect coercive transfer of policies’ as noted by Stone (2001). It is not considered effective, due to the lack of a learning process to internalise policies.

³⁵⁰ See Chapter 8, Section 8.2.3. Foreign chambers of commerce, which are the core members of the VBF, are often led by large TNCs.

organisations and social partnerships among key stakeholders (Crouch et al. 1999; Brown et al. 2001). In addition, several large Japanese assemblers proposed establishing industrial high schools similar to those which exist in Japan.³⁵¹ Nevertheless, the social status gap between university and TVET graduates is much narrower in Japan, where hard work is appreciated (Brown et al. 2001) and the wage rates depend not on each job but on worker skill levels, which promotes their continuous upskilling (Koike and Inoki 1990). It is unlikely that such recommendations are supported by in-depth analysis on how compatible those models are to Vietnam's context and what the drawbacks of their host countries' models are, as far as this research found.³⁵²

Learning from other countries' skill formation models would be useful if the government was synthesising them to its own model with a clear and coherent strategy and a reasonably wide consensus among key actors (Stone 2001; Phillips and Ochs 2003; Bishop 2015). However, the government is importing various models offered by developed countries without a comprehensive strategy on how to fit them to the Vietnam's context, given that they are importing SSCs and advanced countries' curriculum packages without much customisation.³⁵³

I do not think Vietnam has a strategy for which model to follow, because, what I understand, [Government Agency A] is learning all the models from Korea, Japan, Germany, and they just do pilot activities. They do not fix any strategy. So, they copy, they go to UK and Australia for Sector Skills Councils, they go to Germany for apprenticeships, they go to Japan and Korea for skills testing and certification...but they

³⁵¹ Refer to the interviews with JA3 and JA4. Industrial high schools in Japan provide three-year courses for junior high school graduates, who are usually 15 years old.

³⁵² For example, the challenges for the German Dual Training system are the strong occupational identification as a potential barrier to the acquisition of multi-skills (Crouch et al. 1999), fewer chances for later skills development (Thelen 2014), and less social mobility due to the narrow scope of training (Graf 2016). The Japanese skills formation system is largely dependent on the internal labour market, which has provided an important link between the supply and demand for skilled labour. However, the future of the internal labour market on which the Japanese skills formation system largely depends is in doubt as firms are seeking greater flexibility to cope with the volatile market (Brown et al. 2001).

³⁵³ See Chapter 7, Section 7.3.1. and Chapter 8, Section 8.3.4.

do not have, how to say, each model has a long history and it works well with a lot of modifications along the line. [The National Officer of International Organisation A]

Vietnam's skill formation system will be fragmented if the government keeps importing various countries' models in a patchy way without clear strategies for policy alignment and customisation.³⁵⁴ Ashton and Green (1996) stressed that borrowing a set of policies from another country will not solve one country's specific problems and called this simple import of policies 'policy borrowing'. It is hard to transfer one country's 'best practices' in education and training policies or programs to another country, either between developed countries or from advanced to less developed countries, because of the differences in economic, social, cultural, and institutional contexts (Turbin 2001). In fact, many developing countries are attempting to import supply-side approach solutions, but they often get stuck with common problems such as the limited industry engagement across Asia and Africa (e.g. Rahman et al. 2012; Liang 2013; Boahin and Hofman 2014; Yamada et al. 2018).

9.2.2. Applicability of the Demand-Side Approach

Another reason for clinging to the supply-side approach may be that Vietnamese policymakers are simply not aware of what other options are available. In order to achieve upskilling, an alternate direction is the demand-side approach, which proposes stimulating skill demand with proactive industrial policies while synchronising them with skills policies (Ashton et al. 1999; Ashton and Sung 2015; Brown et al. 2015b). The demand-side policy here is different from the ALMP, which integrates occasional job creation into skills policies (Froy and Giguère 2010; Tisch and Wolff 2015; Icart and Rodríguez-Soler 2017). ALMP usually works more as a short-term social protection measure to reduce unemployment, especially for disadvantaged groups (Almeida and Robalino 2012; Sissons and Green 2017). In contrast, the demand-side approach proposes

³⁵⁴ Phillips and Ochs (2003, p. 455) called this policy borrowing method the 'quick fix' decision and warned that it causes dangerous outcomes.

incorporating skill upgrading into proactive industrial policies, which aim to strategically promote higher value-added production (Ohno 2014).³⁵⁵

Nonetheless, most Vietnamese policymakers interviewed for this research do not sufficiently realise the necessity to stimulate skill demand and the integration of skills and industrial policies (see Chapter 8). According to human capital theory, they often anticipate that firms will absorb skilled workers once they are available in the market, even though this research found that firms do not uniformly require skilled workers. On the other hand, it is questionable whether the demand-side approach provides policy ideas suitable for Vietnam today. It is often unclear how states can tackle the demand-side in actual policy terms (Lloyd and Payne 2002). More importantly, its developmental state model is mainly based on the analysis of skill formation models in NIEs, but Vietnam is facing different economic, institutional, and social contexts. For one thing, global supply chains are becoming so competitive that firms are further encouraged to focus on cost competitiveness (see Chapter 6). In addition, the policy environment is different. Policy options have been narrowed by new global trade orders such as the World Trade Organization (WTO) and various free trade agreements (FTA), while the policy formulation and implementation structure is weaker in Vietnam (Ohno 2009).³⁵⁶ Finally, Vietnam's larger land area and population has led to the diversification of regional industrialisation, skill requirements, and social characteristics. Therefore, Vietnam should stimulate skill demand and coordinate skill demand and supply differently from NIEs.

9.3. Exploring Viable Skill Formation Strategies for Vietnam

This section aims to examine how demand-side approach solutions can be adapted in Vietnam, focusing on the following questions: (i) what sort of industrial policies are required to stimulate skill demand in Vietnam; and (ii) how skills policies should be linked with industrial policies.

³⁵⁵ See Chapter 2, Section 2.6.4. for the essences of the proactive industrial policies proposed by Ohno.

³⁵⁶ Also see Chapter 8, Section 8.3.2.

9.3.1. Policies for Stimulating Skill Demand

The findings of this research imply that in order to stimulate skill demand in Vietnam, industrial policies need to: (i) be dynamic and sector-focused; (ii) comprise skill upgrading elements; and (iii) be formulated and implemented with local or regional initiatives.³⁵⁷

9.3.1.1. Dynamic and Sector-Focused Industrial Policies

Industrial policies should be transformed flexibly as industrialisation proceeds. Policymakers and educators indicated disappointment that large foreign assemblers are not requiring as many skilled workers as they expected. However, it is too simplistic to conclude that those large assemblers, which are often export-oriented firms, do not contribute to skill upgrading at all.³⁵⁸ The fact that those firms have been significantly expanding the employment of elementary workers who require basic industrial skills should not be underestimated. They have also been contributing to industrial agglomeration by attracting investment from many foreign-invested and local suppliers and improving their capacities.³⁵⁹ For example, it is likely that many of the interviewed dynamic local suppliers have improved their capacities through work with large motorcycle assemblers.³⁶⁰ The point is that Vietnam needs another driving force to increase demand for higher-skilled workers. Accordingly, industrial policies should target the sectors with dynamic comparative advantage and high potential to drive demand for skilled workers (Ashton and Sung 2015).³⁶¹ Clear sectoral focus is also essential since

³⁵⁷ In this thesis, 'local or regional initiatives' mainly mean city or provincial government initiatives. The word 'regional' is included due to the potential for alliances across cities and provinces.

³⁵⁸ For instance, Koo (2016) claimed that export-oriented growth did not contribute to upskilling in China, but the author considers that this sort of opinion excessively underestimates the contribution of large assemblers to basic skills development.

³⁵⁹ According to Ohno (2014), as FDI from assemblers is accumulated, the local sourcing of parts and components will increase at the second stage of industrialisation.

³⁶⁰ For example, 6 of the 27 interviewed Vietnamese suppliers (VS1, VS4, VS5, VS6, VS7, VS8) have been growing, taking advantage of business opportunities with Japanese firms and suppliers.

³⁶¹ See Greenwald and Stiglitz (2012) for the concept of dynamic comparative advantage.

the Vietnamese government may have more limited financial and human resources to design and implement industrial policies than other developing countries.

Which sector can be a driving force for upskilling in Vietnam? This research indicated that the driving force for upskilling in the machine manufacturing industry is gradually shifting from simple assemblers to producers of higher value-added parts and components, namely supporting industries, in accordance with the process of catch-up industrialisation described by Ohno (2014).³⁶² In particular, suppliers which manufacture small-lot products in non-routine production processes often require more intermediate workers (see Chapter 6). As Ashton and Sung (2015) explained, this is because manufacturers of more differentiated products tend to require more skilled workers.³⁶³ These suppliers often invest in higher-level technologies with dynamic business strategies. In addition, suppliers with dynamic business strategies are likely to be more eager to engage in TVET reform (see Chapter 8). Those suppliers are not necessarily large firms but also include innovative SMEs. They are likely to appreciate TVET graduates more than large firms and envisage that TVET institutions are more eager than universities to accommodate their requests (Icart and Rodríguez-Soler 2017). Therefore, focusing on the development of supporting industries will help Vietnam not only increase higher value-adding manufacturing activities (Mori 2006), but also expand intermediate jobs and achieve more inclusive skill upgrading.

While sector-based demand-side policies are essential to stimulate skill demand, there is a risk that industrial policies could generate very limited effects if they focus on extremely narrow sectors, in particular so-called ‘high-tech’ industries which often attract political interest but may not necessarily result in significant levels of employment (Bentham et al. 2013; Fothergill et al. 2017; Payne 2018). This risk is likely to be low when targeting supporting industries because they: (i) cover various industries, such as automobile,

³⁶² In catch-up industrialisation, developing countries usually start from simple manufacturing by taking advantage of FDI inflow (stage one) and gradually internalise parts and component production under continued foreign guidance (stage two) (Ohno 2014).

³⁶³ However, they noted this conclusion is still not absolute, since some of these manufacturers do not always require skilled workers.

motorcycle, electric and electronic, and other machine manufacturing industries; (ii) consist of firms which utilise both new and conventional technologies; and (iii) comprise not only large firms and FIEs but also SMEs and local firms (see Mori (2006) and Chapters 4 and 6). This means that the cross-cutting nature of supporting industries may mitigate the risks of a sectoral focused approach. In addition, there would be ‘cross-fertilising effects’ and ‘knowledge sharing’ through supply chains (Froy et al. 2012), given that suppliers often need to interact with assemblers and other suppliers.

9.3.1.2. Roles of Local Industrial Policies

While industrial policies issued by the national government have had little significant impact, several provincial governments indicated confidence in being able to implement industrial policies that include elements which will stimulate skill demand (see Chapter 8). This shows a viable form of industrial policy formulation and implementation for Vietnam. It would be more effective for local governments, which means city or provincial governments in this thesis, to design and implement detailed policy measures in close consultation with local industries, while the national government provides overall policy frameworks. Furthermore, local or regional industrial policy initiatives can also encourage small and medium suppliers of higher value-added products to engage in policy formulation processes, taking advantage of physical and psychological proximity (Brown et al. 2001; OECD 2016b). In fact, this research found that several interviewed local suppliers are willing to engage in local- or regional-level policy dialogues (see Chapter 8).

9.3.1.3. Integration of Skill Upgrading Elements into Industrial Policies

The main purpose of formulating industrial policies is to support a nation’s industrial development, although this might not automatically expand skill demand. For example, there is the possibility that technological development could replace skilled workers (Ashton and Green 1996), as automation might decrease the employment of intermediate workers (Goos and Manning 2007). In fact, some employers interviewed for this research reported that they will reduce the number of employees by promoting automation (see Chapter 6). Thus, in order to ensure that industrial policies comprise elements of inclusive

skill upgrading, skills policymakers have to actively engage in the process of industrial policy formulation.³⁶⁴ In close cooperation with industrial policymakers, they should identify the sectors which have a high potential to increase skill demand (Ashton and Sung 2015).

The SkillsFuture Initiative, which the Singaporean government launched in 2016, is a leading case of this integrated approach in emerging economies (The Economist 2017a; Government of Singapore 2018).³⁶⁵ Under this initiative, the government drafted Industry Transformation Maps (ITMs), which include skill upgrading as one of four pillars (Ministry of Trade and Industry 2016). In addition, the ITMs are being implemented by the Future Economy Council (FEC), which comprises representatives from government, industry, unions, and educational and training institutions. However, it would not be easy to replicate this type of national initiative in Vietnam. The Singaporean government can carry out this type of national initiative since the country is small enough to be managed and they have highly capable technocrats (Ashton et al. 1999; Ohno 2014). Vietnam needs to find a way which suits its economic, social, and institutional contexts as well as its physical characteristics such as land area, population, and wide regional diversity.

9.3.2. Coordinating Skills and Industrial Policies

In order to improve skill supply more strategically and effectively, skills policies should be coordinated with industrial policies (Ashton and Sung 2015). However, Vietnamese policymakers often operate skills and industrial policies separately (see Chapter 8). Thus, it is necessary to identify a way to integrate these two sorts of policies in Vietnam. On the other hand, skill development policies should also serve people's skill needs, which do not always coincide with those of industry. As business cycles are becoming shorter, as

³⁶⁴ Currently they are unlikely to be contributing to the integration of skills upgrading to industrial policies. See Chapter 8, Section 8.3.5.

³⁶⁵ On the other hand, Sung and Freebody (2017) regard the SkillsFuture Initiative as a major policy shift to lifelong learning and deep learning, not a new version of a narrow-scope workforce development policy for feeding skilled workers to industries for economic development. In this sense, this initiative is related to the dynamic and proactive skills policies which Section 9.3.2 will discuss.

seen in Chapter 6, employer skill needs are likely to focus more on immediate and specific tasks, while people need skills for long-run career development.³⁶⁶ In this situation, it is essential to clarify what the integration of skills and industrial policies means and what the scope of skills policies is. Therefore, this section discusses: (i) how skill development policies should be coordinated with demand-side policies; and (ii) how the scope of skill development policies links with or differs from industry skill needs.

9.3.2.1. Synchronising Skills and Industrial Policies

Skills development policies can be synchronised with industrial policies by targeting the same industrial sectors (Ashton and Sung 2015). This integrated and coherent approach requires skills policies to transform dynamically in accordance with the change in industrial policies and concentrate on sectors with a high potential for upskilling. In addition, the synchronisation of skills and industrial policies is different from the communist-style planned economy in which governments control all inputs and outputs, since firms have a right to determine their own production and recruitment strategies. The role of the government is to identify and support high potential sectors which are likely to contribute to a nations' industrial and skill upgrading, not to direct those sectors.

It would be hard for the national government to synchronise skills and industrial policies in Vietnam, as the governments of NIEs have been doing.³⁶⁷ Since Vietnam has a larger land area and population, the process and speed of industrialisation is likely to vary considerably by region and hence skill requirements can be diverse. On the other hand, these geographic and demographic constraints can be treated as opportunities for local governments to play an active role in integrating skills and industrial policies. In contrast to the national government, they can focus on a smaller number of industrial sectors within a relatively homogenous economy (OECD 2009). Therefore, it can be more effective to synchronise skills and industrial policies at the local or regional level, based on the characteristics of each province or city (e.g. Payne 2018; Snell 2018).³⁶⁸ This

³⁶⁶ See Chapter 6, Section 6.6.2.

³⁶⁷ See Singapore's SkillsFuture initiative in the previous section as an example.

³⁶⁸ For example, Snell (2018) illustrated the case of California State government's initiative, the Strong Workforce Programme, in which the State's community colleges tried to train workforces for prioritised

research found several emerging local initiatives that link skills and industrial policies. For instance, Provincial Government B is trying to promote long-term TVET courses in conjunction with their supporting industry development policies. In another case, The Provincial Industrial Zone Authority in Province D is facilitating cooperation between educational establishments and firms, aiming to promote higher value-added industries (see Chapter 8).³⁶⁹ Those initiatives can be model cases in Vietnam.

9.3.2.2. Scope of Skills Policies and Industry Skill Needs

Clarifying the relationships between people’s long-term skill needs and employer skill needs helps us determine the desirable scope of skills policies, since they are closely related to the former, while industrial policies usually focus more on the latter. The relationships between the two types of skill needs are illustrated in Figure 9.1. They may overlap if employers also require general skills such as cognitive and social skills and transferrable technical skills. On the other hand, certain long-term needs may not match employer skill needs, which tend to be specific and short-term (Froy 2013; Ashton and Sung 2015; OECD 2016a).

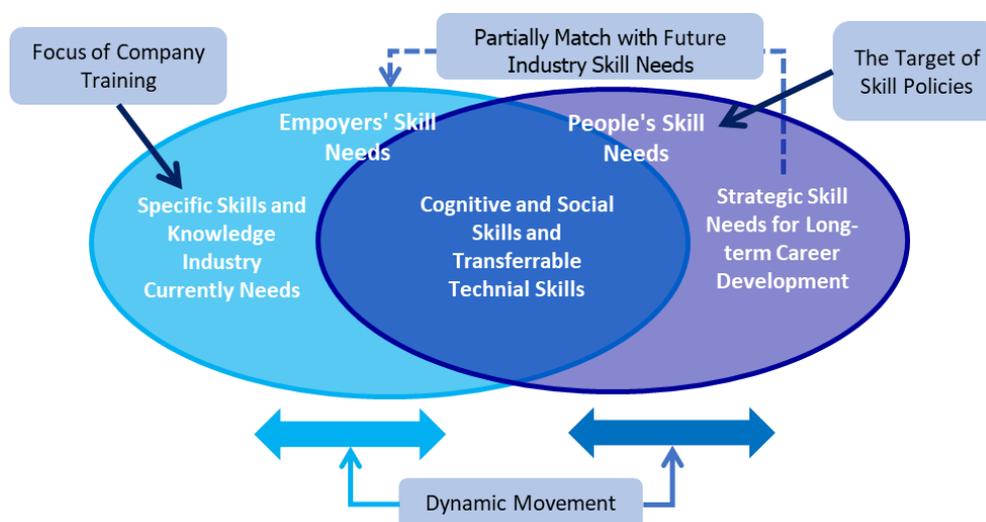


Figure 9.1. Relationship between Employers’ Skills Needs and People’s Long-term Skills Needs

sectors with strong support from the state government. Payne (2018) reported on the potential of local skill formation initiatives which address both the supply and demand side in England, while he noted some challenges such as insufficient fund allocation from the national government.

³⁶⁹ See Chapter 8, Section 8.3.4.

Source: Drafted by the author based on JICA (2014b, p. 14).

Accordingly, firms' internal training is apt to focus on specific skills immediately required for production operation, in particular for elementary and intermediate occupations (Cox and Warner 2013; World Bank 2013a; Goodwin et al. 2014). In contrast, skills policies should strategically incorporate people's skill needs for long-run career development. This is because education and training are for the development of 'human capability', which is broader than the production ability on which human capital theorists focus. It means the ability to lead and choose the lives people have reason to value (Sen 2001, p. 293). The current skill mismatch discussion often neglects the perspectives and interests of employees and students (Cappelli 2015). The supply side approach regards education and training as a tool to catch up with technologies (e.g. Goldin and Katz 2008), but this concept is too 'instrumental and utilitarian' (Piketty 2014, p. 307).

Therefore, the government has to ensure that the scope of education and training is not limited to immediate workplace needs, but rather that it covers broader skills applicable to work and life over the long-term (Gekara and Snell 2017). In particular, it is important to provide TVET graduates with instruction in general skills such as cognitive skills (Payne 2002; Froy and Giguère 2010; OECD 2016b) beyond what employers currently desire, since their future skill needs are unpredictable. Improvement of cognitive skills such as problem-solving skills would enable TVET students to progress in their careers and earn higher incomes (Liu and Grusky 2013; Deming 2015) (also see Chapter 8).³⁷⁰ Moreover, it should be noted that both employers' and people's skill needs can change over time if the dynamism of employers' skill demands is stimulated with adequate demand-side policies. Thus, in the long-run, some aspects of people's strategic skill needs could match industry's future skill needs, as argued by Livingstone (2010). He contended that the number of workers who can actively perform and improve their work will increase if firms value their ability to develop their skills. Indeed, dynamic firms that aim to climb up value chains would need those workers with 'excess skills' in the long run

³⁷⁰ Liu and Grusky (2013) found that developing cognitive skills such as critical thinking, problem solving, and deductive reasoning results in increased wages in the United States, while Deming (2015) argued that both cognitive and social skills matter. Also see Chapter 8, Section 8.3.1.

because they contribute to improving organisational capacities for making flexible adjustments in response to fast-changing and highly uncertain business environments (Streeck 1997, p. 205).

The above argument implies that synchronising skill development policies with industrial policies does not necessarily mean the former should completely follow the later. Figure 9.2 conceptualises the relationships between employers' immediate skill needs, skill needs arising from proactive industrial policies, and people's long-term skill needs. The scope of skill needs arising from industrial policies usually exceed employers' immediate skill needs, since it would envisage long-term industrial development.³⁷¹ UKCES (2010b, p. 49) described it as 'strategic skill needs', implying that political intervention can be applied to this area. However, people's skill needs have an even longer and wider scope, since they aim for not merely economic and industrial development, but social purposes such as the improvement of the overall quality of work and life.

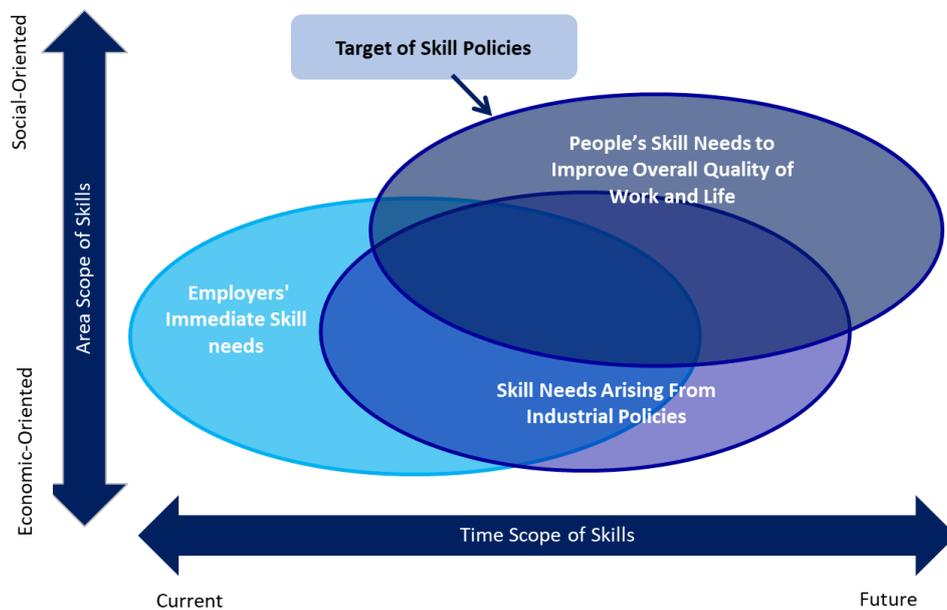


Figure 9.2. Scope of Dynamic Skills Development Policies

Part of the literature on the supply-side approach also stresses the alignment of industrial and skills strategies to a certain extent (e.g. Almeida and Robalino 2012), but it is a one-

³⁷¹ Industrial policies in Vietnam usually cover 5-10 years or more (e.g. Government of Vietnam 2014c). Malaysia's Industrial Master Plans cover 10 years or more (Ohno 2014).

way relationship. In other words, skills policies follow the targets of industrial policies to foster the ‘economic relevance’ of TVET programs. This logic, which is based on human capital theory, ignores the social dimension of skill formation. As defined by Brown (1999, p. 235), skill formation is the development of the social capacity for learning, innovation and productivity, which enables a country to become an inclusive high-skills economy and society. Therefore, skills policies should prioritise people’s long-term skill needs as much as possible, in case there is a conflict between people’s skill needs and skill needs arising from industrial policies (Brown 1999; Payne 2002).

9.4. Workable Skill Demand and Supply Coordination for Vietnam

Developing integrated skill formation strategies will require regular and intensive discussions among key stakeholders from both the supply and demand sides. Effective skill demand and supply coordination institutions are essential for carrying out these multi-stakeholder policy dialogues. Vietnamese policymakers are inclined to introduce developed countries’ models, but this ‘policy borrowing’ without an in-depth analysis of each country’s context does not work well, as discussed in Section 9.2.2. Therefore, this section aims to explore a workable skill demand-supply coordination institution format and its desirable functions in the context of Vietnam.

9.4.1. Potential for Local or Regional Coordination Initiatives

Skill demand-supply coordination should work effectively if institutional reforms are carried out on a sectoral basis (Ashton and Sung 2015). Since skill requirements vary considerably by industrial sector, covering all sectors would take too much time and resources and end up obscuring the focus of discussion. If there are not enough resources to set up new institutions by sector, sectoral-based working groups can be organised under a unified secretariat, similar to the cases of on-going investment climate improvement initiatives such as the VBF and the Vietnam-Japan Joint Initiative for Investment Climate Initiative (see Chapter 3).³⁷²

³⁷² See Chapter 3, Section 3.6.3 for these initiatives.

Who should lead the skill demand and supply coordination institutions? The government is introducing SSCs which rely on employer initiatives, in accordance with the supply-side approach.³⁷³ However, this research found that many employers have weak incentives to proactively engage in TVET reform (see Chapter 8).³⁷⁴ An alternative is intervention by the national government, as suggested by the developmental state model, but many Vietnamese national government officials are likely to lack the capacity as well as the commitment to coordinate the skill demand and supply sides, unlike in NIEs such as Singapore and South Korea which have institutional mechanisms and technocrat teams capable of coordinating skill demand and supply at the developmental stage (Ashton et al. 1999; Park 2013; Ohno 2014).³⁷⁵ Moreover, since Vietnam is much bigger than the NIEs in terms of population and land area, the progress of skills and industrial development may vary considerably between places with relatively high levels of industrial agglomeration and those relying on agriculture. It would be hard even for capable national officials to centralise the coordination of diverse skill demand and supply scenarios. Thus, it would be difficult to replicate the NIEs' top-down coordination models in Vietnam.³⁷⁶

In this situation, local governments can facilitate skill demand-supply coordination. Local initiatives sometimes present ways to break through skill formation challenges which national initiatives cannot solve (Brown et al. 2001; Clark 2009; Froy and Giguère 2010; Persson and Hermelin 2018; Snell 2018).³⁷⁷ In fact, this research found that several local

³⁷³ Ashton and Sung (2015) also proposed that sector-based skills bodies be led by employers, even though they stressed the importance of intervening in the demand-side. However, this might be because they are focusing on the contexts of the Anglo-Saxon countries such as the UK.

³⁷⁴ See Chapter 8, Section 8.3.4.

³⁷⁵ For instance, Singapore had the EDB and the Korea had the Economic Planning Board (EPB) which developed strategies to effectively influence both the skills supply and demand sides. Also see Chapter 8, Section 8.2.3

³⁷⁶ NIEs' models change according to the stage of industrialisation. For example, South Korea is decentralising the authority which formulates skill formation strategies to the local and regional levels, although it may be still limited to supply-side coordination (OECD 2009).

³⁷⁷ Clark (2009) and Froy and Giguère (2010) argued that the local leadership in the bottom-up approach can promote local economic development to break through difficulties such as economic recessions. Persson and Hermelin (2018) also argued that municipalities' initiatives in the Technical College scheme are making incremental institutional change in the Swedish TVET system. Brown et al. (2001) indicated the importance of local coordination for partnerships with SMEs. Snell (2018) described several local

governments are willing to facilitate skill demand and supply (see Chapter 8).³⁷⁸ The local or regional coordination institutions can be led by various provincial government authorities, depending on the characteristics of each province. In Province D, a Provincial Industrial Zone Authority is eager to facilitate partnerships between the demand and supply sides, but other departments or an independent agency can take the same role in other places. More importantly, the authorities which are responsible for the industrial and investment policies, such as the DPI and the Department of Industry and Trade (DOIT), should be involved in policy dialogues, since a demand-supply coordination institution would only work if it is integrated with the demand-side policies (Dobbins and Plows 2016).

9.4.2. Functions of Local or Regional Coordination Institutions

The local or regional coordination institutions generally have two main tasks. First, they should be able to make policy proposals on not only supply-side issues but also the stimulation of skill demand such as relevant regulations and incentives, as Figure 9.3 illustrates (Sissons and Jones 2016).³⁷⁹ This is the main difference from existing sectoral bodies, which often struggle to make a significant impact on a nation's upskilling due to lack of policy influence, in particular for the demand-side (Ashton and Sung 2015).³⁸⁰ These supply-side and demand-side policy proposals should be developed through multi-stakeholder dialogues including employers, worker representatives, educators, representatives from intermediary organisations, and government officials in charge of skills and industrial policies. The coordination institutions should be to the responsibility of the highest decision makers of local governments such as the chairman of Provincial People's Committees. This will enable them to urge industrial and skills policymakers,

initiatives in the United States which aim to improve TVET programs in close cooperation with the business community. He called those initiatives 'micro-skills ecosystems'.

³⁷⁸ See Chapter 8, Section 8.3.4.

³⁷⁹ In their case study in England, Sissons and Jones (2016) asserted that there is a strong rationale for linking industrial strategy and skills policies locally due to its high feasibility.

³⁸⁰ For example, the Australian state government of Queensland developed a local-oriented skills initiative to develop skills formation policies by involving the demand-side actors (Eddington and Toner 2012). However, this initiative still lacks the influence on demand-related policies.

who are also members of multi-stakeholder dialogues, to carefully review their proposals and include them in relevant policies.³⁸¹ Furthermore, in order to ensure higher-level policy coherence, these supply-side and demand-side policies should be integrated into overall local or regional development strategies, as practiced in Province B.³⁸² In Vietnam, those local development strategies are usually linked with national development strategies such as Socio-Economic Development Strategies.

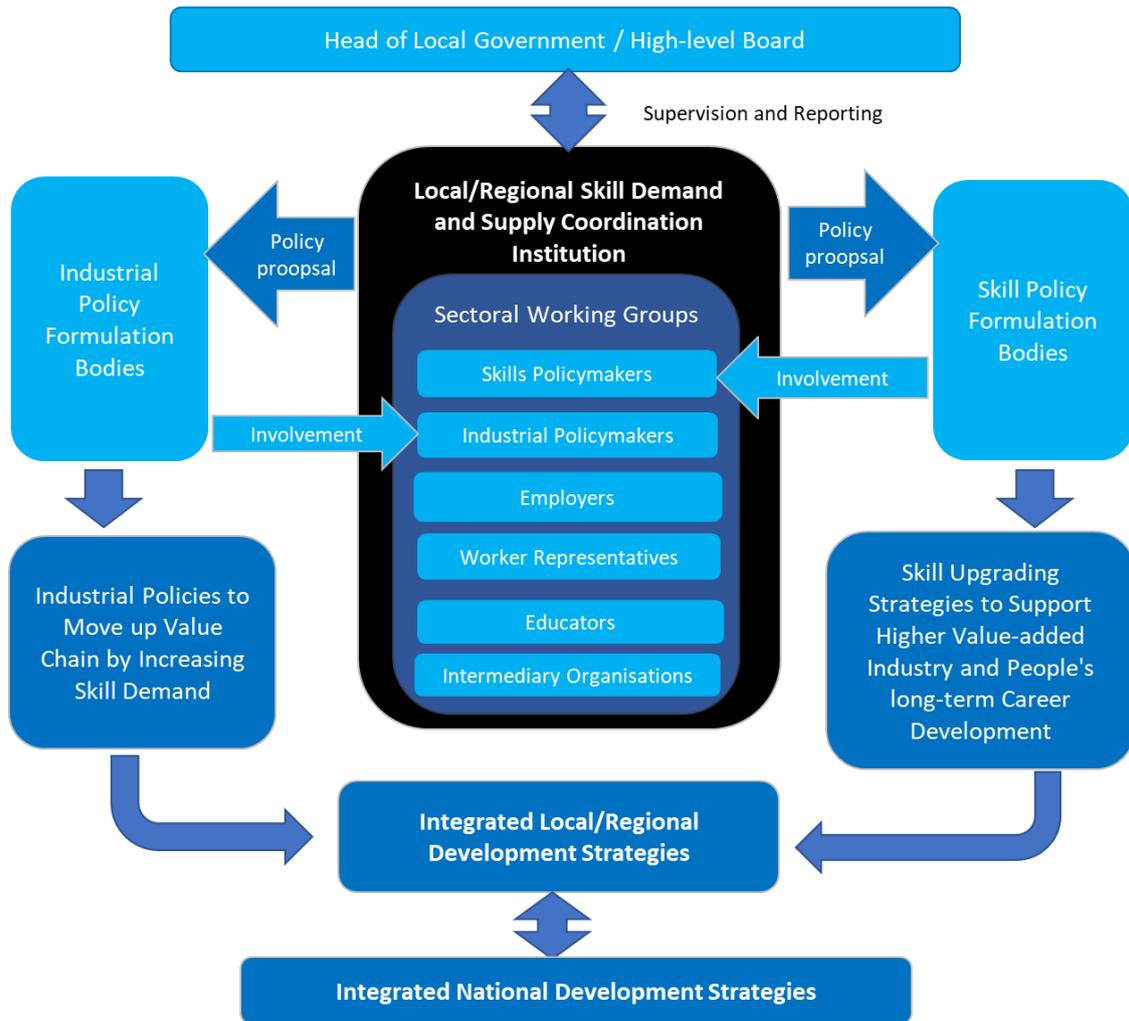


Figure 9.3. Overview of Local Skills Demand-Supply Coordination Institutions

³⁸¹ Ohno (2014) proposed establishing national councils chaired by the prime minister, in order to make multi-ministerial policies for industrial development functional. This idea can be also applied at the regional or local level.

³⁸² See Chapter 8, Section 8.3.5.

Second, local or regional coordination institutions should assist firms and educational establishments in implementing various partnership activities beyond those which are recruitment-related, such as curriculum improvement.³⁸³ They do not need to forcibly squeeze diverse employer skill needs into one ‘unified’ skill demand. Rather, they should provide opportunities for firms to present diverse skill needs, which educational establishments can compare with their organisational comparative advantages and students’ long-term skill needs. Then, they can decide on their strategies. Furthermore, these institutions should promote mutual learning of good examples of local partnerships between firms and educational establishments. This research found that in comparison with importing other countries’ models, mutual learning of local best practices is not popular in Vietnam.³⁸⁴ Disseminating the advantages and disadvantages of local best practices as well as their challenges will enable key actors to identify suitable ways to develop strategic partnerships in their local contexts.

The above are standard activities, but there is no ‘one-size-fits all’ model which works in all places (Eddington and Toner 2012, p. 22; Dobbins and Plows 2016, p. 12). Thus, the functions of the coordination institutions can vary, depending on the characteristics of targeted industrial sectors and the social, cultural, and institutional contexts of each locality. Currently, local governments in cities and provinces with higher levels of industrial agglomeration are likely to be active in skill demand-supply coordination, presumably because more firms are trying to move up the value chain and hence require more skilled workers there (see Chapter 8). In addition, those local governments may also have developed the capacity to deal with both the skill demand and supply sides through attracting FDI and promoting industrialisation. On the other hand, it would be harder for local or regional coordination institutions to carry out a wide range of activities in provinces in the early stages of industrialisation, as demonstrated when a previous attempt

³⁸³ There is the research about labour market intermediaries (LMIs) (e.g. Dobbins and Plows 2016) which focuses on the matching of employers and workers. The role of the coordination institutions discussed in this thesis is broader.

³⁸⁴ It seems that the Vietnamese government is promoting mutual learning among TVET institutions through activities such as teaching equipment competitions, but the author could not determine whether the government is promoting mutual learning on partnership development between firms and educational establishments.

by a top government leader did not deliver substantial results (see Chapter 8). In such cases, the coordination institutions need to carry out activities in a reasonably small and feasible scope. For example, they may focus on the improvement of early-stage industrial policies such as attracting FDI, as Provincial Government A has been doing (see Chapter 5). They can also start by identifying a small number of dynamic firms which intend to climb up the value chain but are not widely recognised. For instance, this research found that Vietnamese Mould and Die Supplier B was recently approached by a local government official in relation to the implementation of the provincial supporting industry development policy.

Several challenges can be predicted in establishing workable local or regional coordination institutions in Vietnam and promoting bottom-up policy development which requires extensive networks and coordination among various actors (Pierre 2014; Stroud et al. 2015; Payne 2018). For one thing, local governmental officials often lack the capacity to design and implement integrated skill formation strategies (see Chapter 8).³⁸⁵ They may also face capacity constraints in formulating effective industrial policies, with the exception of those in the cities and provinces which have a long history of FDI attraction. Many interviewed employers are not satisfied with current industrial policies (see Chapter 8), although they were not asked to provide their specific perceptions of local industrial policies and this should be clarified in future research. In addition, they may sometimes face conflicts of interest among key actors, as the scope of skill needs differs between employers and employees or students.³⁸⁶ Moreover, there may be tension between local governments which attempt to implement policies based on local characteristics and the national government which wants to ensure policy coherence across regions (OECD 2009, p. 24). In particular, local governments would face significant limitations in implementing their initiatives when the accountability

³⁸⁵ See Chapter 8 Section 8.3.4 for the case of the former Deputy Prime Minister who tried to establish a provincial workforce development council in Bac Giang Province.

³⁸⁶ See Chapter 8, Section 8.3.1. In a similar case, the ILO (2017b) found that there are often conflicts of interest among key stakeholders in conducting skills anticipation exercises.

mechanisms for education and training programs, which often link with the funding mechanism, are highly centralised (e.g. Payne 2018).

Local governments should make an effort to overcome these challenges, but at the same time, adequate support from the national government is essential. Local government officials will need collaborative leadership skills and sufficient knowledge of skill supply and demand trends to facilitate local or regional upskilling initiatives (Froy and Giguère 2010). In order to achieve this, the national government should not only transfer their knowledge and skills to them but also encourage mutual learning of local best practices across cities and provinces (Osterman 2008). Furthermore, the national government has to provide an overall vision and institutional framework of national skill formation (Snell 2018), while devolving the necessary authority to local governments for activities such as policy and program designing, budget allocation, and partnership development with key actors (Osterman 2008; OECD 2009).³⁸⁷ Otherwise, the roles of local governments will be limited to the implementation of narrow strategies rather than the formulation of integrated skill formation strategies (see Stroud et al. 2015).

9.5. Concluding Remarks

9.5.1. Evolving the Demand-Side Approach in Vietnam's Context

The findings of this research indicate that the supply-side approach does not function well in reforming Vietnam's skill formation system due to the fundamental flaws in its assumptions. Not many employers in the machine manufacturing industry, which will likely lead further industrialisation, currently require a large number of skilled workers. Furthermore, it is hard to acquire sufficiently precise and comprehensive skill needs information which can be utilised for curriculum improvement, since skill demand is ambiguous, unpredictable, diverse, and myopic in its nature. The misperception regarding skill demand is causing mutual distrust among key actors in Vietnam. In order to break through this deadlock of stagnant skill demand and mutual distrust among key actors,

³⁸⁷ Snell (2018) stated that a long-term skills formation vision should be developed at the national level, while local governments can design and implement short to mid-term skills formation strategies, based on his case study on the California State Government's Strong Workforce Programme.

Vietnam needs a skill formation strategy which addresses the demand and supply sides in an integrated way. In response to the third research question, this research suggests four issues to be incorporated into the demand-side skill formation policy in Vietnam's context (see Section 9.1).

First, to stimulate the dynamism of skill demand, the government should formulate proactive and flexible industrial policies to promote the sectors with a high potential to move up the value chain and require a skilled workforce. The research found that parts suppliers are likely to require more intermediate workers. In particular, the proportion of intermediate workers to all employees is high in companies producing small-lot products in non-routine processes. This indicates that effective supporting industry development policies will help Vietnam not only achieve upskilling but avoid job polarisation and the hollowing-out of intermediate jobs.

Second, skills policies should be synchronised with proactive industrial policies. However, some elements of skills policies should be allowed to go beyond the requirements arising from industrial policies and employers' immediate needs, considering the social aspect of skill formation. The scope of skills policies should not be restricted to the supply-side approach's narrow and instrumental concept of education and training but should also cover people's long-term skill needs to help them keep improving their work and lives.

Third, more effective skill demand-supply coordination institutions are required to not only reduce mutual distrust and forge better partnerships among key actors but also to develop integrated skill formation strategies addressing both the supply and demand sides. Considering the weak motivation among employers in engaging in TVET reform, it is necessary for the government to lead demand-supply coordination at this stage of industrialisation rather than relying on firms' voluntary skill development initiatives.

The final issue is about who should lead this integrated skill formation. The proposals outlined above are mostly in line with the developmental state model under the demand-side approach, which is based on the analysis of the NIEs. However, any kind of standard skill formation model needs to adjust and evolve with careful consideration of the social,

economic, cultural, and institutional contexts of each country through active learning processes. This research suggests that local government initiatives on integrated skill formation are more effective than the national government's top-down approach in Vietnam since the status of industrial development differs by province or region. In addition, local governments are likely to have a better chance to identify and involve dynamic small and medium suppliers in the policy formulation process, taking advantage of physical and psychological proximity. In order to activate local or regional initiatives, the necessary authority for skills and industrial policy formulation should be devolved to local governments. The role of the national government is to assist local governments in developing their capacities through knowledge transfer and mutual learning on good local practices and to formulate broader policy frameworks.

In conclusion, Vietnam needs an integrated skill formation strategy to achieve further industrialisation and the economic growth which accompanies inclusive skill upgrading. This indicates that the policymakers need to free themselves from the supply-side approach paradigm of large skill mismatch caused by growing skill demand in order to inject dynamism into Vietnam's skill formation system and put the country on track to becoming an inclusive high-skill economy. Certainly, the supply-side approach has contributed to the change in mind-set of policymakers and educators in Vietnam, given that they have started paying more attention to employer skill needs rather than merely encouraging more students to pursue TVET and higher education without considering the availability of employment opportunities. However, the research found that fully adopting the supply-side approach without realising its flaws will not help Vietnam become a high-skills economy. Vietnam has to develop a viable skill formation model suitable for its own economic, social, and institutional contexts through active policy learning processes, not simply borrowing advanced countries' models.

The above policy recommendations were drawn from this research focusing on key actor perceptions on the machine manufacturing industry in particular, which will likely lead further industrialisation and higher-valued added growth in Vietnam (see Chapter 3). However, to a certain extent, the findings of this research can be applied to various

manufacturing industries. For one thing, many manufacturing industries share similar structures, namely dependence on foreign-invested assemblers (Ohno 2014).³⁸⁸ Moreover, some key challenges, such as the ambiguity and diversity of employer skill demand, the absence of a functioning market for the TVET sector, and the government's policy-borrowing practices, are likely to not only be issues for Vietnam's machine manufacturing industry but general problems with the supply-side approach, considering the findings of this research as well as other countries' situations and theoretical explanations given in extant literature (see Chapter 8).

On the other hand, the applicability of the findings of this research to other industries is still a presumption. In particular, this research did not provide perceptions of employers in other industrial sectors, while those of policymakers and educators may not be as sector-specific as employers' (e.g. skills policymakers' jobs are usually not divided by industrial sector). For instance, this research does not examine whether skill demands in these sectors are as stagnant as in the machine manufacturing industry. Furthermore, the situation of skill formation in the service sector could be quite different from the manufacturing sector. Thus, the general applicability of these research findings needs to be clarified by future studies about key actor perceptions of skill formation in other industries.

9.5.2. Contribution to Skill Formation Theories

The main objective of this research project is to contribute to the theoretical and empirical understanding of skills policies in Vietnam, a medium-size developing economy, as explained in the above section. However, this thesis also has three implications for the applicability and adaptability of existing theoretical approaches to skill formation in other currently developing countries.

³⁸⁸ Ohno (2014, p. 242) pointed out that the structural shift in Vietnam from an agriculture-based economy to an industry-based economy led by a growing manufacturing industry was more attributable to the large inflow of FDI than the dynamism of domestic enterprises, indicating that FDI accounted for 24.1 per cent of gross capital formation.

First, the findings of this research indicate the limited applicability of the supply-side approach in developing countries. This approach is based on the assumption made by human capital theory that skill supply creates its own demand (Lloyd and Payne 2002) and that integration into global value chains leads to ‘skill-biased technological change’ (e.g. Almeida 2010; Srouf et al. 2013). However, solutions provided by this approach, such as the improvement of TVET programs in accordance with employer skill needs, do not work when skill demand is not increasing. Currently developing countries which are latecomers to the global value chain are likely to struggle with the lack of dynamism in skill demand because firms in these countries tend to face intensified competition in supply chains and many FIEs have already established higher value-added activities in more developed countries which started attracting FDI much earlier (see Chapter 6). In particular, small or medium-size countries without large domestic markets, such as Vietnam, may face difficulties in encouraging firms to invest in higher value-added production activities due to the insufficient scale of their economies, unlike large developing economies such as China and India. In short, the ‘employer-led’ skill formation system promoted in the supply-side approach (Lloyd 2008, p. 178; Froy 2013, p. 346) is unlikely to work in currently developing economies which are apt to lack dynamism in skill demand, while weak employer skill demand can also be a constraint in developed economies (e.g. Payne 2018). In order to stimulate the dynamism of skill demand, government intervention in the demand-side with industrial policies is required, as the demand-side approach stresses (Ashton and Sung 2015; Brown et al. 2015a).

Furthermore, skill needs information cannot be a panacea for any supply-side approach problems because employer skill demand is ambiguous, unpredictable, diverse, and myopic in its nature (see Chapter 6). At the same time, the quality of information is lower in developing countries where governments tend to have limited capacity to collect sufficiently precise and detailed labour market information, such as disaggregated employment and qualification data by industrial sector and comprehensive vacancy information at firms, including job descriptions (ETF 2012). As a result, policy discussions are often based on the results of surveys which only provide partial and subjective views of employers, thus neglecting to identify the demand-side constraints.

Another problem with the supply-side approach is that it prescribes policy recommendations without taking into account the in-depth understanding of each country's economic, social, and institutional context. The supply-side approach literature often ends up providing normative policy solutions, such as improving TVET programs in accordance with employer skill needs, improving labour market information systems, and implementing market-based reforms which combine the promotion of autonomy and the reduction of public funding, relying on the general applicability of human capital theory because of its conformity to the universal laws of economic development (Brown et al. 2001). In other words, it promotes the borrowing of skill policies formed in developed countries as one-size-fits-all solutions. However, the findings of this research suggest that this simplistic policy borrowing does not help currently developing countries improve their skill formation system but rather results in amplifying mutual distrust among key actors (see Chapter 8).

Second, the demand-side approach explains the constraints of developing countries better than the supply-side approach, but its solutions also have limited applicability. In the demand-side approach, government interventions in both the supply and demand sides are encouraged since an employer-led system does not always lead to inclusive upskilling. In addition, the demand-side approach literature emphasises that skill formation systems in developing countries can be different from those in developed countries from the viewpoint of political economy of skills, dismissing simplistic policy borrowing (e.g. Ashton and Green 1996; Ashton et al. 1999). However, its developmental skill formation model is not directly applicable to currently developing countries. These countries need to find a way to make effective industrial and skills policies by dealing with global value chains which have become increasingly competitive and hence discourage firms from moving to higher value-added activities (see Chapter 6). On the other hand, they have fewer and narrower policy options in the new global trade orders, such as the WTO, than former developing states, such as NIEs (Ohno 2009). Furthermore, some of those countries have larger land areas and populations than NIEs. This leads to greater regional diversity of economic and industrial development and skill needs, which make it difficult for central governments to make effective policy interventions. Therefore, the demand-

side approach must be updated, but extant literature has not managed to indicate how it should be adapted to the changing contexts of currently developing economies. This explains why it has not penetrated the consciousness of policymakers in developing countries, such as Vietnam (see Chapters 5 and 8).

Furthermore, this thesis indicates possible ways for the demand-side approach to evolve. For one thing, the integrated policy interventions in both demand and supply sides can be carried out by not only central governments but also local governments. In particular in medium-size developing countries, including Vietnam, local government initiatives may produce far better outcomes than the central government initiatives. Local governments can focus on a smaller number of industrial sectors within a relatively homogenous economy (OECD 2009), where the diversity of skill needs may be narrower. In addition, they are in a better position to develop rapport with other local actors, such as firms (Brown et al. 2001; OECD 2016b). Certainly, local governments' capacity constraints can be a key challenge, but it would be more effective than waiting for central governments to be able to deal with a great diversity of regional economic development and skill needs.

Additionally, this research provides a possible explanation for how local governments have become proactive in formulating integrated skill formation policies. In Vietnam, a few local skill formation initiatives are emerging in provinces with relatively higher industrial agglomeration (see Chapter 8). Even though these provinces may have geographical advantages because they are located near the nation's political and economic centres, they have achieved industrialisation by implementing industrial policies to attract FDI and promote higher value-added industries (Malesky 2004; Vu 2016). This implies that local demand-side policies should be in place in order to implement effective skills policies, as skill supply does not always create its own demand.

Another implication is for the inclusion of employer voices in the demand-side approach's skill policy formation process. Although the employer-led system suggested by the supply-side approach is unlikely to work in developing countries which may struggle with weak employer skill demand, no nation can achieve upskilling by totally

ignoring employer voices. This research found that it is unrealistic to attempt to collect precise skill needs information from employers and transmit it to the supply side (see Chapters 6 and 8). Instead of this one-way transmission of information, more interactive dialogues among key actors are required in order to elaborate an accurate picture of a nation's skill needs. These dialogues should endeavour to promote mutual understanding of employers' constraints in providing precise skill needs information and the diversity of their skill needs. In other words, skill demand cannot be determined solely by employers, but must rather be formulated through interactions among key actors, such as firms, education and training institutions, governments, and worker organisations (JICA 2014b). In such multi-stakeholder dialogues, employers should provide their perceptions of current and future skill needs, while noting their uncertainty and constraints in determining them. Governments and education and training institutions have to decide which skills they should focus on, given their students' and nation's broader skill needs, while at the same time recognising that employer skill needs can be diverse, ambiguous, and myopic.. These dialogues should be more useful and efficient than attempting to obtain precise current and future skill needs from employers, which is hardly an achievable endeavour.

Finally, this thesis suggests what policymakers need to keep in mind when deciding on the sectoral focus of the demand-side policy. This research found that supporting industries, in particular suppliers which manufacture small-lot products in non-routine production processes, can be the driving force for upskilling (see Chapter 6). Furthermore, targeting supporting industries would enable policymakers to ensure that industrial policies and corresponding skills policies benefit a wide range of firms and workers due to their cross-cutting nature in related industries, technologies, nationalities, and sizes (see Section 9.3.1.1). On the other hand, it was found that policymakers tend to focus on large foreign-invested assemblers and SOEs, overlooking the potential of SMEs and local private firms which are main constituents of supporting industries (see Chapters 5 and 8). Therefore, policymakers should carefully examine each industry's potential contribution to value creation and upskilling rather than putting superficial labels on them, such as

‘high-tech’ or ‘low-tech’. Furthermore, focusing on industries with cross-cutting natures is likely to ensure wider benefits from industrial and skill policies.

In summary, this thesis provides a critical account of the application of the supply-side approach to currently developing countries. On the other hand, it found these countries’ skill formation challenges can be explained better in the framework of the demand-side approach. However, its policy solutions, which are consolidated in the developmental skill formation model, are also not directly applicable to them. This research indicates possible ways to adapt the demand-side approach to currently developing countries, including local skill formation initiatives, employer engagement, and effective sectoral-focused demand-side policies.

9.5.3. Implications for Future Research

This research analysed Vietnam’s skill formation system based on in-depth interview data with three key stakeholder groups, namely employers, policymakers, and educators. It provided deep insight into it, compared to previous studies which highlighted only a partial view of employer perceptions based on large-scale surveys. However, this research has limitations, some of which were reported in Chapter 4. Future research on the following issues would help clarify the findings of this research and refine the policy implications.

First, this research did not include interviews with students and employees on their career and education aspirations, due to limited time and resources. This research relied on the insights of educators and employers, but it would be worthwhile to compare these findings with direct interviews with students and employees. This would clarify why young people prefer to attend universities rather than TVET programs.

Second, this thesis could not sufficiently analyse how firms are formulating their human resource development (HRD) strategies such as recruitment and training, even though the relevant data was collected through field research. Young people and their families are often criticised for choosing to apply to universities without clear career objectives. However, firms’ HRD strategies, which favour university graduates in wage setting and

workplace learning, may be implicitly encouraging them to apply to universities in Vietnam, as this research implied. Therefore, an in-depth analysis of firms' HRD strategies will clarify why many young people hesitate to join TVET programs. Interviews with worker organisations may also provide supplementary insight about workplace learning and career progression, although this research found that they have not started facilitating partnerships between employees and employers for upskilling.³⁸⁹

Third, this research highlighted several cases of local or regional initiatives, but more cases of emerging initiatives should be analysed in order to further examine what forms of local or regional initiatives are viable and determine the potential constraints and drawbacks in promoting local integrated skill formation policies. Furthermore, it is not easy for most countries to identify the appropriate degree and style of decentralisation and devolution (OECD 2009). Thus, it is necessary to analyse what authority, skills, and resources local governments require to design and implement integrated skill formation strategies and how the national government can maintain national-level coherence while promoting devolution. Learning from other countries' examples of devolution is useful (e.g. Brill et al. 2015; Dobbins and Plows 2016; OECD 2016b; Payne 2018), but, again, simple policy borrowing must be avoided. These studies should be used only as references to explore viable local initiatives and a suitable way to promote devolution in the context of Vietnam.

Fourth, this thesis stresses the benefit of the demand-side policies, but it is necessary to explore further what form of national and local industrial policies enable developing countries to achieve inclusive upskilling. While governments should address the demand side with industrial policies, these policies may not lead to inclusive upskilling if they focus on narrow sectors dominated by a small number of firms (Bentham et al. 2013; Payne 2018). In addition, although industrial policies should be sector-focused due to the diversity of skill needs and resource limitations, this may widen regional divides (Fothergill et al. 2017). On the other hand, paying too much attention to these risks will

³⁸⁹ The collective bargaining mechanism is not functioning in Vietnam, since trade unions lack the inclination and ability to negotiate with employers on behalf of workers as their members (Truong and Rowley 2013; ILO and ADB 2014).

put us back to the deadlock of the supply-side approach, which dismisses demand-side policies. Therefore, it would be useful to conduct further research to identify the shortcomings of sector-focused demand-side policies in developing countries and what would be the possible balance between their benefits and drawbacks in the long term.

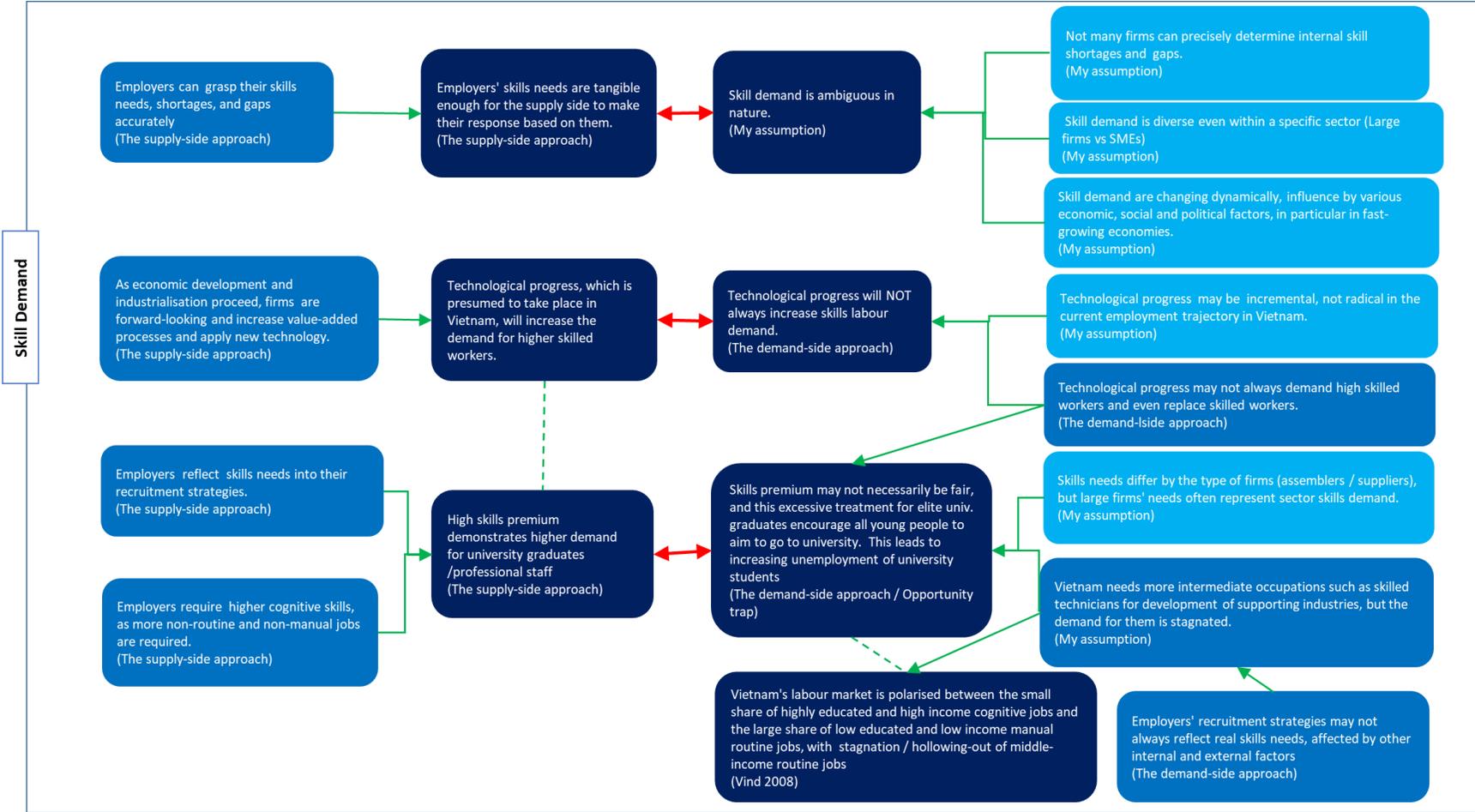
Finally, this research aimed to clarify the challenges of Vietnam's skill formation system and explore a viable reform strategy, but many other developing countries might be struggling with similar challenges stemming from the adoption of the supply-side approach. Therefore, comparing skill formation systems and their challenges in Vietnam and other medium-size developing countries may help those countries explore what form of the demand-side approach is applicable to their contexts, especially those in the same region such as Cambodia and Myanmar.

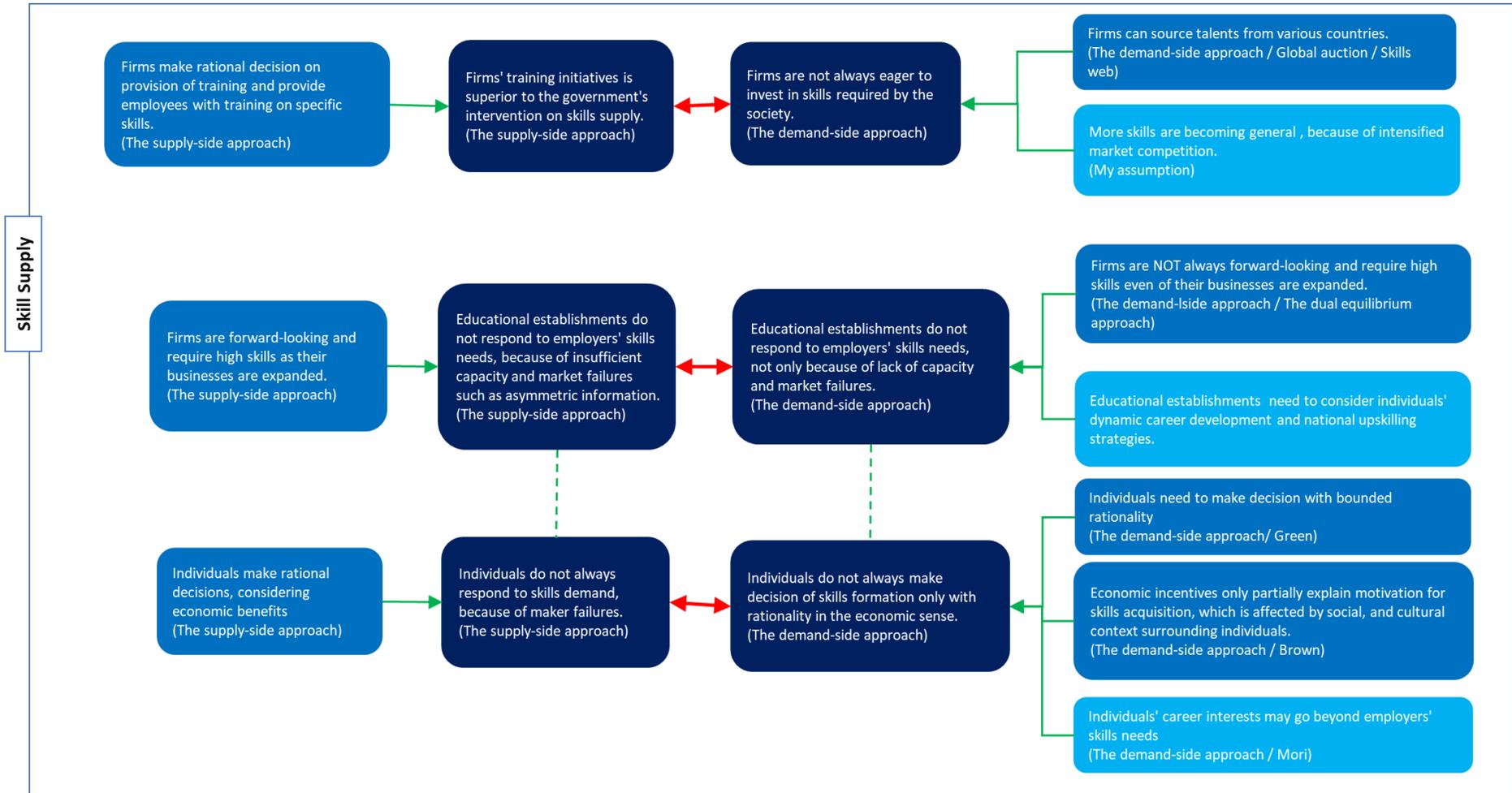
The outcomes of the above future research can be utilised in not only Vietnam but also other medium-size developing countries which are striving to become inclusive high-skills economies.

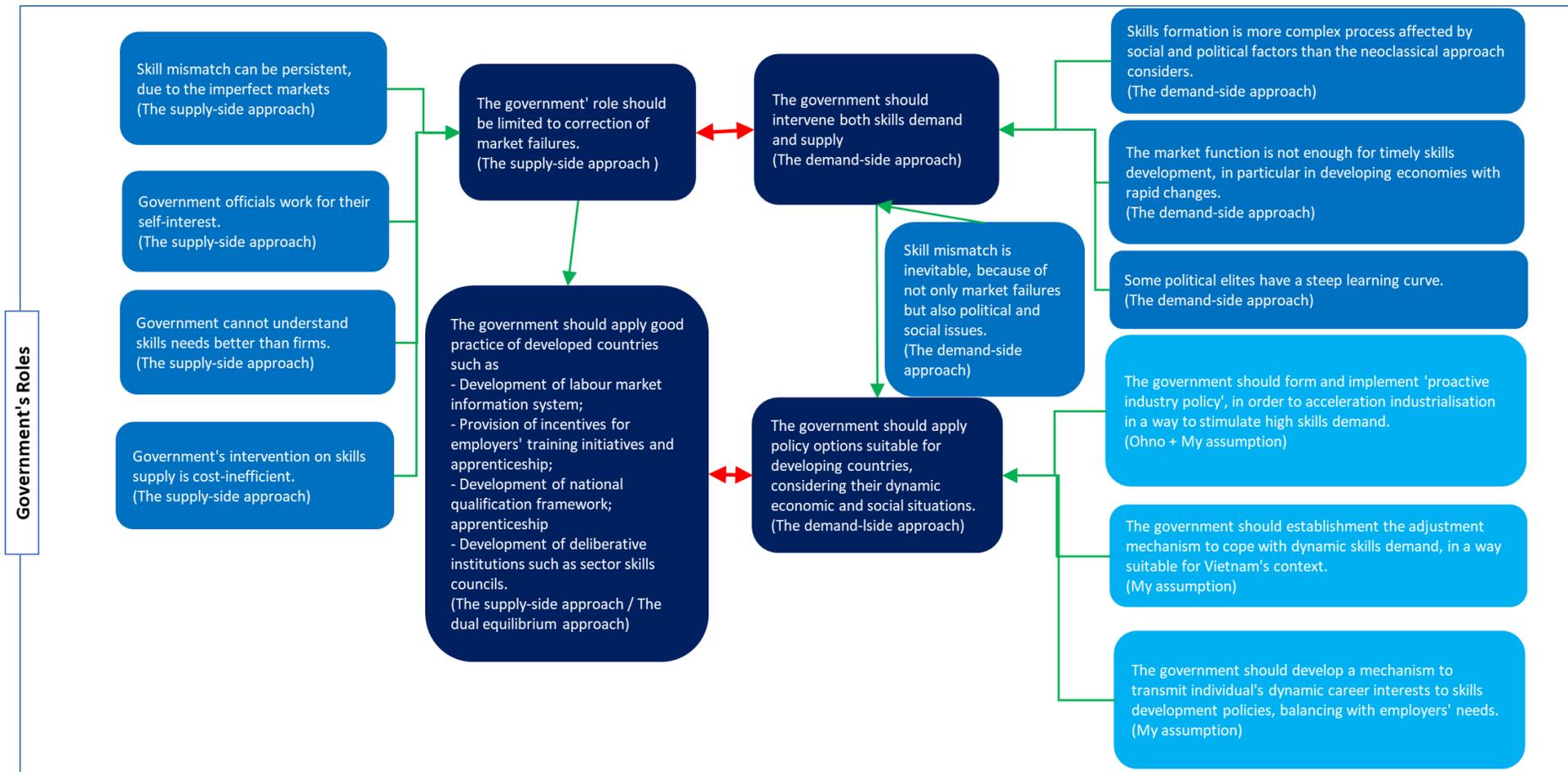
Appendices

Appendices for Chapter 4

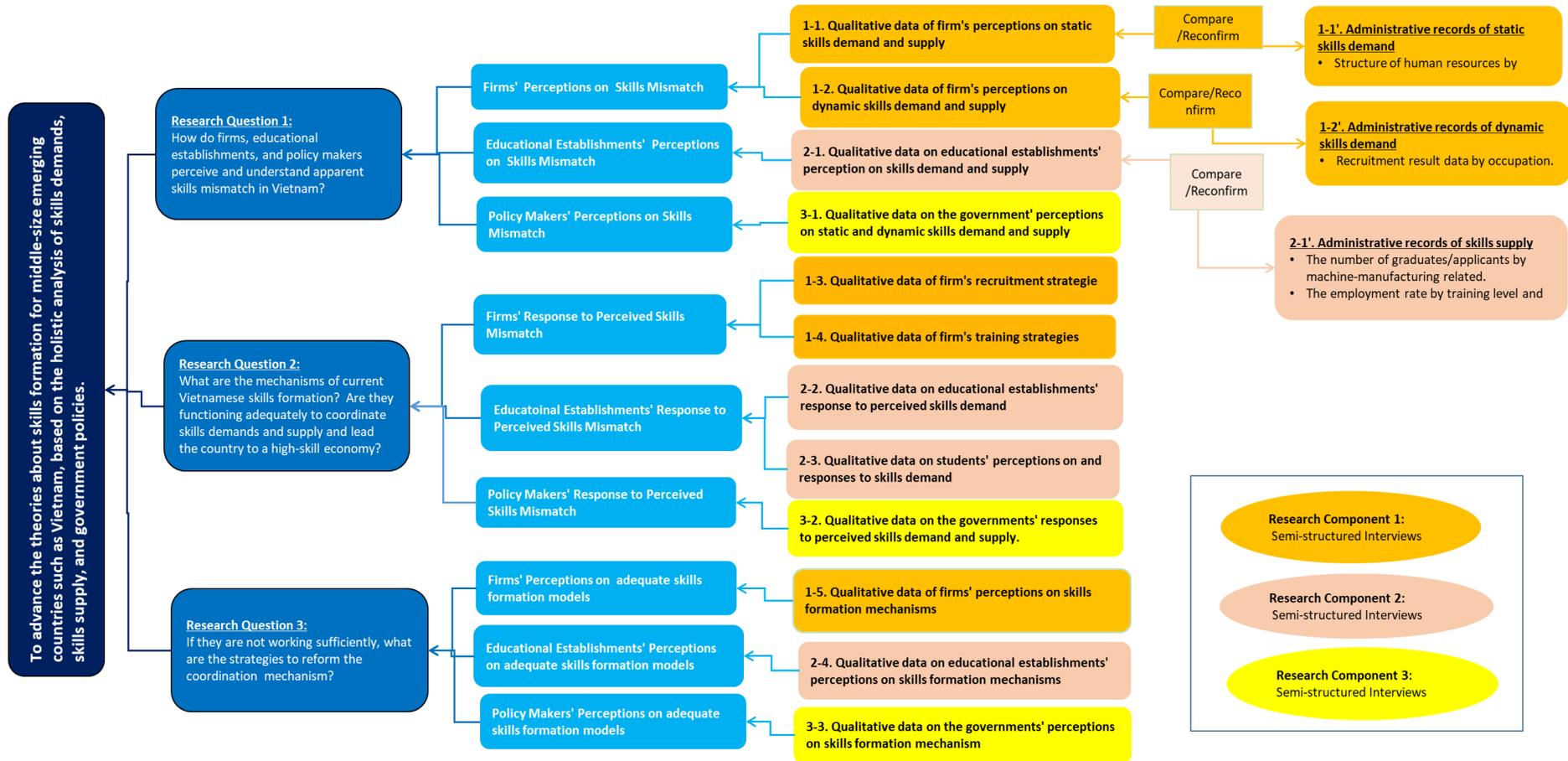
Appendix 4A. Proposition Map







Appendix 4B. Research Design Map



INTERVIEW SCHEDULE: POLICY MAKERS

1 Interviewee and Organisation Profile

- 1.1 What are your current role and main responsibilities in the organisation?
 - 1.1.1 How long have you been in this role?
 - 1.1.2 How did you progress into your current role?
- 1.2 What are the main functions of your organisation and department?
 - 1.2.1 How do you perceive the roles of other government agencies or departments which are also responsible for skills formation?
 - 1.2.2 Are there regular cross-departmental discussions?

2 Perceptions of Current and Future Skills Demand and Supply

- 2.1 How do you perceive the current balance of skills demand and supply in Vietnam?
 - 2.1.1 How do you perceive the balance of skills demand and supply in manufacturing such as automotive, motorcycle, and electric and electronic industries?
 - 2.1.2 How do you perceive the balance of demand and supply of engineers and technicians working within manufacturing?
 - 2.1.3 Is there a problem getting trained engineers to enter manufacturing?
- 2.2 Has this balance changed much over the last decade?
- 2.3 What changes in skills demand and supply do you foresee?
 - 2.3.1 For what kind of workforce do you predict higher employers demand?
 - 2.3.2 What factors would influence future skills demand?
 - 2.3.3 How would the supply side respond to the perceived future skills demand?
 - 2.3.4 What factors would influence future skills supply?
- 2.4 How would you characterize the current and future situations of skills demand and supply?
 - 2.4.1 Do you conduct employer surveys on current and future skills demand?
 - 2.4.2 What other sources of information do you use?
 - 2.4.3 How useful do you find these information sources?

3 Policy Response to Skills Demand and Supply

- 3.1 How do you describe Vietnam's approach to skills formation?
 - 3.1.1 What are the key policies on skills formation?
 - 3.1.2 In the process of policy formulation, have you referred to other countries' experiences?
- 3.2 What previous challenges to Vietnam's skills formation model do you feel you've overcome?
- 3.3 What would be the future challenges of Vietnam's skills formation model in delivering future economic growth and prosperity?
- 3.4 What is the role of the government in upgrading the skills of the workforce

and in achieving future economic growth?

3.4.1 What roles should the government expand or curtail?

3.4.2 What would be the main reasons for changing the government's roles?

3.5 What is the role of the government in facilitating business expansion and innovation?

3.5.1 In what way can industrial policies facilitate skills upgrading?

4 Perceptions of Firms' Roles on Skills Formation

4.1 In what way have you been engaging with firms in making and implementing skills upgrading policies?

4.2 In what way have you been engaging with firms in making and implementing policies for business expansion and innovation?

4.3 What roles do you anticipate firms playing in achieving a high skills economy?

5 Perceptions of Educational Establishments Role in Skills Formation

5.1 How have you been engaging with educational establishments in making and implementing skills upgrading policies?

5.2 What role do you anticipate educational establishments will play in meeting Vietnam's current and future skills demand?

6 Perceptions of Intermediate Organisations' Role in Skills Formation

6.1 How have you been engaging with intermediate organisations in making and implementing skills upgrading policies? (Intermediate organisations may include chambers of commerce, business associations, industrial zone management companies, and trade unions.)

6.2 What role do you anticipate intermediate organisations playing in meeting Vietnam's current and future skills demand?

7 Closing Questions

7.1 What are the three key challenges that you confront in achieving industrialisation with high skills in Vietnam?

7.2 What are the main challenges you may confront in the next five years?

7.3 Is there anything you would like to add?

INTERVIEW SCHEDULE: COMPANIES

1 Interviewee and Company Profile

- 1.1 What are your current role and main responsibilities in the company?
 - 1.1.1 How long have you worked in this role?
 - 1.1.2 How did you progress into your current role?
- 1.2 I understand what your company produces, but can you tell me something about the general organisation and operation of your company (or this plant)?
 - 1.2.1 Its main function (R&D, production)
 - 1.2.2 Its organisation (Ownership, head office, subsidiaries, etc.)
 - 1.2.3 Main production processes and recent developments in this respect
 - 1.2.4 Occupational hierarchy/Management structures
 - 1.2.5 Occupational profile/workforce structure (number of employees –also the number by gender if possible, sections, organisational structure, workforce profile – by gender if possible)
 - 1.2.6 Workforce qualification/skills profile

2 Perceptions of Current Skills Demand and Supply

- 2.1 To what extent can you find the skilled workforce you require?
 - 2.1.1 To what extent can you find the skilled manufacturing workforce you require?
 - 2.1.2 To what extent can you find the skilled engineers and technicians you require?
 - 2.1.3 To what extent can you find a skilled workforce who can operate higher precision or value-added processes?
 - 2.1.4 To what extent can you fill vacant positions?
- 2.2 How do you assess the quality of your current workforce?
 - 2.2.1 How do you assess the quality of your current workforce for manufacturing operations?
- 2.3 How do you identify the gaps between the skills your company requires and the ones your workforce has? (For example, do you periodically conduct internal skills audits or internal skills tests?)
- 2.4 How do you compare the quality of vocational school graduates with that of university or professional college graduates?
 - 2.4.1 What would be suitable jobs or occupations for those two types of graduates?
- 2.5 How do you perceive the number of graduates from university and vocational training institutions who enter labour markets?
 - 2.5.1 How do you perceive the career aspirations of university graduates in comparison with your expectation?
- 2.6 (Only for assemblers) In what ways do skills shortages and gaps extend up and down the supply chain?

3 Perceptions of Future Skills Demand and Supply

- 3.1 How have your manufacturing processes changed in the last five years?
 - 3.1.1 Does this reflect wider changes in product market strategy?

- 3.1.2 Would you describe these changes as incremental or path-breaking?
- 3.1.3 Are new technologies transforming the way you organise production? (e.g. automation, additive manufacturing (3D printing), etc.)
- 3.1.4 What are the impacts on workforce and/or skills requirements?
- 3.2 What is your company's long-term vision for business in Vietnam?
- 3.3 Which production processes are you planning to expand or decrease according to your long-term business plan?
- 3.4 What factors influence your future skills needs? (e.g. headquarters' strategies, country-level firm strategies, supply chain structures, and customers' requests.)
- 3.5 What sort of workforce will you need in relation to your future production plan?
 - 3.5.1 What will be your needs for male/female workforce?
- 3.6 What sort of skills will you need in relation to your future production plan?
- 3.7 Do you predict any challenge in securing the workforce to meet your future skill requirements?

4 Recruitment Strategy

- 4.1 What strategies are you using to secure an appropriately skilled and qualified workforce?
 - 4.1.1 What strategies are you using to secure a skilled workforce in manufacturing?
 - 4.1.2 What strategies are you using to secure engineers and technicians?
 - 4.1.3 Are your recruitment strategies similar or different by gender of target workforce?
- 4.2 How do you formulate your recruitment strategy?
 - 4.2.1 What are the key factors to be considered in formulating your strategy?
 - 4.2.2 To what extent does your recruitment strategy have to conform to a wider corporate strategy?
- 4.3 Can you tell me what educational qualifications are required for your main job positions?
 - 4.3.1 Which positions do you focus on more in recruiting?
 - 4.3.2 From which schools do you mainly recruit your workforce?

5 Training Strategy

- 5.1 How do you formulate your training strategy?
 - 5.1.1 To what extent does your training strategy have to conform to a wider corporate strategy?
 - 5.1.2 To what extent are employees or other organisations consulted in the process of developing the training strategy?
- 5.2 What are the structure and focus of your training programs?
 - 5.2.1 What kind of training opportunities are provided for your manufacturing workforce?
 - 5.2.2 What kind of training opportunities are provided for engineers and technicians?
- 5.3 Is there any challenge in retaining some categories of workers?
 - 5.3.1 If 'yes', which categories of workers do you face difficulty in retaining?

- 5.3.2 If 'yes' what are the possible causes of high turnover?
- 5.3.3 If 'no', how do you retain trained workers?
- 5.4 Can you explain your career progression system for engineers and technicians?
- 5.5 How do you define employers' training responsibilities in comparison with those of educational establishments?
 - 5.5.1 Do you perceive any change in your or educational establishments' training responsibilities due to recent economic and technological circumstances?

6 Perceptions of the Education System's Role in Skills Formation

- 6.1 In what way have you been engaging with educational establishments to secure a skilled workforce?
 - 6.1.1 If you have been engaging with them, why have you been doing so?
- 6.2 What roles do you anticipate educational establishments playing in meeting Vietnam's current and future skills demand?

7 Perceptions of the Government's Role in Skills Formation

- 7.1 In what way have you been engaging with the government in securing a skilled workforce?
 - 7.1.1 If you have been engaging with them, why have you been doing so?
 - 7.1.2 In what way is the government assisting you to secure a skilled workforce?
- 7.2 What roles do you anticipate the government playing in ensuring that employers have the skilled workforce they require?
- 7.3 To what extent is the government facilitating business expansion and innovation?
 - 7.3.1 How do you perceive the coherence between industrial policies and skills development policies?

8 Perceptions of Intermediate Organisations' Roles in Skills Formation

- 8.1 In what way have you been engaging with intermediate organisations in securing a skilled workforce? (Intermediate organisations may include chambers of commerce, business associations, industrial zone management companies, and trade unions.)
 - 8.1.1 If you have been engaging with them, why have you been doing so?
- 8.2 What roles do you anticipate intermediate organisations playing in meeting Vietnam's current and future skills demand?

9 Closing Questions

- 9.1 What are the three key challenges that you confront in securing a skilled workforce which meets your current and future requirements?
- 9.2 What are the main challenges you may confront in the next five years?
- 9.3 Is there anything you would like to add?

INTERVIEW SCHEDULE: EDUCATIONAL ESTABLISHMENTS

1 Educational Establishment Profile

- 1.1 What are your current role and main responsibilities in the institution?
 - 1.1.1 How long have you been in this role?
 - 1.1.2 How did you progress into your current role?
- 1.2 I understand what courses your institution provides, but can you tell me something about the general organisation and operation of your institution?
 - 1.2.1 What type of courses does your institution offer?
 - 1.2.2 What region does your institution serve (in terms of recruitment of students, supply of students, and cooperation with firms and communities)?
 - 1.2.3 How are you funded? (public, private, etc.)
 - 1.2.4 What is the profile of your staff/students? Please also provide the profiles by gender if possible.
 - 1.2.5 What is the management structure?
- 1.3 Can you describe the governance structure of your institution?
 - 1.3.1 Does your institution belong to any ministry or local government?
 - 1.3.2 Are any firms involved in the institutional management in any form?
- 1.4 Have there been any major reforms to your education and training programs over the last 5 years?

2 Perception of and Response to Skills Demand

From your perspective as an educator or head of an educational institution:

- 2.1 What is the main role of your institution in meeting Vietnam's current and future skills demand?
 - 2.1.1 What do you imagine the current skills demand to be?
 - 2.1.2 Do you perceive any challenge in meeting the current skills demand?
 - 2.1.3 What do you imagine the future skills demand will be?
 - 2.1.4 Do you perceive any challenge in meeting the future skills demand?
 - 2.1.5 In what way is meeting industry needs a priority for your institution?
 - 2.1.6 What are your main information sources about skills demand? (For instance, do you refer to the information obtained from firms, the government, or other public organisations?)
- 2.2 What would be the roles of other education and training institutions in meeting current and future skills demand?
- 2.3 How do you define your training responsibilities in comparison with those of employers?
- 2.4 How do you reform your training programs according to current and future skills demand?
 - 2.4.1 Are you working with firms or other organisations to reform your training programs?
 - 2.4.2 Do you face any challenge in reforming the training programs?

- 2.4.3 To what extent can you update your training equipment according to the state-of-art technologies applied by firms?
- 2.5 To what extent can you secure students onto courses where employers have identified skills shortages?

3 Students' Career Aspirations and Choice of Educational Path

- 3.1 What is the profile of the average student?
 - 3.1.1 Where do your students mainly come from? (e.g. urban/rural, province/city, etc.)
 - 3.1.2 What is the socio-economic status of your students? (e.g. family background, parents' jobs, and the level of their household income, etc.)
 - 3.1.3 What are the educational background of your students?
- 3.2 In what way did you identify the above characteristics? (e.g. analysing the data collected from application forms, conversation with students, etc.)
- 3.3 In your view, why do people choose to enrol in vocational primary courses rather than vocational secondary or college courses?
- 3.4 Can you tell me something about the typical career aspirations and labour market expectations of your students?
 - 3.4.1 Are there similarities or difference between male and female students?
- 3.5 In your view, what factors do students consider in deciding their career and educational paths?

For example:

 - 3.5.1 How would economic factors, such as wage prospects, influence students' decision on educational and career paths?
 - 3.5.2 How would social factors, such as social status of engineers or technicians, influence students' decision to educational and career paths?
 - 3.5.3 To what extent do understandings of employer skill needs and demands affect their decision?
 - 3.5.4 Are there similarities or difference between male and female students?

4 Perceptions of Firms' Roles for Skills Formation

- 4.1 In what way have you been engaging with firms in meeting their skills needs?
 - 4.1.1 If you have been engaging with them, why have you been doing so?
- 4.2 What roles do you anticipate firms playing in meeting Vietnam's current and future skills demand as opposed to your own?

5 Perceptions of Government Policies

- 5.1 In what way have you been engaging with the government in meeting Vietnam's current and future skills demand?
 - 5.1.1 To what extent is the national or local government assisting you to meet skills demand?
- 5.2 What role do you anticipate government playing in meeting Vietnam's current and future Vietnam skills demand, as opposed to your own?

6 Perceptions of Intermediate Organisations

- 6.1 In what way have you been engaging with intermediate organisations in meeting Vietnam's current and future skills demand? (Intermediate organisations may include chambers of commerce, business associations, industrial zone management companies, and trade unions.)
 - 6.1.1 If you have been engaging with them, why have you been doing so?
- 6.2 What role do you anticipate intermediate organisations playing in meeting Vietnam's current and future skills demand?

7 Closing Questions

- 7.1 What are the three key challenges that you currently confront in preparing your students for the labour market?
- 7.2 What are the main challenges you may confront in the next five years?
- 7.3 Is there anything you would like to add?

INTERVIEWEE'S DATA: COMPANY

Dear interviewees,

I would be delighted if you could provide the following data, which will help me precisely understand your company's profile. I understand that some data may be unavailable or difficult to find. Thank you for providing the most accurate/recent data possible.

1 Company Profile

1.1 Contact Information

Company Name:

Address:.....

Contact Person: Position: Gender: F/M

E-mail: Tel:..... Fax:.....

1.2 Company Establishment Date (MM/YYYY):/.....

1.3 Operation Started in: (MM/YYYY):/.....

1.4 Type of Company

- State-owned Foreign-invested (100%) Joint-venture
 Private (Vietnamese Owner/Investor)

1.5 Industrial Sector (check all sectors for which your products are used)

- Motorcycle or Automobile Electrical and Electronics
 Machinery and Equipment Others (.....)

1.6 Main Products

Name of Products	Description
1.	
2.	
3.	

1.7 Sales Structure

Market	Share in Revenue (%)
1. Export	
2. Domestic Market	

2 Main Function and Production Process

2.1 What kind of function do you have in your company?

- R&D to design new products
 R&D to customize product designs according to local market requirements.
 Production
 Others (Please specify.....)

2.2 What kind of production processes do you have in your company?

- | | | |
|---|--|---|
| <input type="checkbox"/> Assembly | <input type="checkbox"/> Plating | <input type="checkbox"/> Welding |
| <input type="checkbox"/> Machining | <input type="checkbox"/> Sheet metal processing | <input type="checkbox"/> Others (.....) |
| <input type="checkbox"/> Pressing | <input type="checkbox"/> Heat treatment | <input type="checkbox"/> Others (.....) |
| <input type="checkbox"/> Casting | <input type="checkbox"/> Electronic circuit assembly | <input type="checkbox"/> Others (.....) |
| <input type="checkbox"/> Plastic injection moulding | <input type="checkbox"/> Electric box assembly | <input type="checkbox"/> Others (.....) |

3 Workforce Structure

3.1 What is the total number of employees?

Total	Male	Female
.....PersonPersonPerson

3.2 Please provide the structure of the manufacturing workforce in your company. The typical occupations are shown in a table below, but please feel free to edit the occupation names according to your company's definitions.

Occupation	No. of Person
Design Engineers (the ones working in the R&D Dept.)	
Production Engineers (the ones working in the production engineering dept.)	
Technicians (the ones who can do high-precision processing with machine tools and by hand, etc.) ³⁹⁰	
Operators (team leaders of assembly lines, Line operators, etc.) ³⁹¹	
Others (if there is any industrial human resource which does not fit into the above categories)	

3.3 Please indicate the educational qualifications required for the main manufacturing occupations in your company. The typical occupations are shown in a table below, but please feel free to edit the occupation names according to your company's definitions.

Occupation	Educational Qualifications Required
Design Engineers	<input type="checkbox"/> University <input type="checkbox"/> Professional College <input type="checkbox"/> Vocational College <input type="checkbox"/> Professional Secondary <input type="checkbox"/> Vocational Secondary <input type="checkbox"/> Others (.....)
Production Engineers	<input type="checkbox"/> University <input type="checkbox"/> Professional College <input type="checkbox"/> Vocational College <input type="checkbox"/> Professional Secondary <input type="checkbox"/> Vocational Secondary <input type="checkbox"/> Others (.....)
Technicians	<input type="checkbox"/> University <input type="checkbox"/> Professional College <input type="checkbox"/> Vocational College <input type="checkbox"/> Professional Secondary <input type="checkbox"/> Vocational Secondary <input type="checkbox"/> Others (.....)
Operators	<input type="checkbox"/> Professional College <input type="checkbox"/> Vocational College <input type="checkbox"/> Professional Secondary <input type="checkbox"/> Vocational Secondary <input type="checkbox"/> Vocational Primary <input type="checkbox"/> Upper Secondary <input type="checkbox"/> Others (.....)
Others	<input type="checkbox"/> University <input type="checkbox"/> Professional College <input type="checkbox"/> Vocational College <input type="checkbox"/> Professional Secondary <input type="checkbox"/> Vocational Secondary <input type="checkbox"/> Others (.....)

³⁹⁰ A technician is a person whose job relates to the practical use of machines or science in industry, medicine, etc. or someone who has mastered the basic techniques or skills in a sport, an art, etc. They often require a vocational certificate provided by a vocational training institution or a diploma provided by a polytechnic college.

³⁹¹ An operator is a person whose job does not require any technical knowledge or long training before starting working. They are often graduates from secondary or higher secondary schools.

4 Job Vacancy Information

- 4.1 Please provide the figures for hard-to-fill vacancies in the manufacturing workforce. Hard-to-fill vacancies are positions which are vacant due to all reasons. The typical occupations are shown in a table below, but please feel free to edit the occupation names according to your company's definitions.

Information as of (DD/MM/YY):/...../.....

Occupation	Number of people
Design Engineers	
Production Engineers	
Technicians	
Operators	
Others	
Total	

- 4.2 Do you measure skills shortage vacancies? Skill shortage vacancies are positions which are vacant due to unavailability of qualified candidates.

Yes No

- 4.3 If the answer for the item 4.2 is 'yes', please provide the skills shortage vacancy by manufacturing occupation. The typical occupations are shown in a table below, but please feel free to edit the occupation names according to your company's definitions.

Information as of (DD/MM/YY):/...../.....

Occupation	Number of people
Design Engineers	
Production Engineers	
Technicians	
Operators	
Others	
Total	

5 Recruitment Results

- 5.1 Please provide available data on recruitment results for the past 3 years by main manufacturing occupation. The typical occupations are shown in a table below, but please feel free to edit the occupation names according to your company's definitions.

Occupation	2013	2014	2015
Design Engineers			
Production Engineers			
Technicians			
Operators			
Others			
Total			

6 Recruitment Forecast

6.1 Do you have a recruitment forecast?

Yes No

6.2 If the answer for the item 6.1 is 'yes', please provide the available figures by manufacturing occupation. The typical occupations are shown in a table below, but please feel free to edit the occupation names according to your company's definitions.

Occupation	2016	(.....)	(.....)	2020
Design Engineers				
Production Engineers				
Technicians				
Operators				
Others				
Total				

Thank you very much for your cooperation! We will keep your answers confidential.

Please send this data sheet back to:

Junichi Mori (Mr.), PhD Candidate, School of Social Sciences, Cardiff University

E-mail: MoriJ@cardiff.ac.uk / Junmori0707@gmail.com

Fax: +84 4 3936 2634 (c/o Vietnam Development Forum)

Appendix 4G. Interviewee Data Sheet (Educators)

Dynamic Skills Formation in Vietnam: Beyond a 'Demand-Driven' Paradigm
INTERVIEWEE'S DATA: EDUCATIONAL ESTABLISHMENTS

Dear interviewees,

Thank you so much for participating in the interview of this research project. I would be delighted if you could provide the following data, which will help me precisely understand your institution's profile. I understand that some data may be unavailable or difficult to find.

Thank you for providing the most accurate/recent data possible.

1 Profile of Educational Establishment

1.1 Contact Information

Institute Name:		
Address:.....		
Contact Person:	Position:	Gender: F/M
E-mail:	Tel:.....	Fax:.....

1.2 Establishment Date (MM/YYYY):/.....

1.3 What is the total number of students?

Total	Male	Female
.....PersonPersonPerson

2 Graduates

2.1 How many students graduated from your courses related to machine manufacturing in the past 3 years? Please provide the most precise figures possible, according to training level.

Trade	Course	2012	2013	2014
Mechanical Engineering / Machining	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			
Sheet-metal processing / Welding	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			

Electric Engineering or Control	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			
Electronics	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			
Others	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			

3 Enrolments

3.1 How many students enrolled for your courses related to machine manufacturing in the past 3 years? Please provide the most precise figures possible, according to training level.

Trade	Course	2012	2013	2014
Mechanical Engineering / Machining	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			
Sheet-metal processing / Welding	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			
Electric Engineering or Control	University			
	Professional College			
	Vocational College			

	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			
Electronics	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			
Others	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			

4 Employment Situations of Students

4.1 Do you collect data on the employment rate of your students upon graduation?

Yes

No

4.2 If your answer to 4.1 is 'yes', please indicate the employment rate of your students in total and by training level in the past 3 years.

Training Level	2012	2013	2014
University			
Professional College			
Vocational College			
Professional Secondary			
Vocational Secondary			
Others (.....)			
Total			

4.3 If your answer to 4.1 is 'yes', please indicate the employment rate of your students in courses related to the machine manufacturing by training level and course in the past 3 years.

Trade	Course	2012	2013	2014
Mechanical Engineering / Machining	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			

Sheet-metal processing / Welding	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			
Electric Engineering or Control	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			
Electronics	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			
Others	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			

5 Student Recruitment Plan

5.1 Do you have student recruitment plan?

Yes

No

5.2 If your answer to 5.1 is 'yes', please provide the figures by training level.

Training Level	2015	2016	(.....)	(.....)	2020
University					
Professional College					
Vocational College					
Professional Secondary					
Vocational Secondary					
Others (.....)					
Total					

5.3 If your answer to 5.1 is 'yes', please provide the figures by the course and training level related to machine manufacturing.

Trade	Course	2012	2013	2014
Mechanical Engineering / Machining	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			
Sheet-metal processing / Welding	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			
Electric Engineering or Control	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			
Electronics	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			
Others	University			
	Professional College			
	Vocational College			
	Professional Secondary			
	Vocational Secondary			
	Others (.....)			
	Total			

Thank you very much for your cooperation! We will keep your answers confidential.

Please send this data sheet back to:

Junichi Mori (Mr.), PhD Candidate, School of Social Sciences, Cardiff University

E-mail: MoriJ@cardiff.ac.uk / Junmori0707@gmail.com

Fax: +84 4 3936 2634 (c/o Vietnam Development Forum)

Appendix 4H. Information Sheet

Information Sheet for Interview Participants in the Research Project: 'Dynamic Skills Formation in Vietnam: Beyond a "Demand-Driven" Paradigm'

You are being invited to take part in a research study. Before you decide to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

What is the purpose of the study?

This research aims to advance the theories underlying the policy discussions on skills mismatch in the context of emerging developing economies such as Vietnam. Much of the preceding research focused on analysing the static skills demand and supply at a certain moment. The demand-driven training concept, which is often proposed to developing countries as a solution for reducing skills mismatch, is based on theories derived from this static skills analysis. Assuming that skills demand is sufficiently tangible, those theories suggest that skills supply be aligned with skills demand. However, the skills demand and supply are changing frequently, influenced by various social and economic factors. In particular, they tend to be dynamically changing in developing countries, which are in the process of rapid industrialisation. Therefore, this research project attempts to analyse the mechanism of their dynamic movement and its impact on the skills formation models in developing economies.

In order to achieve this objective, I will collect and analyse the following data through interviews with three key actors - firms, educational establishments, and policy makers: (i) how the three key actors perceive the current and future skills demand and supply and how their views are formulated; (ii) how they respond to the perceived skills mismatch and what factors influence their strategies; and (iii) how they understand Vietnam's current skills formation model, which consists of all key actors' behaviours, and how they anticipate it will be reformed.

The output of this research is expected to contribute to formulating strategies to reform Vietnam's skills formation model, the goal of which is for Vietnam to become an industrialised nation by 2020.

Who is the researcher and support this research project?

The researcher is Mr. Junichi Mori, PhD candidate of the School of Social Sciences, Cardiff University. Mr. Mori has substantial experience in research, policy advising, project formulation, and project implementation in the skills development field as a researcher of the National Graduate Institute of Policy Studies (GRIPS) / Vietnam Development Forum (VDF), an Industrial Development Officer of the United Nations Industrial Development Organization (UNIDO), and an expert of the Japan International Cooperation Agency (JICA). The research project is supervised by Prof. Phillip Brown, Distinguished Research Professor, and Dr. Dean Stroud, Lecturer of the School of Social Sciences, Cardiff University.

What do I have to do?

Mr. Junichi Mori will arrange a convenient time for the interview, which will usually take place

at your workplace. However, it can be arranged at any other venue upon your request. It is also possible to carry out interviews over the telephone or via Skype if this is more convenient for you.

The interview will last for about an hour and half and will focus on your perception and experience (if applicable) of skills demand and supply. For managers of firms and educational establishments, I will also ask you questions about basic skills demand information (e.g. human resource structure, recruitment results, vacancy information) and skills supply (the number of students by training level and trade). For policy makers, I will also ask questions about the background of current policies and your opinion on future policies. Please refer to the interview schedules for details of interview questions.

In order for interview data to be analysed, I would like your consent to record the interview. All data are confidential, anonymised and held securely. However, the tape recorder will be turned off if you do not want the interview to be recorded.

What will happen to the information that I give?

The transcript of the interview will only be accessible to Mr. Junichi Mori and his supervisors, and will be kept securely, in strict accordance with the UK Data Protection Act. The information you provide will only be used for the purposes of this research and will not be passed to a third party organisation. An analysis of the information will form part of my PhD thesis at the end of the research and could be also published in academic journals. You are welcome to see a copy of the relevant part of my thesis and the articles prior to publication.

Will my taking part be confidential?

No-one will be named or be identifiable in any way in my thesis or articles based on the study.

What if I wish to withdraw?

Your participation is entirely voluntary and you can withdraw at any time you wish, without giving a reason.

Contact Information

If you would like further information about the study please do not hesitate to contact me at the following:

Junichi Mori, PhD Candidate, School of Social Sciences, Cardiff University

E-mail: MoriJ@cardiff.ac.uk / Junmori0707@gmail.com

Mobile: +44 7717 382205 / +84 4 3936 2633

The contact addresses of my supervisors are as follows:

Prof. Phillip Brown: BrownP1@cardiff.ac.uk

Dr. Dean Stroud: StroudDA1@cardiff.ac.uk

Appendix 4I. Consent Form

CONSENT FORM
**Name of Research Project: Dynamic Skills Formation in Vietnam: Beyond a
"Demand-Driven" Paradigm**

Please initial box

1. I confirm that I have read and understood the information sheet dated 15 April 2015 for the above study. I have had the opportunity to consider the information, ask questions and have had them answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.

3. I understand that any information given by me may be used in future reports, articles or presentations by the research team.

4. I understand that I can withdraw consent at any time for the information I give to be included in the research.

5. I have been told that personal statements made in the interview will be confidential and will remain anonymous. I understand that the data generated from the interview will be held securely and no one else will have access to it beyond the researcher and his two supervisors.

6. I understand that my name will **not** appear in any reports, articles or presentations.

7. I understand that data will be retained for at least two years and up to five years post-publication.

8. I consent to the interview being recorded for the purposes of data analysis.

9. I agree to take part in the above study.

Name of Participant

Date

Signature

Researcher

Date

Signature

When completed, please send the scanned copy to the researcher at the below e-mail address or submit the original copy by hand on the day of interview. One copy will be given to the participant and the original to be kept in the file of the researcher's office at:

UK Address: PhD Office, School of Social Sciences, Cardiff University, 1-3 Museum Place, Cardiff, CF10 3BD, Wales UK.

Local Address: Vietnam Development Forum (VDF), 25 Ngo Hue, Hanoi, Vietnam

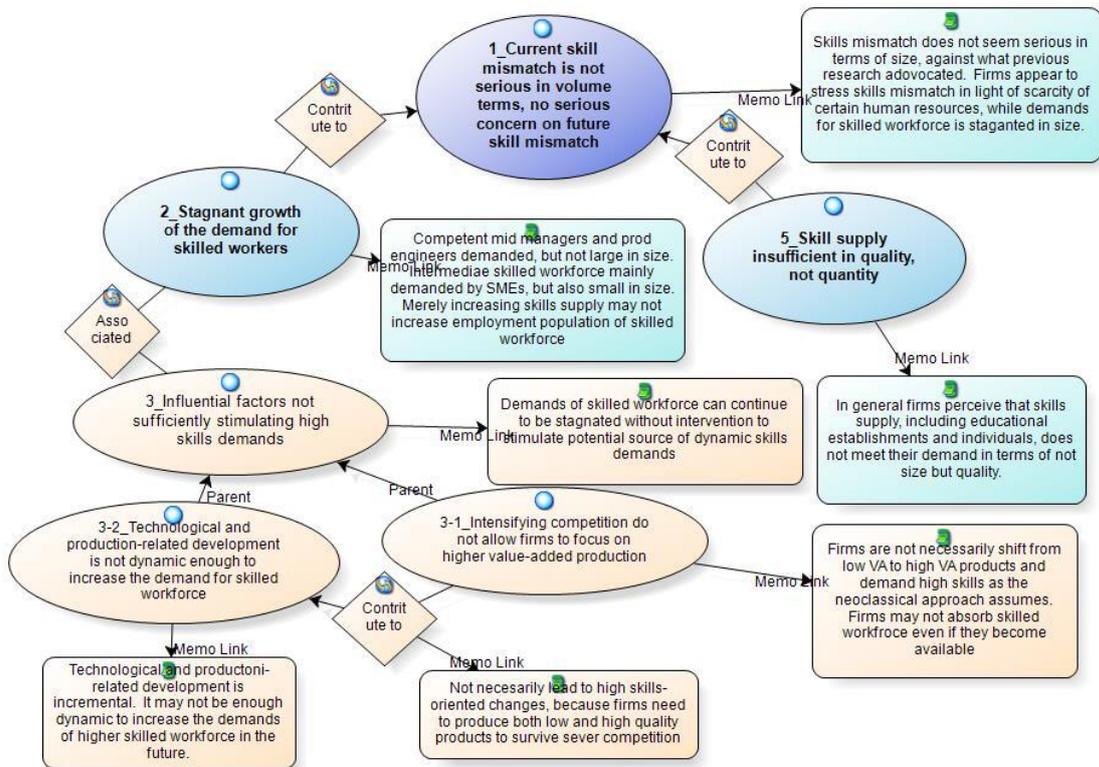
Contact Details of Researcher:

Name: Junichi Mori, PhD Candidate, School of Social Sciences, Cardiff University

E-mail: MoriJ@cardiff.ac.uk / junmori0707@gmail.com

Tel: +44 7717 382205 / +84 4 3936 2633

Appendix 4J. Theme Map (Employer Perception on Skills Mismatch)



Appendices for Chapter 5

Appendix 5A. Status of Industrial Development and Demand-side Policies in Selected Provinces and City

No	Code	Pseudonym of City or Province	Region	Average population (2015) ^a	Accum. Industrial Output (2005-2010) ^b	Accum. Number of FDI projects (by 2016) ^c	Total registered capital of FDI projects (by 2016) ^d	FDI History	Key mile stones of industrialisation ^e	Stage of Industrialisation ^f	Demand-side Policy
1	NG06	Southern Metropolitan City	South East	8,146	2,358	6,762	45,293	Since early 1990s or earlier	Attracting the largest FDI inflow since the late 1980s. One of the most industrialised places in Vietnam.	Moving from Stage 1 to Stage 2 by developing supporting industries.	Attempting to promote higher-valued industries such as IT, precision machinery, chemistry, food and food additives, telecommunication and high-tech agriculture
2	LG01	Province A	Red River Delta	803	47	196	2,118	After 2005	Started attracting FDI from around 2005 when its main industrial zone was opened.	Stage 1 of initial FDI absorption by attracting investment from assemblers.	Improving the procedure in providing investment licenses for foreign investors.
3	LG02	Province B	Red River Delta	1,055	272	266	3,875	Since early 1990s or earlier	Japanese Automobile Assembler and Japanese Motorcycle Assembler established large factories in this province in the mid 1990s.	Moving from Stage 1 to Stage 2 by developing supporting industries.	Attempting to increase higher value-added industries, specifically focusing on the development of supporting industries
4	LG03	Province C	Red River Delta	1,155	201	936	12,573	After 2005	Japanese Electronics Assembler B established two large factories in this province in the mid 2000s.	Stage 1 of initial FDI absorption by attracting investment from assemblers.	
5	LG04	Province D	South East	2,906	1,162	1,368	25,872	Since early 1990s or earlier	The first industrial zone in Vietnam was established in this province on 1963. This province is receiving large FDI inflow since the late 1980s.	Moving from Stage 1 to Stage 2 by developing supporting industries.	Attempting to attract investment from higher-value added manufacturing industries, while stopped accepting investment from low-skilled labour-intensive industries

Note

^a Unit: Thousand Person. Data retrieved from the website of General Statistical Office (GSO), Vietnam.

^b Unit: Trillion Vietnamese Dong. Data retrieved from the website of General Statistical Office (GSO), Vietnam.

^c Data retrieved from the website of General Statistical Office (GSO), Vietnam.

^d Unit: Million USD. Data retrieved from the website of General Statistical Office (GSO), Vietnam.

^e Based on the research by the author.

^f Classified according to Ohno (2014, p. 254)'s Figure for Industrialisation stages, based on the author's observation.

Appendices for Chapter 6

Appendix 6A. Interviewed Firms Expanding Business

No	Code	Pseudonym	Product Type	Number of Employees	Size	Market Targeted
1	JS1	Japanese Automotive Parts Supplier	Mass	3,780	Very Large	Both export and domestic market
2	JS2	Japanese Plastic Injection Mould Supplier	Small-lot	180	Medium	Export
3	JS3	Japanese Plastic Parts Supplier	Mass & Small-lot	1,140	Very Large	Export
4	JS5	Japanese Heavy Machine Parts Supplier	Mass	71	Small	Export
5	JS6	Japanese Machinery and Equipment Supplier	Small-lot	337	Large	Both export and domestic market
6	JS7	Japanese Electronics Parts Supplier	Mass	4,000	Very Large	Export
7	FS1	European Electric Parts Supplier	Mass	750	Large	Both export and domestic market
8	FS3	European Automotive Parts Supplier	Mass	1,465	Very Large	Both export and domestic market
9	FS4	Taiwanese Electronics Parts Supplier	Mass	17,000	Very Large	Export
10	VA1	Vietnamese Automotive Assembler	Mass	320	Large	Domestic market
11	VS3	Vietnamese Plastic and Metal Parts Supplier	Mass & Small-lot	1,050	Very Large	Export
12	VS4	Vietnamese Mould and Die Supplier A	Mass & Small-lot	460	Large	Both export and domestic market

Appendix 6B. Interviewed Firms Investing in Product Designing

No	Code	Pseudonym	Business Type	Number of Employees	Size	Product Line-up
1	JS1	Japanese Automotive Parts Supplier	Supplier	3,780	Very Large	Major expansion
2	JS2	Japanese Plastic Injection Mould Supplier	Supplier	180	Medium	No major change
3	JS3	Japanese Plastic Parts Supplier	Supplier	1,140	Very Large	N/A
4	JS6	Japanese Machinery and Equipment Supplier	Supplier	337	Large	Major expansion
5	FA3	European Motorcycle Assembler	Assembler	800	Large	N/A
6	FS1	European Electric Parts Supplier	Supplier	750	Large	N/A
7	FS3	European Automotive Parts Supplier	Supplier	1,465	Very Large	N/A
8	VS2	Vietnamese Electronics Parts Supplier	Supplier	500	Large	Major expansion
9	VS4	Vietnamese Mould and Die Supplier A	Supplier	460	Large	Major expansion
10	VS5	Vietnamese Mould and Die Supplier B	Supplier	180	Small	Major expansion
11	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	1,700	Very Large	Major expansion
12	VS8	Vietnamese Production Equipment Supplier	Supplier	139	Small	N/A

Appendix 6C. Interviewed Firms Increasing Investment in Hard Production Technologies

No	Code	Pseudonym	Business Type	Main Sector	Market Targeted
1	JS1	Japanese Automotive Parts Supplier	Supplier	Automobile	Mainly exporting, but also selling in the domestic market
2	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Electric and Electronic	Export
3	JS3	Japanese Plastic Parts Supplier	Supplier	Electric and Electronic	Export
4	JS4	Japanese Motorcycle Parts Supplier	Supplier	Motorcycle	Both export and domestic market
5	JS5	Japanese Heavy Machine Parts Supplier	Supplier	Others	Export
6	JS6	Japanese Machinery and Equipment Supplier	Supplier	Others	Mainly exporting, but also selling in the domestic market
7	FS2	Taiwanese Plastic Parts Supplier	Supplier	Electric and Electronic	Export
8	VS1	Vietnamese Plastic Parts Supplier	Supplier	Automobile	Both export and domestic market
9	VS2	Vietnamese Electronics Parts Supplier	Supplier	Electric and Electronic	Both export and domestic market
10	VS3	Vietnamese Plastic and Metal Parts Supplier	Supplier	Electric and Electronic	Export
11	VS4	Vietnamese Mould and Die Supplier A	Supplier	Motorcycle	Both export and domestic market
12	VS5	Vietnamese Mould and Die Supplier B	Supplier	Motorcycle	Both export and domestic market
13	VS8	Vietnamese Production Equipment Supplier	Supplier	Motorcycle	Domestic market

Appendix 6D. Interviewed Firms' Attitude Toward Promoting Automation

Attitude	Code	Pseudonym	Business Type	Market Targeted	Sales Structure		
					Export (Direct)	Export (Indirect)	Domestic Sales
Positive	JA3	Japanese Electronics Assembler B	Assembler	Export	100%	0%	0%
	JS1	Japanese Automotive Parts Supplier	Supplier	Both export and domestic market	Mainly export	N/A	N/A
	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Export	90%	10%	0%
	JS3	Japanese Plastic Parts Supplier	Supplier	Export	25%	75%	0%
	JS4	Japanese Motorcycle Parts Supplier	Supplier	Both export and domestic market	15%	0%	85%
	JS7	Japanese Electronics Parts Supplier	Supplier	Export	100%	0%	0%
	FS1	European Electric Parts Supplier	Supplier	Both export and domestic market	20%	0%	80%
	VS1	Vietnamese Plastic Parts Supplier	Supplier	Both export and domestic market	8%	0%	92%
	VS7	Vietnamese Motorcycle Parts Supplier B	Supplier	Domestic market	N/A	N/A	N/A
Passive	VS8	Vietnamese Production Equipment Supplier	Supplier	Domestic market	0%	0%	100%
	JA4	Japanese Motorcycle Assembler	Assembler	Both export and domestic market	N/A	N/A	Mainly domestic sales
	FA1	American Automotive Assembler A	Assembler	Domestic market	0%	0%	100%
	FA2	American Automotive Assembler B	Assembler	Domestic market	0%	0%	100%
	VA1	Vietnamese Automotive Assembler	Assembler	Domestic market	0%	0%	100%

Appendix 6E. Interviewed Firms with Dynamic Business Strategies

No	Code	Pseudonym	Business Type	Size	Product Type	Degree of Dynamism ^a	Elements of Dynamic Business Strategies		
							Business Sentiment	Investment in Product Designing	Investment in Production Technology
1	JS1	Japanese Automotive Parts Supplier	Supplier	Very Large	Mass	High	Expanding	Investing	Increasing
2	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Medium	Small-lot	High	Expanding	Investing	Increasing
3	JS3	Japanese Plastic Parts Supplier	Supplier	Very Large	Mass & Small-lot	High	Expanding	Investing	Increasing
4	JS4	Japanese Motorcycle Parts Supplier	Supplier	Very Large	Mass	Fair	N/A	No investment	Increasing
5	JS5	Japanese Heavy Machine Parts Supplier	Supplier	Small	Mass	Medium	Expanding	No investment	Increasing
6	JS6	Japanese Machinery and Equipment Supplier	Supplier	Large	Small-lot	High	Expanding	Investing	Increasing
7	JS7	Japanese Electronics Parts Supplier	Supplier	Very Large	Mass	Fair	Expanding	N/A	N/A
8	FA3	European Motorcycle Assembler	Assembler	Large	Mass	Fair	N/A	Investing	N/A
9	FS1	European Electric Parts Supplier	Supplier	Large	Mass	Medium	Expanding	Investing	N/A
10	FS2	Taiwanese Plastic Parts Supplier	Supplier	Large	Mass	Fair	N/A	N/A	Increasing
11	FS3	European Automotive Parts Supplier	Supplier	Very Large	Mass	Medium	Expanding	Investing	N/A
12	FS4	Taiwanese Electronics Parts Supplier	Supplier	Very Large	Mass	Fair	Expanding	No investment	N/A
13	VA1	Vietnamese Automotive Assembler	Assembler	Large	Mass	Fair	Expanding	N/A	N/A
14	VS1	Vietnamese Plastic Parts Supplier	Supplier	Very Large	Mass	Fair	N/A	No investment	Increasing
15	VS2	Vietnamese Electronics Parts Supplier	Supplier	Large	Mass	Medium	N/A	Investing	Increasing
16	VS3	Vietnamese Plastic and Metal Parts Supplier	Supplier	Very Large	Mass & Small-lot	Medium	Expanding	N/A	Increasing
17	VS4	Vietnamese Mould and Die Supplier A	Supplier	Large	Mass & Small-lot	High	Expanding	Investing	Increasing
18	VS5	Vietnamese Mould and Die Supplier B	Supplier	Small	Small-lot	Medium	N/A	Investing	Increasing
19	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Very Large	Mass	Fair	Status quo	Investing	N/A
20	VS7	Vietnamese Motorcycle Parts Supplier B	Supplier	Large	Mass	Fair	N/A	No investment	Increasing
21	VS8	Vietnamese Production Equipment Supplier	Supplier	Small	Small-lot	Medium	Status quo	Investing	Increasing

Note

^a This was measured by applying the factors of dynamism identified in Chapter 6. High - 3 factors present; Medium - 2 factors present; Fair - 1 factor present; low - 0 factor present.

Appendix 6F. Employers' Perceptions of Current Demands for Professional Occupation

No	Code	Pseudonym	Business Type	Size	Product Type	Top Manager	Middle Manager	Design Engineer	Production Engineer
1	JA1	Japanese Automotive Assembler	Assembler	Very Large	Mass				High
2	JA2	Japanese Electronics Assembler A	Assembler	Very Large	Mass			No	
3	JA4	Japanese Motorcycle Assembler	Assembler	Very Large	Mass			No	High
4	FA2	American Automotive Assembler B	Assembler	Large	Mass			No	High
5	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Medium	Small-hot		High	High	
6	VS1	Vietnamese Plastic Parts Supplier	Supplier	Very Large	Mass			High	
7	VS2	Vietnamese Electronics Parts Supplier	Supplier	Large	Mass			Low	
8	VS3	Vietnamese Plastic and Metal Parts Supplier	Supplier	Very Large	Mass & Small-hot		High		

Appendix 6G. Employers' Perceptions of Future Demand for Professional Occupation

No	Code	Pseudonym	Business Type	Product Type	Size	Top Manager	Middle Manager	Design Engineer	Production Engineer
1	FA3	European Motorcycle Assembler	Assembler	Mass	Large			High	High
2	JA2	Japanese Electronics Assembler A	Assembler	Mass	Very Large				High
3	JA3	Japanese Electronics Assembler B	Assembler	Mass	Very Large				High
4	JS7	Japanese Electronics Parts Supplier	Supplier	Mass	Very Large				High
5	FS3	European Automotive Parts Supplier	Supplier	Mass	Very Large			High	High
6	FS2	Taiwanese Plastic Parts Supplier	Supplier	Mass	Large				High
7	VS7	Vietnamese Motorcycle Parts Supplier B	Supplier	Mass	Large				High
8	VS2	Vietnamese Electronics Parts Supplier	Supplier	Mass	Large		High		High
9	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large			High	High
10	JS1	Japanese Automotive Parts Supplier	Supplier	Mass	Very Large				High
11	VS1	Vietnamese Plastic Parts Supplier	Supplier	Mass	Large				High
12	JS4	Japanese Motorcycle Parts Supplier	Supplier	Mass	Very Large				High
13	JS3	Japanese Plastic Parts Supplier	Supplier	Mass & Small-hot	Very Large			High	High
14	VS3	Vietnamese Plastic and Metal Parts Supplier	Supplier	Mass & Small-hot	Very Large	High			
15	JS6	Japanese Machinery and Equipment Supplier	Supplier	Small-hot	Large				High
16	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Small-hot	Medium		High		

Appendix 6H. Recruitment Forecast (2016-2018) of Firms Interviewed

No	Code ^a	Pseudonym	Business Type	Product Type	Size	Design Engineer			Production Engineer			Technician			Production Line Operator		
						2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018
1	VS1	Vietnamese Plastic Parts Supplier	Supplier	Mass	Very Large	4			5			15			100		
2	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	3			5			20			300		
3	FS2	Taiwanese Plastic Parts Supplier	Supplier	Mass	Large	2			3			2					
4	VS2	Vietnamese Electronics Parts Supplier	Supplier	Mass	Large	2			5			5			10		
5	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Small-lot	Medium	3-4	3-4		1-2	1-2							
6	VS8	Vietnamese Production Equipment Supplier	Supplier	Small-lot	Small	3	3	3	0	0	0	2	2	2	2	2	2

Note

^a Data of firms which answers to the questionnaire are shown.

Appendix 6I. Employers' Perceptions of Current Demands for Intermediate Workers

#	Code	Pseudonym	Business Type	Product Type	Size	Degree of Dynamism ^a	Technician / Skilled Operator
1	FA3	European Motorcycle Assembler	Assembler	Mass	Large	Fair	High
2	FS1	European Electric Parts Supplier	Supplier	Mass	Large	Medium	High
3	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Small-lot	Medium	High	High
4	VS5	Vietnamese Mould and Die Supplier B	Supplier	Small-lot	Small	Medium	High
5	VS8	Vietnamese Production Equipment Supplier	Supplier	Small-lot	Small	Medium	High

Note

^a This was measured by applying the factors of dynamism identified in Chapter 6. High - 3 factors present; Medium - 2 factors present; Fair - 1 factor present; low - 0 factor present.

Appendix 6J. Employers' Perceptions of Future Demand for Intermediate Workers

No	Code	Pseudonym	Business Type	Product Type	Size	Degree of Dynamism ^a	Technician / Skilled Operator
1	JA2	Japanese Electronics Assembler A	Assembler	Mass	Very Large	Low	High (females only)
2	VA1	Vietnamese Automotive Assembler	Assembler	Mass	Large	Fair	High
3	VS1	Vietnamese Plastic Parts Supplier	Supplier	Mass	Very Large	Fair	High
4	FS3	European Automotive Parts Supplier	Supplier	Mass	Very Large	Medium	High
5	JS7	Japanese Electronics Parts Supplier	Supplier	Mass	Very Large	Fair	High (maintenance technicians only)
6	VS7	Vietnamese Motorcycle Parts Supplier B	Supplier	Mass	Large	Fair	High
7	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Small-lot	Medium	High	High (females only)

Note

^a This was measured by applying the factors of dynamism identified in Chapter 6. High - 3 factors present; Medium - 2 factors present; Fair - 1 factor present; low - 0 factor present. JA2 has low dynamism for this criteria, but the General Director of this firm showed a strong commitment to continue business in Vietnam.

Appendix 6K. Interviewed Employers Perceiving No Current Skills Shortage

No	Code	Pseudonym	Business Type	Product Type	Size	Years of Operation ^a
1	JA4	Japanese Motorcycle Assembler	Assembler	Mass	Very Large	18
2	JS7	Japanese Electronics Parts Supplier	Supplier	Mass	Very Large	18
3	JS4	Japanese Motorcycle Parts Supplier	Supplier	Mass	Very Large	18
4	JS3	Japanese Plastic Parts Supplier	Supplier	Mass & Small-lot	Very Large	10 ^b

Note

^a At the time of interviews in 2015.

^b Firm JS3 has its sister factory in South Vietnam, which has been operating for 20 years.

Appendix 6L. Employers' Perceptions of Current Skills Shortages - Management Staff

No	Code	Pseudonym	Business Type	Product Type	Size	Years of Operation ^a	Top Manager	Middle Manager
1	JA4	Japanese Motorcycle Assembler	Assembler	Mass	Very Large	18	Not at all in both quantity and quality	Not at all in both quantity and quality
2	JS4	Japanese Motorcycle Parts Supplier	Supplier	Mass	Very Large	18	Not at all	Not at all
3	JS7	Japanese Electronics Parts Supplier	Supplier	Mass	Very Large	18	Not at all	Not at all
4	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	10		Difficult to find competent people
5	VS7	Vietnamese Motorcycle Parts Supplier B	Supplier	Mass	Large	11		Difficult to find competent and experienced people
6	JS3	Japanese Plastic Parts Supplier	Supplier	Mass & Small-lot	Very Large	10 ^b	Not at all	Not at all, although not recruiting many people

Note

^a At the time of interviews in 2015.

^b Firm JS3 has its sister factory in South Vietnam, which has been operating for 20 years.

Appendix 6M. Employers' Perceptions of Current Skills Shortages - Design Engineer

No	Code	Pseudonym	Business Type	Product Type	Size	Years of Operation ^a	Design Engineer
1	FA3	European Motorcycle Assembler	Assembler	Mass	Large	6	Difficult to find competent and experienced people, because few companies conduct R&D
2	JS3	Japanese Plastic Parts Supplier	Supplier	Mass & Small-lot	Very Large	10 ^b	Not at all, although not recruiting many people
3	VS4	Vietnamese Mould and Die Supplier A	Supplier	Mass & Small-lot	Large	9	Difficult to find competent people
4	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Small-lot	Medium	13	Not at all, enough applicants
5	VS8	Vietnamese Production Equipment Supplier	Supplier	Small-lot	Small	8	Difficult to find competent and experienced people, despite large supply of university graduates

Note

^a At the time of interviews in 2015.

^b Firm JS3 has its sister factory in South Vietnam, which has been operating for 20 years.

Appendix 6N. Employers' Perceptions of Current Skills Shortages - Production Engineer

No	Code	Pseudonym	Business Type	Product Type	Size	Years of Operation ^a	Production Engineer
1	JA1	Japanese Automotive Assembler	Assembler	Mass	Very Large	19	Difficult to secure, because of locational disadvantage
2	JA3	Japanese Electronics Assembler B	Assembler	Mass	Very Large	13	Not recruiting many. Relatively difficult to recruit in a factory far from Hanoi and to secure electric and IT engineers
3	JA4	Japanese Motorcycle Assembler	Assembler	Mass	Very Large	18	Not at all in both quantity and quality
4	FA1	American Automotive Assembler A	Assembler	Mass	Large	4	Small, because of many manual processes
5	FA2	American Automotive Assembler B	Assembler	Mass	Large	20	Small, many applicants for a small number of position available
6	FA3	European Motorcycle Assembler	Assembler	Mass	Large	6	Not at all
7	VA1	Vietnamese Automotive Assembler	Assembler	Mass	Large	4	Many applicants, but not many competent people
8	JS4	Japanese Motorcycle Parts Supplier	Supplier	Mass	Very Large	18	Not at all, enough applicants and internal training programs developed
9	JS7	Japanese Electronics Parts Supplier	Supplier	Mass	Very Large	18	Not at all, but difficult to find experienced people
10	FS1	European Electric Parts Supplier	Supplier	Mass	Large	22	No problem to attract new graduates, but difficult to recruit experienced engineers
11	FS2	Taiwanese Plastic Parts Supplier	Supplier	Mass	Large	10	Difficult to secure competent people
12	FS4	Taiwanese Electronics Parts Supplier	Supplier	Mass	Very Large	9	Difficult to find competent people, despite a large number of university graduates
13	VS1	Vietnamese Plastic Parts Supplier	Supplier	Mass	Very Large	43	Enough applicants, but they ask high salaries and working conditions
14	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	10	Difficult to find competent people
15	VS7	Vietnamese Motorcycle Parts Supplier B	Supplier	Mass	Large	11	Not at all, but difficult to find competent people
16	JS3	Japanese Plastic Parts Supplier	Supplier	Mass & Small-lot	Very Large	10 ^b	Not at all, although not recruiting many people
17	JS6	Japanese Machinery and Equipment Supplier	Supplier	Small-lot	Large	11	Several vacancies. Becoming more difficult to secure competent people
18	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Small-lot	Medium	13	Several vacancies for production and quality engineers

Note

^a At the time of interviews in 2015.

^b Firm JS3 has its sister factory in South Vietnam, which has been operating for 20 years.

Appendix 60. Employers' Perceptions of Future Skills Shortages

No	Code	Pseudonym	Business Type	Product Type	Size	Years of Operation ^a	Top Manager	Middle Manager	Design Engineer	Production Engineer	Technician / Skilled Operator	Production Line Operator
1	VS2	Vietnamese Electronics Parts Supplier	Supplier	Mass	Large	14						Small
2	JS1	Japanese Automotive Parts Supplier	Supplier	Mass	Very Large	12					Female supervisors will run short due to gender discrimination	Will be excess of unskilled operators
3	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	10	Concerned					
4	VS4	Vietnamese Mould and Die Supplier A	Supplier	Mass & Small-lot	Large	9			Will be no serious shortage, because technical requirement will not become higher. Would face skills shortages if the quality of education is not improved.			Small
5	JS6	Japanese Machinery and Equipment Supplier	Supplier	Small-lot	Large	11				Will be difficult to secure engineers with sufficient technical knowledge		

Note

^a At the time of interviews in 2015.

Appendix 6P. Employers' Perceptions of Current Skills Shortages - Intermediate Workers

No	Code	Pseudonym	Business Type	Product Type	Size	Years of Operation ^a	Technician / Skilled Operator
1	FA1	American Automotive Assembler A	Assembler	Mass	Large	4	Small because of many manual processes
2	FA2	American Automotive Assembler B	Assembler	Mass	Large	20	Not at all because of large number of applicants
3	FA3	European Motorcycle Assembler	Assembler	Mass	Large	6	Small
4	VA1	Vietnamese Automotive Assembler	Assembler	Mass	Large	4	Small because training them in own vocational school
5	JA1	Japanese Automotive Assembler	Assembler	Mass	Very Large	19	Not at all because of large number of applicants
6	JA3	Japanese Electronics Assembler B	Assembler	Mass	Very Large	13	Difficult to secure competent operation engineers in both quality and quantity
7	JA4	Japanese Motorcycle Assembler	Assembler	Mass	Very Large	18	Not at all in either quantity or quality
8	FS1	European Electric Parts Supplier	Supplier	Mass	Large	22	Difficult to recruit competent mechanical, electrical, and welding technicians, despite large number of applications. In particular difficult to secure welding technicians
9	VS7	Vietnamese Motorcycle Parts Supplier B	Supplier	Mass	Large	11	Difficult to find competent and experienced team leaders in both quality and quantity
10	JS5	Japanese Heavy Machine Parts Supplier	Supplier	Mass	Small	7	Small, but not many competent people
11	JS1	Japanese Automotive Parts Supplier	Supplier	Mass	Very Large	12	Small
12	JS4	Japanese Motorcycle Parts Supplier	Supplier	Mass	Very Large	18	Not at all, enough applicants and internal training programs developed
13	JS7	Japanese Electronics Parts Supplier	Supplier	Mass	Very Large	18	Not at all
14	FS4	Taiwanese Electronics Parts Supplier	Supplier	Mass	Very Large	9	Difficult to find competent technicians, but easier to find them than engineers.
15	VS1	Vietnamese Plastic Parts Supplier	Supplier	Mass	Very Large	43	Difficulty to recruit. Enough applicants, but they ask for high salaries and working conditions
16	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	10	Difficult to find competent and experienced team leaders
17	VS4	Vietnamese Mould and Die Supplier A	Supplier	Mass & Small-lot	Large	9	Easier to find qualified people than design engineers, but still not easy to recruit them as needed
18	JS3	Japanese Plastic Parts Supplier	Supplier	Mass & Small-lot	Very Large	10 ^b	Not at all, although not recruiting many people
19	JS6	Japanese Machinery and Equipment Supplier	Supplier	Small-lot	Large	11	Small because training them internally
20	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Small-lot	Medium	13	Small, enough applicants
21	VS8	Vietnamese Production Equipment Supplier	Supplier	Small-lot	Small	8	Small for welding, electric and electronic technicians, but large for CNC machine operators. The supply of CNC machine operators is not enough in either quantity or quality.

Note

^a At the time of interviews in 2015.

^b Firm JS3's sister factory, which has been operating for 20 years, is located in South Vietnam.

Appendix 6Q. Job and Skills Shortage Vacancies in Firms Interviewed

Job Vacancy													
No	Code	Pseudonym	Business Type	Product Type	Size	Design Engineer	Production Engineer	Technician	Operator	Others	Total	Measure skills shortage vacancies?	
1	JA1	Japanese Automotive Assembler	Assembler	Mass	Very Large	0	0	0	0	0	0	0	No
2	FS2	Taiwanese Plastic Parts Supplier	Supplier	Mass	Large	1	1	2	0	0	4	4	Yes
3	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	5	10	30	0	20	65	65	Yes
4	VS4	Vietnamese Mould and Die Supplier A	Supplier	Mass & Small-lot	Large	3	0	2	0	0	5	5	Yes
5	JS6	Japanese Machinery and Equipment Supplier	Supplier	Small-lot	Large	5	10	0	0	0	15	15	Yes
6	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Small-lot	Medium	Several						0	No
7	VS8	Vietnamese Production Equipment Supplier	Supplier	Small-lot	Small	2	0	0	5	0	7	7	Yes
8	VS5	Vietnamese Mould and Die Supplier B	Supplier	Small-lot	Small	2	1	2	20	7	32	32	Yes

Skills Shortage Vacancy													
No	Code	Pseudonym	Business Type	Product Type	Size	Design Engineer	Production Engineer	Technician	Operator	Others	Total	Skills Shortage Vacancy / Job Vacancy (%)	
1	JA1	Japanese Automotive Assembler	Assembler	Mass	Very Large							0	0%
2	FS2	Taiwanese Plastic Parts Supplier	Supplier	Mass	Large	1	1	2	0	0	4	4	100%
3	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	5	10	30	0	20	65	65	100%
4	VS4	Vietnamese Mould and Die Supplier A	Supplier	Mass & Small-lot	Large	3	0	2	0	0	5	5	100%
5	JS6	Japanese Machinery and Equipment Supplier	Supplier	Small-lot	Large	5	10	0	0	0	15	15	100%
6	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Small-lot	Medium							0	0%
7	VS8	Vietnamese Production Equipment Supplier	Supplier	Small-lot	Small	0	0	0	0	0	0	0	0%
8	VS5	Vietnamese Mould and Die Supplier B	Supplier	Small-lot	Small	2	1	0	0	4	7	7	22%

Note

^a The author collected data through interviews and by the questionnaire.

Appendix 6R. Employers Perceiving Very Narrow Skills Gaps at All Occupations

No	Code	Pseudonym	Business Type	Product Type	Size	Years of Operation ^a
1	JA3	Japanese Electronics Assembler B	Assembler	Mass	Very Large	13
2	JA4	Japanese Motorcycle Assembler	Assembler	Mass	Very Large	18
3	JS4	Japanese Motorcycle Parts Supplier	Supplier	Mass	Very Large	18

Note

^a At the time of interviews in 2015.

Appendix 6S. Employers' Perceptions of Skills Gaps - Management Staff

No	Code	Pseudonym	Business Type	Product Type	Size	Years of Operation ^a	Top Manager	Middle Manager
1	JA1	Japanese Automotive Assembler	Assembler	Mass	Very Large	19		Insufficient foreign language and logical-thinking skills
2	JA2	Japanese Electronics Assembler A	Assembler	Mass	Very Large	19		Insufficient abilities to balance quality, cost and delivery (QCD)
3	JA3	Japanese Electronics Assembler B	Assembler	Mass	Very Large	13		Narrow
4	JA4	Japanese Motorcycle Assembler	Assembler	Mass	Very Large	18		Not at all
26	VS7	Vietnamese Motorcycle Parts Supplier B	Supplier	Mass	Large	11	Insufficient team management and problem-solving skills, safety knowledge, and discipline	
5	JS1	Japanese Automotive Parts Supplier	Supplier	Mass	Very Large	12		Fulfilling only 30% of skills requirement
8	JS4	Japanese Motorcycle Parts Supplier	Supplier	Mass	Very Large	18	Narrow, besides safety knowledge	
20	VS1	Vietnamese Plastic Parts Supplier	Supplier	Mass	Very Large	43		Insufficient management skills
25	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	10	Insufficient skills at all levels, Insufficient professional skills	

Note

^a At the time of interviews in 2015.

Appendix 6T. Employers' Perceptions of Skills Gaps - Design Engineer

No	Code	Pseudonym	Business Type	Product Type	Size	Years of Operation ^a	Skills Gaps - Design Engineer
1	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	10	Insufficient skills at all levels, Insufficient professional skills
2	VS2	Vietnamese Electronics Parts Supplier	Supplier	Mass	Large	14	Insufficient problem-solving skills and entrepreneurship mind
3	VS7	Vietnamese Motorcycle Parts Supplier B	Supplier	Mass	Large	11	Insufficient team management and problem-solving skills, safety knowledge, and discipline
4	VS4	Vietnamese Mould and Die Supplier A	Supplier	Mass & Small-lot	Large	9	Insufficient mechanical engineering knowledge

Note

^a At the time of interviews in 2015.

Appendix 6U. Employers' Perceptions of Skills Gaps - Production Engineer

No	Code	Pseudonym	Business Type	Product Type	Size	Years of Operation ^a	Skills Gaps - Production Engineer
1	JA1	Japanese Automotive Assembler	Assembler	Mass	Very Large	19	Insufficient foreign language and logical-thinking skills
2	JA2	Japanese Electronics Assembler A	Assembler	Mass	Very Large	19	Insufficient abilities to balance quality, cost and delivery (QCD)
3	JA3	Japanese Electronics Assembler B	Assembler	Mass	Very Large	13	Narrow
4	JA4	Japanese Motorcycle Assembler	Assembler	Mass	Very Large	18	Not at all
5	FA1	American Automotive Assembler A	Assembler	Mass	Large	4	Sufficient technical skills, but insufficient communication and problem-solving skills
6	FA2	American Automotive Assembler B	Assembler	Mass	Large	20	Wide
7	FA3	European Motorcycle Assembler	Assembler	Mass	Large	6	Sufficient technical knowledge and behaviour
8	VA1	Vietnamese Automotive Assembler	Assembler	Mass	Large	4	Insufficient foreign language ability
9	JS1	Japanese Automotive Parts Supplier	Supplier	Mass	Very Large	12	Fulfilling 50% of skills requirement
10	JS4	Japanese Motorcycle Parts Supplier	Supplier	Mass	Very Large	18	Narrow, besides safety knowledge
11	JS7	Japanese Electronics Parts Supplier	Supplier	Mass	Very Large	18	Insufficient automation skills
12	FS4	Taiwanese Electronics Parts Supplier	Supplier	Mass	Very Large	9	Insufficient technical skills
13	VS1	Vietnamese Plastic Parts Supplier	Supplier	Mass	Very Large	43	University graduates lack technical skills
14	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	10	Insufficient skills at all levels, Insufficient professional skills
15	VS2	Vietnamese Electronics Parts Supplier	Supplier	Mass	Large	14	Wide. Technical skills of university graduates are outdated.
16	VS7	Vietnamese Motorcycle Parts Supplier B	Supplier	Mass	Large	11	Insufficient team management and problem-solving skills, safety knowledge, and discipline
17	JS3	Japanese Plastic Parts Supplier	Supplier	Mass & Small-lot	Very Large	10 ^b	Insufficient basic technical skills

Note

^a At the time of interviews in 2015.

^b Firm JS3 has its sister factory in South Vietnam, which has been operating for 20 years.

Appendix 6V. Employers' Perceptions of Skills Gaps - Intermediate Workers

No	Code	Pseudonym	Business Type	Product Type	Size	Years of Operation ^a	Technician / Skilled Operator
1	JA3	Japanese Electronics Assembler B	Assembler	Mass	Very Large	13	Narrow
2	JA4	Japanese Motorcycle Assembler	Assembler	Mass	Very Large	18	Not at all
3	VA1	Vietnamese Automotive Assembler	Assembler	Mass	Large	4	Narrow
4	JS1	Japanese Automotive Parts Supplier	Supplier	Mass	Very Large	12	No gap in supervisors, but wide gaps in maintenance technicians
5	JS4	Japanese Motorcycle Parts Supplier	Supplier	Mass	Very Large	18	Narrow, besides safety knowledge
6	JS7	Japanese Electronics Parts Supplier	Supplier	Mass	Very Large	18	Insufficient automation skills
7	VS1	Vietnamese Plastic Parts Supplier	Supplier	Mass	Very Large	43	Insufficient technical, problem-solving, and management skills
8	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	10	Insufficient skills at all levels, Insufficient professional skills
9	VS7	Vietnamese Motorcycle Parts Supplier B	Supplier	Mass	Large	11	Insufficient team management and problem-solving skills, safety knowledge, and discipline
10	JS5	Japanese Heavy Machine Parts Supplier	Supplier	Mass	Small	7	Insufficient technical skills, because some of them used to be a farmer.
11	VS4	Vietnamese Mould and Die Supplier A	Supplier	Mass & Small-lot	Large	9	Insufficient mechanical skills
12	JS6	Japanese Machinery and Equipment Supplier	Supplier	Small-lot	Large	11	Not at all
13	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Small-lot	Medium	13	Not fully satisfied with their skills

Note

^a At the time of interviews in 2015.

Appendix 6W. Employers' Perceptions of Job Turnover and Poaching

No	Code	Pseudonym	Business Type	Product Type	Size	Years of Operation ^a	Current Situation	Future Prospect
1	JA2	Japanese Electronics Assembler A	Assembler	Mass	Very Large	19	Low	
2	JA3	Japanese Electronics Assembler B	Assembler	Mass	Very Large	13	Many people quit (but only about 2%). Number of engineers stable. University graduates quit if they are assigned to work as operation engineers.	
3	JA4	Japanese Motorcycle Assembler	Assembler	Mass	Very Large	18	Overqualified workers often quit quickly	
4	FA1	American Automotive Assembler A	Assembler	Mass	Large	4	Low, single digit	Becoming more difficult to retain good people, due to limited pool of talents
5	VA1	Vietnamese Automotive Assembler	Assembler	Mass	Large	4	Low	
6	JS1	Japanese Automotive Parts Supplier	Supplier	Mass	Very Large	12	Low	
7	JS4	Japanese Motorcycle Parts Supplier	Supplier	Mass	Very Large	18	Higher turnover among production line operators than professional occupations, but not very concerned because of low turnover of key professional staff	
8	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	10	Difficult to retain trained people	
9	FS2	Taiwanese Plastic Parts Supplier	Supplier	Mass	Large	10	Difficult to retain trained engineers and sales staff	
10	VS7	Vietnamese Motorcycle Parts Supplier B	Supplier	Mass	Large	11	Low job turnover of professional staff due to careful screening in recruitment / High turnover among production line operators	
11	JS5	Japanese Heavy Machine Parts Supplier	Supplier	Mass	Small	7	Not easy to retain employees	
12	JS3	Japanese Plastic Parts Supplier	Supplier	Mass & Small-lot	Very Large	10 ^b	Low, less than 1%	
13	VS3	Vietnamese Plastic and Metal Parts Supplier	Supplier	Mass & Small-lot	Very Large	16	Stable (20% turnover, but not very concerned)	
14	VS4	Vietnamese Mould and Die Supplier A	Supplier	Mass & Small-lot	Large	9	Low, about 1% per year	
15	JS6	Japanese Machinery and Equipment Supplier	Supplier	Small-lot	Large	11	Low, but second-level engineers are sometimes poached	Concerned that top managers would be poached by newly-invested firms
16	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Small-lot	Medium	13	High. More than 10%. Technicians are often poached by newly-invested	
17	VS5	Vietnamese Mould and Die Supplier B	Supplier	Small-lot	Small	9	High turnover of trained people	
18	VS8	Vietnamese Production Equipment Supplier	Supplier	Small-lot	Small	8	High turnover of mechanical and assembling technicians and mechanical designers.	Continues to be difficult to retain competent people

Note

^a At the time of interviews in 2015.

^b Firm JS3's sister factory, which has been operating for 20 years, is located in South Vietnam.

Appendix 6X. Skills Evaluation Methods at Firms Interviewed

Method	No	Code	Pseudonym	Business Type	Product Type	Size	Years of Operation ^a	Skills Evaluation Methods (Elementary and Intermediate Occupations)	Skills Evaluation Methods (Professional Occupation)
Indirect Measures	1	FA1	American Automotive Assembler A	Assembler	Mass	Large	4	Relying on supervisors' subjective evaluation	Conducting training needs assessment with competency framework.
	2	JS4	Japanese Motorcycle Parts Supplier	Supplier	Mass	Very Large	18	Based on performance review for salary adjustment	
	3	FS4	Taiwanese Electronics Parts Supplier	Supplier	Mass	Very Large	9	Recruitment exams: Based on performance review for salary adjustment	
	4	VS1	Vietnamese Plastic Parts Supplier	Supplier	Mass	Very Large	43	Recruitment exams; Based on performance review for salary adjustment	
	5	VS8	Vietnamese Production	Supplier	Small-hot	Small	8	Recruitment exam; Annual evaluation with check-lists.	
Clear and Detailed Skills Evaluation Criteria	1	JS5	Japanese Heavy Machine Parts Supplier	Supplier	Mass	Small	7	Struggling to assess skills gaps; Based on product quality	
	2	VS4	Vietnamese Mould and Die Supplier A	Supplier	Mass & Small-hot	Large	9	Based on product quality	
	1	JA3	Japanese Electronics Assembler B	Assembler	Mass	Very Large	13	Evaluating skills with objective standards	Relying on supervisors' subjective evaluation
	2	FA2	American Automotive Assembler B	Assembler	Mass	Large	20	Evaluating skills with objective standards	Evaluating with competency framework.
	3	JS1	Japanese Automotive Parts Supplier	Supplier	Mass	Very Large	12	Evaluating with objective skills standards	Relying on supervisors' subjective evaluation
	4	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	10	Evaluating skills by test	Skills of middle or top managers are assessed with general achievements
	5	FS1	European Electric Parts Supplier	Supplier	Mass	Large	22	Evaluating skills with objective standards	Evaluating with competency framework.
	6	VS2	Vietnamese Electronics Parts Supplier	Supplier	Mass	Large	14	Evaluating skills periodically with tests	
	7	JS3	Japanese Plastic Parts Supplier	Supplier	Mass & Small-hot	Very Large	10 ^b	Evaluating skills based on skills maps.	
	1	JA2	Japanese Electronics Assembler A	Assembler	Mass	Very Large	19	Struggling to assess skills gaps objectively	
2	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Small-hot	Medium	13	Developing internal skills standards, but struggling to assess skills gaps objectively		

Note

^a At the time of interviews in 2015.

^b Firm JS3 has its sister factory in South Vietnam, which has been operating for 20 years.

Appendix 6Y. Firms' Answers to the Question on Existence of Recruitment Forecast

No	Code	Pseudonym	Business Type	Product Type	Size	Q. Do you have a recruitment forecast?
1	VA1	Vietnamese Automotive Assembler	Assembler	Mass	Large	Yes, we have one year forecast, but only 3 months are confirmed.
2	FA2	American Automotive Assembler B	Assembler	Mass	Large	Yes, we have a 5 years recruitment plan, but revise it every year.
3	FS4	Taiwanese Electronics Parts Supplier	Supplier	Mass	Very Large	Yes, we have 3-5 years forecast, but adjust it every year.
4	JS1	Japanese Automotive Parts Supplier	Supplier	Mass	Very Large	Yes, possible forecast the recruitment of production line operators for 2 years, but difficult to forecast the needs of engineers.
5	FS3	European Automotive Parts Supplier	Supplier	Mass	Very Large	Yes
6	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Mass	Very Large	Yes
7	FS2	Taiwanese Plastic Parts Supplier	Supplier	Mass	Large	Yes
8	VS2	Vietnamese Electronics Parts Supplier	Supplier	Mass	Large	Yes
9	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Small-lot	Medium	Yes
1	JA3	Japanese Electronics Assembler B	Assembler	Mass	Very Large	No, because we cannot forecast the retirement rate.
2	JA1	Japanese Automotive Assembler	Assembler	Mass	Very Large	No
3	JA2	Japanese Electronics Assembler A	Assembler	Mass	Very Large	No
4	JA4	Japanese Motorcycle Assembler	Assembler	Mass	Very Large	No
5	VS1	Vietnamese Plastic Parts Supplier	Supplier	Mass	Very Large	No, because of fluctuating business situation (but provided forecast for 2016).
6	JS5	Japanese Heavy Machine Parts Supplier	Supplier	Mass	Small	No, unless there is a specific project.
7	JS3	Japanese Plastic Parts Supplier	Supplier	Mass & Small-lot	Very Large	No
8	VS4	Vietnamese Mould and Die Supplier A	Supplier	Mass & Small-lot	Large	No
9	JS6	Japanese Machinery and Equipment Supplier	Supplier	Small-lot	Large	No
10	VS5	Vietnamese Mould and Die Supplier B	Supplier	Small-lot	Small	No, because of frequently changing business strategies and high job turnover.
11	VS8	Vietnamese Production Equipment Supplier	Supplier	Small-lot	Small	No (but provided 3 years forecast)

Appendices for Chapter 7

Appendix 7A. Average Employment Rate by Training Level

No	Code	Pseudonym	Region	University	Professional College	Vocational College	Professional Secondary	Vocational Secondary
1	PU1	Public University A ^a	Red River Delta	29.10%	20.57%	22.37%	24.87%	40.70%
2	PV1	Public Vocational College A	Red River Delta			78.40%		63.23%
3	PV3	Public Vocational College C	Red River Delta			98.00%		96.33%
4	PV5	Public Vocational College E	Red River Delta		87.67%	85.33%	83.67%	83.67%
5	PV7	Public Vocational College G	Red River Delta			100.00%		100.00%
6	PV8	Public Vocational College H	South East					100.00%

Note

^a Public University A surveyed student employment situations at graduation, while other schools might have done so at a later stage such as 6 months after graduation. This may partially explain why Public University A's results seem much lower than the others. In addition, evidence collected by the author makes the data provided by Public University A seem more reliable than that provided by the other institutions.

Appendix 7B. Educators' Perceptions of Current Skills Demands by Occupation

No	Code	Pseudonym	Region	Professional Staff Design Engineers	Production Engineers	Intermediate Workers	Elementary Workers
1	PU1	Public University A	Red River Delta	Low	High, but less than intermediate workers	High	
2	PU2	Public University B	South East	Low	Low	High	
3	RU1	Private University A	South East	Low	High		High
4	PV2	Public Vocational College B	Red River Delta			High	High
5	PV3	Public Vocational College C	Red River Delta			High	
6	PV4	Public Vocational College D	Red River Delta	Low	Low	High	High
7	PV5	Public Vocational College E	Red River Delta	Low	Low	High	High
8	PV6	Public Vocational College F	Red River Delta			High	High
9	PV7	Public Vocational College G	Red River Delta			High	High
10	PV8	Public Vocational College H	South East	Low	Low	High	

Appendix 7C. Number of Applicants in 2012-2014 by Majors Related to Machine Manufacturing

No	Code	Pseudonym	Region	Mechanical Engineering / Machining	Sheet Metal / Welding	Electricity	Electronics	Automotive Technology	Others
1	PU1	Public University A	Red River Delta	4,803	80	5,390	2,971	3,599	
2	PV2	Public Vocational College B	Red River Delta	989	973	1,271	776	0	
3	PV3	Public Vocational College C	Red River Delta	150	192	309	256	80	0
4	PV4	Public Vocational College D	Red River Delta	212	215	1,147	125	0	566
5	PV7	Public Vocational College G	Red River Delta	0	211	675	0	272	0
6	PV8	Public Vocational College H	South East	227	0	1,455	0	369	

Appendix 7D. Cases of Curriculum Improvement Based on Employers' Skills Needs

No	Code	Pseudonym	Region	Outline of Curriculum Improvement
1	PU1	Public University A	Red River Delta	Curriculum of mechanical drawing course was improved; The content of Programmable Logic Control (PLC) course was improved; Two short-term courses on Machinery Maintenance and Quality Control (QC) were developed.
2	PU2	Public University B	South East	The curriculum and practical lessons of chemical engineering course was improved.
3	RU1	Private University A	South East	Recently launched courses on a basic production management method and occupational health and safety.
4	PV1	Public Vocational College A	Red River Delta	Trying to eliminate boundaries between theoretical and practical courses,
8	PV5	Public Vocational College E	Red River Delta	Some new courses were added (around 15 credit), mostly in the field of practical production skills.
11	PV8	Public Vocational College H	South East	Recently launched courses on a basic production management method and occupational health and safety.

Appendices for Chapter 8

Appendix 8A. Perceptions of Current Skill Shortage Volume Among Key Actors

Occupation Group	Occupation	Employers				Educators	Policy Makers		
		Large Assembler	Suppliers		National		Provincial		
			Routine Processes	Non-routine Processes			High Industrial Agglomeration	Low Industrial Agglomeration	
Professional	Design Engineers	Small	Small	Small	Small	Small	Small	Small	
	Production Engineers	Small	Small	Small	Small	Small	Small	Small	
Intermediate	Technicians	Small	Small	Medium	Large	Large	Large	Small	
	Skilled Operators	Small	Small	Medium	Large	Large	Large	Small	
Elementary	Production Line Operators	Small	Small	Small	Small	Small	Small	Small	

Note

Key actors perceptions are categorised into 3 degrees (large, medium, small), according to the author's analysis of interview data.

Appendix 8B. Perceptions of Current Skill Gaps Among Key Actors

Occupation Group	Occupation	Employers						Educators	Policy Makers		
		Large Assembler	Suppliers				National		Provincial		
			Routine Processes		Non-routine Processes				High Industrial Agglomeration	Low Industrial Agglomeration	
		FIEs	Local	FIEs	Local						
Professional	Design Engineers	-	-	-	Large	Large	-	-	-	-	
	Production Engineers	Large	Large	Large	Large	Large	Large	Large	Large	Large	
Intermediate	Technicians	Small	Small	Large	Medium	Large	Large	Large	Large	Large	
	Skilled Operators	Small	Small	Large	Medium	Large	Large	Large	Large	Large	
Elementary	Production Line Operators	Small	Small	Small	Small	Small	Small	Small	Small	Small	

Note

Key actors perceptions are categorised into 3 degrees (large, medium, small), according to the author's analysis of interview data.

Appendix 8C. Cooperation with Educational Establishments (Recruitment-related Activities)

No	Code	Pseudonym	Business Type	Product Type	Size	With University	With TVET Institutions
1	JA2	Japanese Electronics Assembler A	Assembler	Mass	Very Large	Receiving factory tours / Participating job fairs	
2	JA3	Japanese Electronics Assembler B	Assembler	Mass	Very Large	Internship / Provision of special lecture	Internship
3	FA1	American Automotive Assembler A	Assembler	Mass	Large	Participation in Job Fair / Receiving factory	Participation in Job Fair
4	FA3	European Motorcycle Assembler	Assembler	Mass	Large		Recruitment
5	VA1	Vietnamese Automotive Assembler	Assembler	Mass	Large	Internship	
6	JS1	Japanese Automotive Parts Supplier	Supplier	Mass	Very Large		Scholarship
7	JS7	Japanese Electronics Parts Supplier	Supplier	Mass	Very Large		Internship
8	FS3	European Automotive Parts Supplier	Supplier	Mass	Very Large	Internship / Graduation award	Internship
9	FS1	European Electric Parts Supplier	Supplier	Mass	Large		Internship
10	VS2	Vietnamese Electronics Parts Supplier	Supplier	Mass	Large	Provision of special lecture	
11	JS5	Japanese Heavy Machine Parts Supplier	Supplier	Mass	Small	Occasional contacting for recruitment	
12	VS4	Vietnamese Mould and Die Supplier A	Supplier	Mass & Small-	Large	Internship / Recruitment	Recruitment
13	JS6	Japanese Machinery and Equipment Supplier	Supplier	Small-lot	Large		Internship
14	JS2	Japanese Plastic Injection Mould Supplier	Supplier	Small-lot	Medium	Internship / Conducting PR.	Internship / Receiving factory tours.
15	VS8	Vietnamese Production Equipment Supplier	Supplier	Small-lot	Small		Internship

Appendix 8D. Firms Cooperating with TVET Institutions in Training Capacity Development and Willing to Engage in TVET Reform

No	Code	Pseudonym	Business Type	Size	No of processes ^a	Degree of Dynamism ^b	Demand for Intermediate Workers		Cooperation with TVET Institutions	Willingness to Engage in TVET Reform
							Current	Future		
1	JA2	Japanese Electronics Assembler A	Assembler	Very Large	3	Low	High for female		Sent employees to national skills tests organised by vocational instructors at Public University A.	Improvement of national skills tests
2	VA1	Vietnamese Automotive Assembler	Assembler	Large	3	Fair	High		Operating own vocational college.	
3	JS1	Japanese Automotive Parts Supplier	Supplier	Very Large	6	High			Providing introductory training for new workers in cooperation with vocational instructors at Public University A.	Improvement of national skills tests
4	FS3	European Automotive Parts Supplier	Supplier	Very Large	4	Medium	High		Provided training equipment for a public vocational college.	Promotion of apprenticeships / Provision of more incentives for firm training initiatives
5	FS4	Taiwanese Electronics Parts Supplier	Supplier	Very Large	2	Fair			Operating a training centre for new machine operators at Public University A.	
6	VS6	Vietnamese Motorcycle Parts Supplier A	Supplier	Very Large	4	Fair				Improvement of practical training
7	VS5	Vietnamese Mould and Die Supplier B	Supplier	Small	4	Medium	High			Promotion of firm training initiatives

Note

^a Number of internal production processes.

^b This was measured by applying the factors of dynamism identified in Chapter 6. High - 3 factors present; Medium - 2 factors present; Fair - 1 factor present; low - 0 factor present. JA2 has low dynamism for this criteria, but the General Director of this firm showed a strong commitment to continue business in Vietnam (see Chapter 6).

Appendix 8E. Status of Integration of Demand and Supply Policies in Selected Provinces and City

No	Code	Pseudonym of City or Province	Region	Average population (2015) ^a	Accum. Industrial Output (2005-2010) ^b	Accum. Number of FDI projects (by 2016) ^c	Total registered capital of FDI projects (by 2016) ^d	Stage of Industrialisation ^e	Demand-side Policy	Integration of Demand and Supply Policies
1	NG06	Southern Metropolitan City	South East	8,146	2,358	6,762	45,293	Moving from Stage 1 to Stage 2 by developing supporting industries.	Attempting to promote higher-valued industries such as IT, precision machinery, chemistry, food and food additives, telecommunication and high-tech agriculture	Regional Office of Ministry C is trying to facilitate cooperation between firms and educational establishments.
2	LG01	Province A	Red River Delta	803	47	196	2,118	Stage 1 of initial FDI absorption by attracting investment from assemblers.	Improving the procedure in providing investment licenses for foreign investors.	
3	LG02	Province B	Red River Delta	1,055	272	266	3,875	Moving from Stage 1 to Stage 2 by developing supporting industries.	Attempting to increase higher value-added industries, specifically focusing on the development of supporting industries	Trying to promote long-term TVET courses to achieve the provincial target to develop supporting industries. Trying to attract lower secondary graduates to vocational or professional secondary courses
4	LG03	Province C	Red River Delta	1,155	201	936	12,573	Stage 1 of initial FDI absorption by attracting investment from assemblers.		
5	LG04	Province D	South East	2,906	1,162	1,368	25,872	Moving from Stage 1 to Stage 2 by developing supporting industries.	Attempting to attract investment from higher-value added manufacturing industries, while stopped accepting investment from low-skilled labour-intensive industries	Attempting to attract more lower-secondary graduates in conjunction with industrial policies. Facilitating cooperation between firms and educational establishments

Note

^a Unit: Thousand Person. Data retrieved from the website of General Statistical Office (GSO), Vietnam.

^b Unit: Trillion Vietnamese Dong. Data retrieved from the website of General Statistical Office (GSO), Vietnam.

^c Data retrieved from the website of General Statistical Office (GSO), Vietnam.

^d Unit: Million USD. Data retrieved from the website of General Statistical Office (GSO), Vietnam.

^e Classified according to Ohno (2014, p, 254)'s Figure for Industrialisation stages, based on the author's observation.

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