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Citation for final published version:

Henley, Andrew 2022. Digital technologies, gig work and labour share. Cambridge Journal of Economics 46 (6) , pp. 1407-1429. 10.1093/cje/beac043

Publishers page: <https://doi.org/10.1093/cje/beac043>

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Digital Technologies, Gig Work and Labour Share

(forthcoming in *Cambridge Journal of Economics*)

Special issue: “Big Tech, Corporate Power and Economic Performance: Revisiting Monopoly Capitalism”

Accepted for publication on 24 August 2022

Final author post-print version

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Abstract

Conflict over the functional income distribution, discussed and explained in Keith Cowling’s work in the 1980s, remains a feature of capitalist economies. In the 21st century labour flexibilization strategies have become a key tool in enabling monopoly capitalists to manipulate the functional distribution of income. Through the lens of institutional theory, this paper traces labour flexibilization in the UK since the 1980s, in order to describe and evaluate how the use of digital technologies have become allied to non-standard contracting and ‘dependent’ self-employment in the growth of the gig economy. The paper argues that this provides employers with increased flexibility of the labour input at both extensive and intensive margins. Digital technology and gig-working also position dominant internet platform businesses to apply downward pressure to labour share at a monopoly-monopsony nexus between individual consumers and new service sector workers. This has led to new ways in which employment contracts and the nature of organisations as an outcome of monopoly capitalist labour process are contested.

Key words: gig economy, digital platforms, self-employment, labour share, monopoly capital

JEL Classifications: B51, D33, J30, L26

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“Increasingly the major corporations will become co-ordinating agencies for large numbers of small production units, each supplying services to the dominant organisation at competitive rates and paying competitive wages. One extreme response could be the handing over of control to workers at the point of production with industrial capital withdrawing into finance capital but charging the appropriate rates for the use of capital which will limit the income of workers to competitive wages.” (Cowling, 1982, pp. 108-109)

1. Introduction

When Keith Cowling published *Monopoly Capitalism* four decades ago (Cowling, 1982), he was writing soon after the point at which the post-war years of sustained economic growth, stable investment and high capacity utilization had come to a juddering halt. This so-called ‘golden age’ of social democratic capitalism gave way in the 1970s to global oil price shocks. These resulted in stagflation and downward pressure on rates of return to capital. Building from the pioneering work of Kalecki (1939), and subsequently Steindl (1952) and Baran and Sweezy (1966), Cowling’s central thesis was that the demise of the post-war Keynesian consensus would sharpen the level of conflict over the functional distribution of income between workers and the owners of capital, leading to macroeconomic stagnation and crisis (Cowling, 2006). For Cowling the implications of monopoly capitalism would take the form of a) increased market dominance to appropriate consumer surplus alongside b) the exploitation of monopsony power in labour markets to squeeze worker compensation. This was already apparent in the declining share of wages in national income observed through the latter part of the 1970s. It was seen also in industrial conflict emerging from wage-price spirals, particularly in the UK. Downward pressure on capacity utilisation and investment was documented in Cowling (1982). Cowling, in collaboration with his students and colleagues, sought to explore the strategic choices available to monopoly capitalists for maintaining profit margins. These comprised the pursuit of market power and globalisation to build monopoly

power in product markets, and the use of divide-and-rule over workers to build monopsony power in labour markets and maintain flexibility over labour input and its remuneration in the face of demand fluctuations (Cowling and Molho, 1982; Cowling and Sugden, 1987; Cowling and Tomlinson, 2005). Recent analyses and commentaries have returned to these issues, focusing on the resurgence in monopoly power, its explanations, and its implications for the functional distribution of income (Tepper and Hearn, 2019; Autor et al, 2020; De Loecker et al., 2020). A sustained decline in the share of wages in national income in many OECD economies through the 1990s and into the first two decades of the present century is well documented (Karabarbounis and Neiman, 2014; O'Mahony et al., 2021; Guschanski and Onaran, 2021).

Precarious forms of employment have been around since the origins of modern industrial capitalism. In the 21st century new forms of precarious labour contracting facilitate labour flexibilisation. This can be seen in responses to both the global financial crisis of 2007-8 and the very recent COVID-19 crisis. Precarious employment has contributed to a more contemporary expression of divide-and-rule and the achievement of labour discipline. This paper examines how labour flexibility in the UK, and in particular the recent growth of gig work, has supported the current development of the monopoly capitalism and may contribute to downward pressure on labour share. The gig economy, and the wider growth of dependent self-employment, contributes to new forms of non-standard employment contracting. Supported by internet platforms such as those operated by Uber, Deliveroo, TaskRabbit and Amazon Mechanical Turk, these increase the ability of employers to match their labour demand to fluctuations in market demand.

The adoption of the digital technologies which support these platforms has allowed the creation of powerful monopoly operators who mediate and extract value in the relationship between service provider (often the gig worker) and customer. This has occurred over a period when official rates of unemployment have been low, and stable in comparison to the volatility observed in the 1970s and 1980s. In a famous paper Kalecki (1943) predicted that monopoly capital would lead to political business cycles. Periods of rising unemployment which discipline pay demands from workers would undermine the countervailing influence of organised labour and redress the balance of power in the struggle over functional income shares. The analysis in this paper implies that Kalecki's 'threat of the sack' is now being successfully adapted by monopoly capitalists, using new digital labour process management technologies, to facilitate hyper-flexible adjustment of labour input and pay rates. During the recent COVID-19 pandemic crisis workers in these groups have suffered first and more. This is because these groups can be made redundant almost at the click of a mouse and have been less well protected by government employment support funding (Adams-Prassl et al., 2020b; Blackburn et al., 2021; Fairwork, 2020).

Set in the context of Cowling's analysis of distributional conflict and through the lens of institutional theory, the purpose of this paper is to discuss the development of non-standard forms of employment. I argue that gig work based on digital platform technologies, as a particular form of non-standard employment, should be viewed as a recent manifestation of labour flexibilisation. I explore how the rise of platform technologies and gig working has presented new monopoly capitalists with opportunity to circumvent past institutional arrangements intended to protect the distributional position of workers. I argue that platform-based gig working represents an emerging world of labour hyper-flexibility and precarity

where labour input and pay are continuously adjustable, in turn contributing to downward pressure on labour share.

The paper is structured as follows. In the next section, I summarise key aspects of Cowling's analysis of monopoly capitalism, and, through the lens of institutional theory, the way institutional structures may attempt or fail to regulate distributional conflict. Labour flexibilisation has been used to weaken the bargaining power of organized labour. I then proceed, in section 3, to document the development of labour flexibilisation practices in the UK with a focus on the growth of precarious non-standard contracting and self-employment. In section 4 of the paper, I focus specifically on the development of technology-enabled gig work as a specific instrument of labour flexibilisation, exploring its scale and recent development in the UK. In section 5, I discuss the impact of the gig economy on employment contracting and the labour process and its wider economic and social implications. The final section provides an extended concluding discussion on the macroeconomic implications of the growth of digital platforms and gig working. I revisit the arguments set out in Cowling (1982) about monopoly capitalism and the macroeconomy and assess the impact of digital platform gig work for maintaining monopoly power and undermining distributional conflict.

2. Institutional arrangements and the regulation of distributional conflict in the UK

The key insight in Keith Cowling's work is that monopoly capitalism, as economic rent-seeking activity, has emerged to achieve a shift in the functional distribution of income towards profits, but entails self-defeating macroeconomic consequences (Cowling and Mueller, 1978; Cowling, 1982). This builds from the 'degree of monopoly' analysis of Michal

Kalecki (Kalecki, 1939; 1971), and the influential work of American political economists Paul Baran and Paul Sweezy (Baran and Sweezy, 1966), as well as the sophisticated but somewhat neglected analysis of Joseph Steindl on stagnation in mature capitalism (Steindl, 1952). Each of these were significant influences on the development of Keith Cowling's own analysis. A macroeconomic transmission mechanism from different degrees of monopoly to aggregate demand might occur, either through the declining profitability of investment (Kalecki, Steindl) or through under-consumption (Baran and Sweezy). Macroeconomic transmission may be influenced by the changing nature of institutional structures which govern the relationship between monopoly capitalists and workers.

Neoliberal economic policies, in promoting the reduction of state influence in markets through deregulation and privatization, have arguably downplayed or even ignored the supportive role of institutions in capitalist economies. Scott's well-known sociological formulation describes three important pillars of institutional support: regulative, normative, and cognitive (Scott, 2013). The regulative pillar is generally well understood in economics, and sometimes its importance is grudgingly admitted. It encapsulates here the extent to which public policy is willing and able to intervene to restrict the monopolistic and monopsonistic behaviour of capitalist organisations. The normative pillar (DiMaggio and Powell, 1991) speaks here to the extent to which societies can negotiate and enact values concerning the undesirability of activity intended to appropriate rewards from market power and the desirability of a particular distributional configuration. The cognitive pillar speaks to the level of wider political and social awareness about the extent to which market power-seeking behaviour in the economy is taken-for-granted or is contested (DiMaggio, 1997; George et al., 2006).

Powerful collective bargaining arrangements may have been one institutional means through which labour has been able to offset the impact of monopoly power on functional distribution shares, with some support in the UK context from past empirical studies (Cowling and Molho, 1982; Conyon, 1994). Recent research has attributed declines in labour share in part to reductions in collective bargaining power across the OECD (Gushanski and Onaran, 2021). Institutional arrangements may also seek to mediate conflict over the functional distribution by operating to negotiate compromise over how productivity gains are shared between capitalists and workers primarily through co-ordinated wage and employment bargaining. The operation of these institutions has in some contexts delivered macroeconomic stability and therefore employment levels, for example through tripartite, social corporatist pay bargaining (Henley and Tsakalotos, 1991; Pekkarinen et al., 1992). Such institutional arrangements can be viewed as co-ordinating and enacting a challenge to the political ‘taken-for-grantedness’ of inevitable capitalist ‘boom and bust’ cycles (Kalecki, 1943). However, they have never achieved significant traction in the UK because of co-ordination failures. Furthermore, the success of distributional conflict-management arrangements has been difficult to maintain in the face of relentless ‘cognitive-shift’ arising from globalisation and international economic integration, characterised by an increasingly transnational monopoly capitalism (Cowling and Sugden, 1987).

In the UK from 1979 onwards there was little pretence that conflict between globalised monopoly capital and workers over the functional distribution of income could be managed through regulation, institutions of negotiation or social norms. A programme of employment deregulation enacted by the Thatcher government (1979-1990) sought to shift the balance of bargaining power in the labour market. The key features of this shift in the strength of regulative institutions have remained in place, such that now the UK has shifted, to a greater

extent than in other European economies, towards a USA-style low wage, low job quality economy. The normative institutional strength of collective bargaining institutions, measured for example in union membership and density, has declined rapidly in the UK, particularly amongst private sector workers in the face of bargaining decentralization and an unfavourable wider institutional context (Schnabel, 2013). Two factors have perhaps mitigated these impacts. The first was an ambivalent commitment to common EU standards of employment protection, now under threat following Brexit. The second has been the introduction of a national minimum wage as a regulative feature, albeit with further subsidisation of low wages for monopsonistic employers through a shift towards in-work tax credits by the Blair-Brown government from 1998 onwards. However, as I discuss in more detail shortly, this second mitigation has been short-circuited by growth in precarious forms of employment, which restrict entitlement to employment protection, and use contracting with self-employed workers to avoid both employment and minimum wage protection. These, as I discuss later, have shifted normative understandings of the employment contract.

3. Labour flexibilisation and the rise of non-standard employment

The development of labour market flexibilisation policies, initiated in the UK from around the time of the publication of Cowling's *Monopoly Capital* (1982), can be viewed as a response both to increased globalisation and to heightened industrial conflict in the UK during the 1970s. Labour flexibility is multi-dimensional and is closely aligned to the parallel concept of labour market deregulation. In this section I describe labour flexibilisation and explain its connection with the development of monopoly capitalism. I argue that the growth of precarious forms of so-called non-standard employment are a more recent expression of flexibilisation.

Sustained assaults on conditions and quality of employment, as features of organisational development of monopoly capitalism, have been a consistent theme of debate since Braverman's pioneering polemic on flexibilisation and deskilling in the labour process (Braverman, 1974). If nominal wages are too rigid, labour input is a partly fixed cost and cannot easily be adjusted to demand conditions. Flexibilisation of the workforce is a response on the part of employers to this problem, allowing faster changes in labour input as market demand changes. In terms of Cowling's (1982) analysis, in the face of increased fixed costs of employment large employers will seek to identify immediate opportunities for maintaining their degrees of monopoly through offsetting increases in market concentration and collusive power. If these opportunities are limited, flexibilisation creates conditions under which it becomes easier to maintain the height of price-cost margins (and hence functional distribution shares) in the face of demand pressures. Price-cost margins are maintained through corresponding adjustments in marginal unit labour costs. These adjustments might take the form of downward pressure on wages or the seizing of opportunities to raise productivity, in turn ensuring that the greater share of the gains from productivity growth is appropriated by capitalists (Lewis, 2009). Workers will seek to resist the restoration of price-cost margins since this implies damage to real wages, but the effectiveness of resistance will depend on macroeconomic circumstances (Kalecki, 1943). Therefore, labour market flexibilisation policies have, as in the UK during the 1980s and 1990s, also entailed actions by the state to constrain the collective organizing strength of labour and overcome this resistance. But such actions have not been uniformly intense. In other European contexts tension has emerged between the neoliberal economic narrative of flexibilisation and normative political pressure to protect employment security (Crouch, 2012).

Flexibilisation is a multi-dimensional strategy (Beatson, 1995), implying freedom to adjust both the labour input and the real wage paid by employers for that input. Flexibilisation operates along both extensive and intensive margins (the number of workers and the productivity of those workers). Labour market institutional reform intended to lower employment protection rights or reduce redundancy compensation will act on the extensive margin through numerical flexibility over the short-term hiring and firing of workers. Other institutional reforms may also be deployed to increase flexibility at the extensive margin. Examples include reducing social protection costs (holiday pay, sick pay, pension entitlement) which contribute to hiring costs (Babecky et al., 2012). Along the intensive margin, human resource management strategies achieve functional flexibility by seeking both to increase work intensity and employee commitment, and to raise the prerogative of employers to redeploy workers across different tasks (Michie and Sheehan-Quinn, 2001; Bloom and Van Reenen, 2011). On the extensive margin, state-initiated reform to other institutional arrangements, such as those which regulate working time, might be required. On the intensive margin, employers might deploy technology to facilitate task deskilling or expect workers to acquire general skills or attributes (perhaps at their own expense) which can be deployed flexibly across different work activities (Michie and Sheehan, 2003). So flexibilisation seeks to reduce the ability of organized labour to squeeze the price-cost margins of monopoly capitalists by reducing labour's ability to protect real wage levels without incurring reductions in employment. While it may not be framed directly in these terms, labour market flexibilisation becomes a tool to protect the functional distribution of income in employers' favour.

There is a body of both macroeconomic and microeconomic evidence on the extent to which labour market deregulation has reduced wage rigidity, and on whether the scale of achievement is related to the nature of labour market institutions (Dickens et al., 2007; Panić,

2007; Arestis et al., 2021). In the UK evidence for microeconomic impacts at the level of a particular employer may be stronger, whereas evidence of aggregate real flexibility arising from labour market deregulation is less conclusive (Beatson, 1995). Recent UK evidence suggests that the demand for flexible working practices is driven by employers' desire to reduce labour costs (Adams-Prassl et al., 2020a). Growing wage dispersion, implying inequalities between secure workers and marginal hires, may also result from flexibilisation (Harrison and Bluestone, 1990). Labour flexibilisation coupled to financialization may have contributed to capitalist crisis, shifting the functional distribution away from labour (Tridico, 2012). Flexibilisation also has implications for the global division of labour as transnationals use supply chain offshoring of labour-intensive elements of production to reduce wage costs and squeeze labour share in traded sectors (Elsby et al., 2013).

A recent feature attracting the attention of researchers is the proliferation of non-standard or precarious forms of employment contracting in the labour markets of advanced economies (Kalleberg, 2011; Katz and Kreuger, 2019). This should be seen as a contemporary expression of flexibilisation since it allows employers to enhance their adjustment of labour input on both extensive and intensive margins. Non-standard employment includes temporary contracting (particularly for young and migrant workers), zero-hours contracts, self-employment and internet platform-based gig working. Established organisations may use these forms of employment alongside high quality jobs for permanent employees to maintain extensive margin flexibility, thus contributing to labour market duality. Platform-based businesses, to be discussed in more detail later, rely almost entirely on non-standard contracting. Precarity arises in various ways, including increased job insecurity, income volatility and loss of social protection. So, these various forms of employment are characterised by declining job quality across a range of domains. Although organisations such the

International Labour Office and the European Union promote formalized definitions, precise interpretations of what constitutes a good job vary. The labour flexibilisation debate has motivated related research on falling job quality grounded in psychological and sociological theory (Kalleberg, 2011; Burchill et al. 2014). This is adopted in wider debate surrounding the nature of capitalism and its impact on the work process (Gallie, 2007; Crouch, 2012).

The decline in job quality, associated with non-standard contracting, encompasses a range of aspects. Subjective indicators might include job satisfaction and perceptions of workplace relationships. They may reflect cognitive biases ('taken-for-grantedness' about what to expect from employment) and adaptive preferences (Brown et al., 2012). Objective indicators include pay and job security, as well as other independently observable aspects such as union representation, training opportunities and skills acquisition, and health outcomes (Wood et al., 2019; Farina et al., 2020). There is significant evidence to support the view that, as the use of flexible forms of job contracting has grown, measures of objective job quality have fallen (Farina et al., 2020; Green et al., 2013; Berloff et al., 2019).

Job insecurity under non-standard contracting is a key aspect of poor job quality. The growth of a secondary labour market of insecure employment provides labour demand flexibility for employing organisations (Katz and Kreuger, 2019). One notable group of workers exposed to high levels of job insecurity are the dependent self-employed, forced to into freelancing work and dependent on sequences of short-term *de facto* contracts with single clients (Böheim and Muellburger, 2009; Williams and Horodnic, 2018). Because they are self-employed, they do not enjoy rights to a wide range of social protections including holiday and sick pay and employer-funded pension benefits. They can therefore be hired at reduced cost to those employers. International data on the growth of solo self-employment is consistent with

this and may provide evidence for the impact of demands for greater functional and numerical flexibility and for wage moderation from employers (Boeri et al, 2020).

Numbers of self-employed in the UK increased from almost 2 million in 2000 to more than 5 million just prior to the COVID-19 pandemic (ONS, 2020; Meager, 2019). Between 2004 and 2019 self-employment in the UK grew from 12.7% to 15.3% of those working, as shown in Figure 1. However, a sharp fall in self-employment has been recorded since the onset of the pandemic. It is too soon to know if numbers will recover quickly. Figure 1 also shows that the proportion of the self-employed who work solo (i.e., without employing others) grew from 75% of the self-employed total in 2004 to 85% in 2020, peaking at 13% of the total workforce in 2019.

The use of non-standard contracting and dependent self-employment forms an employer tactic to circumvent social protection responsibilities (Román et al., 2011; Williams and Horodnic, 2019). Employers, particularly those using internet platforms, who have imposed non-standard contracts on their workforces have encountered legal challenge (Adams-Prassl et al., 2021). The 2017 Taylor Review in the UK recommended the establishment of ‘dependent contractor’ as a formal category in employment law, alongside other proposals to improve employment security and wider well-being (Taylor, 2017). Furthermore, the operation of HM Revenue and Customs IR35 tax regulation has restricted the extent to which some workers can be classed as self-employed and the ability of employers to reduce wage costs by evading social insurance contributions.

Figure 2 charts different measures of labour share since 1980 to show the impact of self-employment. The conventional measure of employee compensation as a share of GDP

(‘unadjusted compensation share’) is the middle series, shown by the dotted line. However, this measure does account for the labour income of the self-employed. Using the method proposed by Sidhu and Dunn (2018), the ‘adjusted compensation share’ series, shown by the solid line, imputes self-employment income by allocating the mixed household income national accounting aggregate in proportion to the ratio of labour income to the sum of labour income and gross profits of corporations. Finally, the lowest dashed line performs the same adjustment of self-employment income to the share of wage and salaries. The growing wedge between the two adjusted series on the top and the bottom of the figure shows the rising share accounted for by labour costs not paid directly as wages and salaries (i.e., social insurance and pensions). Those growing numbers of self-employed up to 2019, as seen in Figure 1, benefited far less if at all from these rising non-wage labour costs.

Has this growth in solo self-employment impacted on the ‘decoupling’ of worker remuneration from productivity gains and therefore on the functional distribution in the UK? One recent study provides evidence to show that it has (Teichgräber and Van Reenen, 2021). This evidence takes two forms. The first is that the real hourly income of the average solo self-employed UK worker grew by only 50% over the period from 1981 to 2019 with all that growth occurring before 2001, compared to 80% average growth for the employed. The second is that since 1997 the self-employed have experienced a fall of up to 21% in average weekly hours worked, compared to a fall of only 2% for employees. Both features point to greater flexibility in self-employment as a labour input, with implications for the functional distribution. Teichgräber and Van Reenen construct a further hypothetical measure of labour share to ask what would have happened to adjusted labour share had the self-employed enjoyed the same rate of growth in hourly income as the employed over the past 40 years. The answer is that the adjusted UK labour share (shown in the solid line in Figure 2) would have been around two

percentage points higher by 2019, at almost 56% of GDP. The implications here are clear – rising self-employment has firstly allowed a squeeze on labour’s share, and secondly increased the fraction of workers who obtain fewer future benefits from the growing distributional ‘wedge’ accounted for by rising non-wage employee compensation.

4. Platform technologies and gig working as a manifestation of flexibilisation in the UK

Forms of flexible and non-standard contracting have been facilitated by innovation, particularly through use of digital technologies. The issue of the wider relationship between flexibilisation and technology is a matter of debate. In this section I summarise debate on the connection between technology and flexibilisation and examine, supported by UK evidence, the development of hyper-flexible gig working linked to digital platform organisations.

Downward pressure on real wages from flexibilisation may reduce general levels of innovation. Kleinknecht (1998) develops two alternative lines of reasoning to support this prediction. The first is a Schumpeterian argument that reduced wage pressure shelters low productivity, less innovative firms and reduces the force of creative destruction towards new technology adoption and productivity enhancement. Because of reduced relative labour costs firms have less incentive to shift towards more capital-intensive technologies. The second is a demand-led or stagnationist argument, in the spirit of Kalecki and Steindl, which proposes that weaker effective demand resulting from lower real wages reduces the demand for innovation. Several firm level studies in a range of national contexts, including that of the UK, support a negative association between flexibility practices and innovation activity at the firm level, particularly for radical innovation (see for example Michie and Sheehan, 2003; Beugelsdijk, 2008; Zhou et al, 2011). While these findings may remain generally valid, radical innovation

in digital process technologies has provided direct opportunities for organisations to manage numerical and functional labour flexibility more effectively. In some cases, innovation has been extremely effective in placing new service platforms at the point of monopoly-monopsony nexus between workers and consumers. The term gig economy is now in common usage to describe workers, often self-employed, who obtain work through the disruptive technology of internet platforms operated by organisations of considerable scale and geographical reach (Webster, 2020; Woodcock and Graham, 2020). Recent persuasive evidence for the impact of digital technologies on the functional distribution of income is provided by O'Mahony et al. (2021). Examining firm-level data across OECD economies, these authors conclude that, while innovation in general is associated with improvements in labour share, growth in intangible assets related to firm organisation accumulated through the deployment of information and communications technologies has squeezed labour share. This is especially so for low and intermediate skilled workers, pointing strongly to the likely distributional impact of the gig economy.

The gig economy is characterised by its heterogeneity. In the case of geographically tethered gig work, the platform matches a service consumer with a supplier at a specific place and time. Examples include hire taxi hailing (e.g. Uber), fast food delivery (e.g. Deliveroo, see Cant, 2020), domestic maintenance services (e.g. TaskRabbit). Geographically untethered gig work takes the form of microwork tasks or freelancing which might in principle be undertaken for a client by a worker both anywhere on the planet (e.g. PeoplePerHour and Amazon Mechanical Turk). Wages usually comprise variable piece-rate payments based on completion of tasks. In case of geographically tethered work no pay may accrue whilst workers wait for assignment of tasks. Selling platforms such as Amazon, Ebay and Etsy might also encourage non-standard employment, through facilitating small scale commission earning work, albeit

with higher levels of worker autonomy. What these different platforms have in common is that their operators have quickly created both transnational monopoly and monopsony power in their sectors of focus. This is through the deployment of software with the potential to generate enormous indirect network economies of scale in matching supplier of labour to customer (Adams-Prassl et al., 2021). Digital platforms have significant implications for labour flexibilisation. Functional flexibility is enhanced for employers through the division of work into micro-tasks ('gigs'). Numerical flexibility is enhanced through encouraging additional workers to register on the platform and compete for work. Wage flexibility can be maintained through a range of tactics, such as surge pricing where piece rate payments adjust to market demand at a particular time or place or both. International evidence reveals that the development of platforms has encouraged traditional employers to outsource employment (Corporaal and Lehdonvirta, 2017; Drahokoupil and Piasna, 2019).

Measuring the scale of gig working is far from an exact science. Any definition fits uneasily into standard occupational or industrial classifications and straddles the boundaries between waged employment and self-employment (Coyle, 2017; Abraham et al., 2019). UK survey data from 2017 suggests that much of the growth in internet platform working arose as part-time activity ('side hustles') by multiple job holders, seeking to supplement low pay in traditional employment (BEIS, 2018). At the time of survey, BEIS (2018) estimated that 2.8 million UK workers (4.4% of the population) had engaged in the gig economy in the previous year. Other survey-based estimates of the extent of gig working in the UK from around the same time were more cautious, estimating 1.6 million gig workers (3% of all workers over 15 years old) (Balaram et al., 2017). A more recent survey-based estimate, adopting a wider definition of gig working, suggests rapid recent growth in the UK, with almost 10% of workers engaged in the gig economy by 2019 (Huws et al., 2019). A wider understanding of the likely

development of the gig economy can be gained from employment data for occupations and sectors where freelancing or platform working is most prevalent. Various analytical approaches can be found, which in turn suggest some variation in the relative size of the gig economy across countries (Eichhorst et al., 2016), with the UK towards the upper end of the range.¹

Figure 3 charts the growth of the gig sector employment in the UK since 2004 computed using data from the official Annual Population Survey. My approach, following Kitching (2015), is to calculate numbers of waged employees and self-employed in eight 3-digit occupational categories where gig working is likely to be significant (see note to Figure 1 for details). The chart shows steady growth in numbers of both employed and self-employed in these sectors. Between 2004 and 2019 numbers of gig sector waged employees increased by 34% to 2.55 million workers, and numbers of gig sector self-employed by 35% to 1.55 million workers. On the eve of the COVID-19 pandemic it is therefore estimated that there were 4.1 million workers in gig sectors. One feature of the chart is the temporary fall in gig sector workers during the global financial crisis, particularly amongst those who were employed. This illustrates the way in which short term employment flexibility may have hit gig workers harder through the crisis. The data suggest that this feature was repeated in the first year of the COVID-19 pandemic, a point explored further below.

Table 1 provides a more detailed breakdown of gig sector workers from the 2009 and 2019 UK Annual Population Surveys. This choice of years covers the period of recovery from the 2007-8 global financial crisis to the year before the impact of the global coronavirus crisis. During this period there is also consistency in survey questionnaire methods and items. In 2019 14% of the five million self-employed in the UK were freelancers. This share had risen sharply from 8% in 2009. A further 5% were sub-contractors. Taken together these two groups may

provide indication of the scale of dependent self-employment, although the sole trader category may include other dependent contractors. Gig occupations as defined here account for 1 in 11 employees. However, they account for almost a third of the self-employed, at over 1.5 million individuals, with an increase of over 400,000 since 2009. A further 59,000 waged employees and 136,000 self-employed undertook second job activity in gig economy occupations, accounting for 8.9% and 27.2% of all second job holders in each group. There was significant growth in both levels and proportions of waged and self-employed second job gig workers between 2009 and 2019. Table 1 also shows that many of the self-employed in gig occupations have no fixed place of work (643,000 in 2019). A further one in five of the self-employed in gig occupations in 2019 work from home, a proportion that increased significantly after 2009. The lack of a separate workplace may contribute to a sense of precarity (Woodcock and Graham, 2020). Further analysis, drawing on the coding of questions about the use of information technology, reveals that 83% of home-based gig economy workers could not work without access to a phone and computer. So, while gig working affords very high levels of flexibility to organisations who commission work, gig workers themselves may have high skill levels, with a need for the resources to access digital technologies.

We noted earlier that self-employed in the UK have not enjoyed the same level of growth in hourly earnings as the employed over the past 40 years. A related question is whether gig working is poorly paid. Direct evidence on this from official survey data is more difficult to obtain.² Table 2 reports our own tabulation of average after-tax hourly earnings and weekly hours using data from the Understanding Society UK household longitudinal survey, conducted annually since 2009/10. Employees in gig sector occupations and both employees and solo self-employed in non-gig occupations experienced some growth in (nominal) hourly earnings over the ten-year period to 2018/2019. The striking finding here is that the solo self-employed

in gig occupations experienced a fall in average nominal earnings of over 12 per cent, while over the same period working on average 3 per cent more hours. By contrast solo self-employed in non-gig sectors saw their earnings increase and hours fall. The pay of self-employed gig sector workers is the lowest across the groups and is lagging further behind over time, with hours rising to mitigate this. This finding is consistent with the argument that those with non-standard employment contracts working in sectors where platform working is most prevalent have suffered most from the impact of flexibilisation on pay. It is also consistent with other international evidence on the impact of non-standard contracting on earnings (for example Katz and Krueger, 2019).

What about the experience of non-standard contract workers and gig workers during the COVID-19 pandemic in the UK? Because of furlough scheme protection, job losses for those on standard contracts were limited. For those on non-standard contracts with little or no furlough protection employment levels could be adjusted more flexibly. The self-employed were not as well protected (particularly if they did not meet qualifying criteria for Self-Employed Income Support Scheme payments). It is therefore not surprising that this group were hardest hit by increases in insecurity and loss of employment (Blackburn et al., 2021). Between 2019 and 2021 total UK self-employment fell by over 750,000 (ONS, 2022b). For gig workers the picture was more nuanced, although hard evidence is limited. Figure 3 suggests overall a large negative impact. Some gig activities, including parcel and fast-food deliveries experienced large increases in demand from consumers, reflecting shifts in behaviour which may become permanent. Labour supply, released from other areas of work and facilitated by platform systems which flex capacity very easily, may have increased to meet this demand. Gig workers engaged in non-geographically tethered activity, where work could be done remotely, may also not have experienced such significant loss of labour demand. The

availability of work in other geographically tethered gig activities may have risen in volatility in response to changing social distancing restrictions, provoking some reassessment of employment practices (Katta et al., 2020).

5. The wider economic and social implications of platform working

Gig working raises important questions about the nature of the labour process and of the point of production where managerial control is enacted (Gandini, 2019). Piece-rate payments directly incentivise workers to deliver intensive margin flexibility, by forcing difficult choices on how intensively to work (Cant, 2020). Global positioning service (GPS) and internet technologies are also used to manage the labour process by monitoring work intensity and removing agency when working in a so-called ‘digital cage’ (Vallas and Schor, 2019). While gig work is facilitated by digital technologies, its development has wider economic and social implications (Woodcock and Graham, 2020).

First, the development of business models based on digital platforms has sharpened contested understandings of the nature of organisations such as Uber and Amazon. Central to a recent UK Supreme Court judgment was the question of whether Uber is a taxi firm or an internet site (Uber BV and others v Aslam and others, 2021). In terms of Scott’s cognitive institutional pillar theory, has the development of digital platform business changed the way customers and workers frame their relationships both with the organisation and with each other? Answers to this question have implications for how the nature and scope of these firms may be at variance with their formal legal definitions. For example, who does the consumer blame and who should the consumer blame if their pizza delivery arrives late and cold?

Second, as already noted, platform businesses have generated contested normative understandings of the employment contract (Adams et al., 2018). The growth of gig work and of non-standard employment contracting more widely is consistent with the steady evolution of extractive institutional structures (Acemoglou and Robinson, 2012). These structures are designed to increase both numerical and functional labour flexibility on both the extensive and intensive margins of labour demand. Gig work is both sustained by and in turn has enhanced normative and cognitive institutional pillars constructed around a contested narrative concerning the nature of self-employment. Should the self-employed be regarded as micro-entrepreneurs or as employees with insufficient regulative protection? This connects to a wider taken-for-grantedness concerning the social desirability of micro-entrepreneurship (Shane, 2009). Flexible workers have unwillingly become the new entrepreneurs, engaged in activity now normatively accepted as intrinsically desirable regardless of its implications for the wider distribution of rewards.³ Failure is one's own fault. In assessing the view that in 'cognitive capitalism' society has become in its entirety a factory (Mason, 2016), Branko Milanovic states that "(w)e have each become a small centre of capitalist production, assigning implicit prices to our time, our emotions, and our family relations" (Milanovic, 2019, p. 195). The forcing of gig workers into self-employment serves to transfer risks. These include the risks attached to the worker's own purchase of necessary capital equipment (taxis, IT equipment etc.), the risks to work and earnings volatility from piece-rate payment systems, and the risks associated with lost rights to social protection. In each case cost is pushed from employer to employee, therefore enabling profit extraction.

Third, gig work entails changes to the labour process through new forms of managerial control (Gandini, 2019; Webster, 2020). A paradox here is that, while gig workers may bear the risks described above, they do not enjoy levels of decision-making autonomy enjoyed by

independent business owners. In fact, their degrees of autonomy may be lower than those enjoyed by employees with standard contracts. Lower autonomy is imposed by the development and application of digital technologies which monitor work process, in a Fordist manner, wherever and whenever the worker is located within reach of a GPS or mobile phone signal. It is therefore unsurprising that expectations of improved job quality held by the recently self-employed may be unrealised (Georgellis and Yusuf, 2016; Henley, 2021). On-line reviewing and rating systems compound the issue further, operating as a new form of divide-and-rule which pits workers against each other potentially subverting the Kaleckian political business cycle mechanism. The future use of blockchain technologies to provide digitally secure experience rating of workers may further the scope for greater flexibilisation, reduce the value to the employer of employment tenure and firm-specific human capital, and hasten the organisational transformation of monopsonistic employers. In short digital technologies offer the prospect of eliminating the need for firm-specific human capital beyond core employees. These developments may shift the balance of distributional conflict under monopoly capitalism. The ability of gig workers to organize and resist is constrained. Evidence of successful resistance is limited even in circumstances where geographically tethered work permits the development of in-person workplace organisation.⁴ Collective organisation is very difficult for geographically untethered gig workers, who face significant hurdles in just identifying each other.

These wider economic and social considerations have implications for labour market regulation, although the regulative institutional domain is also contested ground. This is illustrated in various recent legal cases and reports (Taylor, 2017; Balaram et al., 2017). The issue of absence of employment and social protection alongside the absence of autonomy was explicit in the Uber UK supreme court judgement. The Court stated that “the inability to offer

a distinctive service or to set their own prices and Uber's control over all aspects of their interaction with passengers – mean that they have *little or no ability to improve economic position through professional or entrepreneurial skill*" (Uber BV and others v Aslam and others, 2021, p. 31, own emphasis).

The regulation of market power is also an important concern. Market monopolisation arising from indirect network economies of scale in the operation of digital platforms has thus far escaped the attention of national and supra-national competition authorities. Because platforms are increasingly transnational in operation and may be headquartered in low regulation, low tax havens, effective use of existing anti-monopoly regulation is challenged. This is a new manifestation of the transnational dimension to monopoly capitalism originally identified by Cowling (Cowling and Sugden, 1987).

6. Concluding discussion: digital platforms, flexibilisation and monopoly capitalism

The adoption of digital platform technologies and their impact on labour process should be set in the broader context of the long-term impact of automation and technological change. The traditional neo-classical view of capital-using technological process is that, while potentially causing the direct displacement of jobs, it will raise productivity and lead in general equilibrium to economic growth and increased aggregate demand. Even Keynesians have traditionally been optimistic that technological progress need not lead to any long-term movement in factor shares away from labour (Kaldor, 1957) – an optimism not borne out in experience. Disaggregated analysis, using industrial sector data for the United States since 1970, reveals that productivity improvement in sectors experiencing rapid technological change, while augmenting employment in lower productivity sectors, has displaced labour

share in aggregate (Autor and Salomons, 2018). This is an important conclusion which points to the aggregate impact of the growth of digital platforms and gig working.

An important theme in Keith Cowling's work was the relationship between industrial strategy and the macroeconomy. This focused particularly on issues of the structure and governance of large organisations and their ability to exercise national and transnational influence over macroeconomic strategies. Their ability to influence the labour market and indirectly influence the macroeconomy was perhaps under-developed in Cowling's later work, despite the clear recognition of this possibility in Kalecki (1943). There are two themes worthy of further research. The first is the question of labour market discipline. Kalecki's view was that political business cycles would be inevitable, as towards the peak of each cycle monopoly capitalists would demand macroeconomic deflation to increase unemployment and mitigate upward pressure on labour share from inflationary wage demands. Ambivalence towards Keynesian stop-go policy would be a manifestation of this (Cowling, 1982). In the UK in particular the development of labour flexibilisation has reduced inflationary pressure on real wages without resort to the socially damaging levels of unemployment observed in the deep jobs' crises of the 1930s and the early 1980s. Non-standard contracting and gig working facilitated by the growth of digital platform technologies should be investigated further as a manifestation of a new regime in which discipline over the functional distribution of income can be achieved through underemployment and insecure employment rather than mass joblessness. This is because gig workers are numerically hyper-flexible. Their labour input can be adjusted to fit current demand conditions in the limit down to the last second, with zero adjustment cost to the employer. The existence of this body of precarious workers not only provides labour input flexibility but arguably also serves as a discipline mechanism on those in the more secure core organisational labour force – if they push too hard for real wage

increases, more work will be sub-contracted to the precariat. An implication of this is that gig working may adjust pro-cyclically.⁵

The second theme is the need to return to the drivers of investment and aggregate demand. Cowling's view was that creation of monopoly power (through mergers or establishment of dominant firms) would create excess capacity, so reducing investment requirements and profit realization (Cowling, 1982). His account spanned both falling return on investment (Kalecki, Steindl) and stagnating consumer demand (Baran and Sweezy) as cumulative causation explanations for difficulties in the realization of profits under monopoly capitalism. In the Kalecki and Steindl analyses of macroeconomic dynamics in oligopolistic industrial capitalism, price rigidities allow successful firms to achieve higher profit margins (Kalecki, 1971; Steindl, 1952). However, the emergence of unplanned excess capacity reduces the attractiveness of further investment and leads in due course to stagnation of effective demand. Because digital platforms acquire market dominance from network economies, rather than traditional economies of scale, they have in consequence become highly effective at driving other businesses from their market sectors. Network economies may be acquired at lower resource cost compared to conventional economies of scale in physical productive capacity. Platform-based business models are, however, limited in potential scope, and traditional scale economies allied to standard employment relationships are likely to remain important in many sectors. In some sectors network economies do create enormous barriers to entry, consistent with the recent emergence of global superstar firms (Autor et al., 2020). Capacity is not at issue – increased data storage or processing capacity can be added at relatively little cost, and therefore can be left underutilised at almost zero marginal cost. Investments in capacity are become the decisions of individual workers. The costs of unplanned excess capacity fall on the hyper-flexible individual gig worker, for example in the form of

taxis or parcel delivery vehicles sitting around waiting for fewer customers, or gig workers competing for less frequent incoming work assignments. Both the risks of under-utilised investments and of lower effective demand are borne by gig workers themselves rather than by digital platform employers. The latter continue to chase monopoly profit margins through adding more buyers and sellers to their networks, while using flexibilisation to drive down labour costs. Only in this risk-bearing sense are gig workers like micro-entrepreneurs.

If the size of the gig economy grows relative to the traditional economy, underemployment issues are likely to become worse and might in due course impact aggregate demand, as rising unemployment might in the past. This should be the subject of future research. How far the COVID-19 pandemic has led to permanent changes in patterns of gig working perhaps because of a permanent shift in use of the internet as a sales channel is also a question for future research.⁶ A key question for the longer term is whether new digital technologies are sufficient to restore levels of innovation and restore capacity utilization and profit rates in oligopolistic markets? Platform technologies create significant digital assets but may suppress fixed capital investment by allowing labour intensive service activities to sustain operations with low capital-labour ratios. They may therefore contribute to low investment rates and problems for future realization of profits. These are important questions for future investigation which, in the spirit of Keith Cowling's original analysis, need to be approached rigorously and empirically.

Gig working has normalised, normatively and cognitively, a narrative around the desirability of worker autonomy. Arguably this autonomy is false since gig working and dependent self-employment carry many of the negative features of micro-entrepreneurship and few of the alleged positives. However, the development of effective regulation and governance

of the gig economy has proved challenging. Attempts to regulate gig worker contracting through policy intervention have so far been largely ineffectual. On the other hand, legal challenge has met with success (Uber). Such challenges may serve to impose minimum wage standards and social protection entitlement, such as the payment of the Living Wage, but only when working rather than being present for work. The ability of gig workers to organise and exercise countervailing collective bargaining power is very restricted. There is good reason therefore to think that continued growth in gig working will advance labour flexibilisation, circumvent conflict over the functional distribution of income, and lead to downward pressure on labour share.

Footnotes

¹ One new approach to measuring the scale of the gig economy is via real-time ‘data scraping’ of internet platform sites (Kässi and Lehdonvirta, 2018; see also <http://ilabour.oii.ox.ac.uk/online-labour-index/>). These data tend to confirm estimates derived from official labour force surveys.

² Earnings information is not collected in the Annual Population Survey used to provide the analysis in Table 1. The ONS Annual Survey of Hours and Earnings provides detailed UK statistical information on earnings in employment but excludes the self-employed. The annual Family Resources Survey does cover the self-employment but does not release sufficient detailed occupational information to researchers.

³ Research from the United States suggests that the growth of the gig economy may have crowded out genuine entrepreneurial activity (as measured by crowdfunder campaigns) but that this crowding-out has been of lower quality or ‘necessity’ entrepreneurial activity (Burtch et al., 2018).

⁴ See Cant (2020) on the experience of Deliveroo workers in the UK.

⁵ Evidence on the cyclical nature of wider measures of self-employment is mixed – aggregate level studies have tended to support counter-cyclical nature (‘necessity’ self-employment) whereas micro-level studies suggest pro-cyclical nature (‘opportunity’ self-employment) (Henley, 2017; Parker, 2018)

⁶ The proportion of retail sales by value made online rose from 19.4% in January 2020 to 36.1% in January 2021 (source: ONS, 2022c).

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Table 1: The scale of UK gig economy in 2009 and 2019

	2009				2019			
	Total	Place of work			Total	Place of work		
thousands		Separate place	Home working	No fixed place		Separate place	Home working	No fixed place
Employed	25,084	23,615	489	935	27,553	25,618	837	1,033
Self-employed (%)	3,839 (13.3%)	1,563 (6.2%)	767 (61.1%)	1507 (61.7%)	4,973 (15.3%)	2,229 (8.0%)	1,106 (56.9%)	1,631 (61.2%)
Of which (%)								
Employer or partner	21.4%	32.2%	14.7%	9.4%	15.0%	18.8%	9.3%	7.5%
Sole trader	65.7%	53.0%	79.5%	79.0%	65.8%	56.1%	82.3%	80.2%
Sub-contractor	5.0%	5.5%	0.7%	5.8%	5.3%	5.3%	1.3%	5.0%
Freelancer	8.0%	9.3%	5.1%	5.9%	13.9%	12.3%	7.1%	7.4%
Gig economy occupations – main job employees (% of all employed)	1,733 (6.9%)	1,571 (6.7%)	30 (6.2%)	126 (13.5%)	2,550 (9.3%)	2,275 (8.9%)	121 (14.5%)	146 (14.2%)
Gig economy occupations – second job employees (% of all employed with second jobs)	43 (5.9%)	35 (5.5%)	2.2 (6.0%)	6.1 (11.5%)	59 (8.9%)	50 (8.9%)	1.4 (3.4%)	7.7 (8.9%)
Gig economy occupations – main job self-employed (% of all self-employed)	1,109 (28.9%)	404 (25.9%)	81 (10.5%)	624 (41.5%)	1,553 (31.3%)	697 (31.3%)	207 (18.7%)	643 (39.5%)
Gig economy occupations – second job self-employed (% of all secondary self-employment)	85 (20.6%)	66 (20.9%)	5.7 (15.7%)	13 (21.2%)	136 (27.2%)	108 (28.8%)	10 (19.3%)	18 (24.6%)

Notes: author's own estimates from 2009 and 2019 ONS Annual Population Survey (APS) (ONS, 2022a), gross numbers obtained from APS population weights. Gig economy occupations defined, following Kitching (2015), as 2010 Standard Occupational Classification codes 213 (IT and technical professionals), 222 (Therapy professionals), 247 (Media professionals), 341 (Artistic, library and media occupations), 344 (Sports and fitness occupations), 531 (Construction and building trades), 532 (Building finishing trades), 821 (Road transport drivers). Reference category for place of work is separate premises (not listed). Percentages may not sum consistently due to missing information in a small number of survey cases.

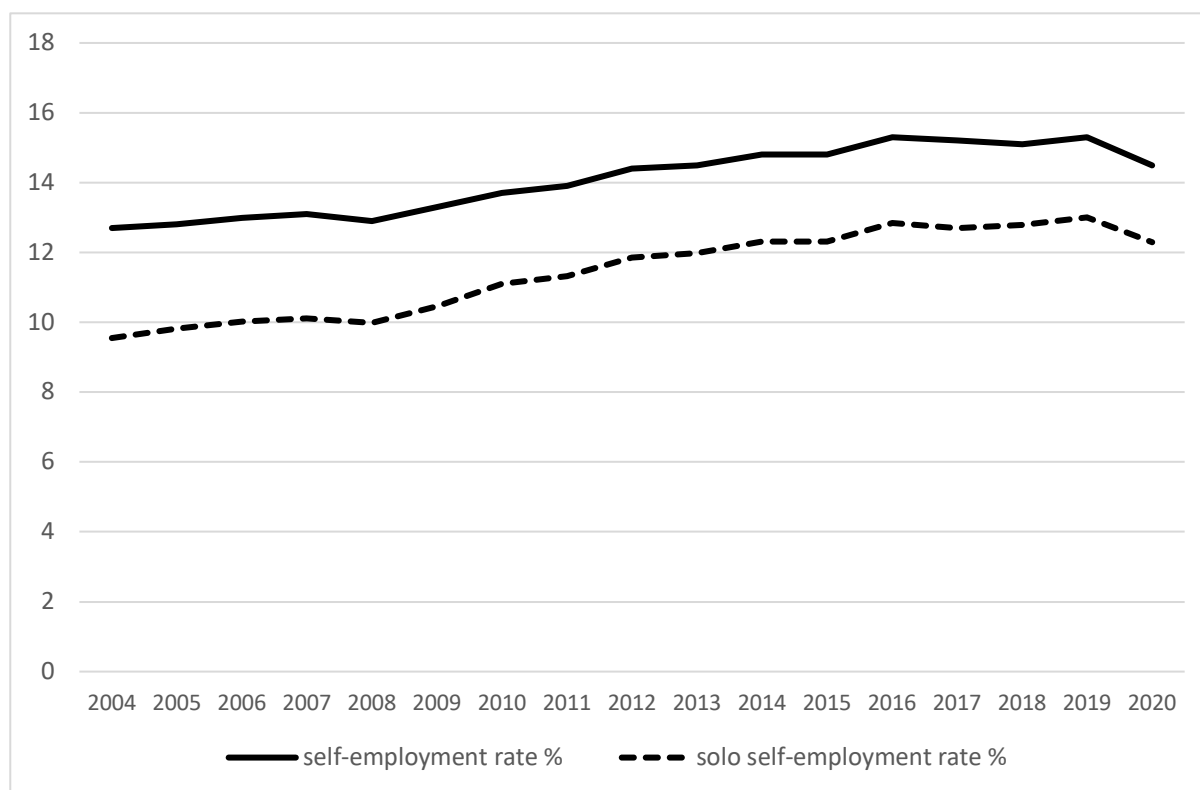
Table 2: Average hourly earnings and hours worked by gig occupation and employment type in the UK

	Average hourly earnings			Average weekly hours		
	2009/2010 to 2011/2012	2016/2017 to 2019/2019	% change	2009/2010 to 2011/2012	2016/2017 to 2019/2019	% change
Gig occupational sector						
Employee	£10.68	£12.50	17.1%	36.9	36.3	-1.7%
Solo self-employed	£9.16	£8.06	-12.1%	35.7	36.8	3.1%
Non gig occupational sector						
Employee	£10.25	£10.73	4.7%	32.9	33.0	0.1%
Solo self-employed	£10.91	£12.11	11.0%	32.2	29.9	-7.0%

Source: author tabulation using Understanding Society UK household longitudinal survey data (University of Essex, Institute for Social and Economic Research, 2022).

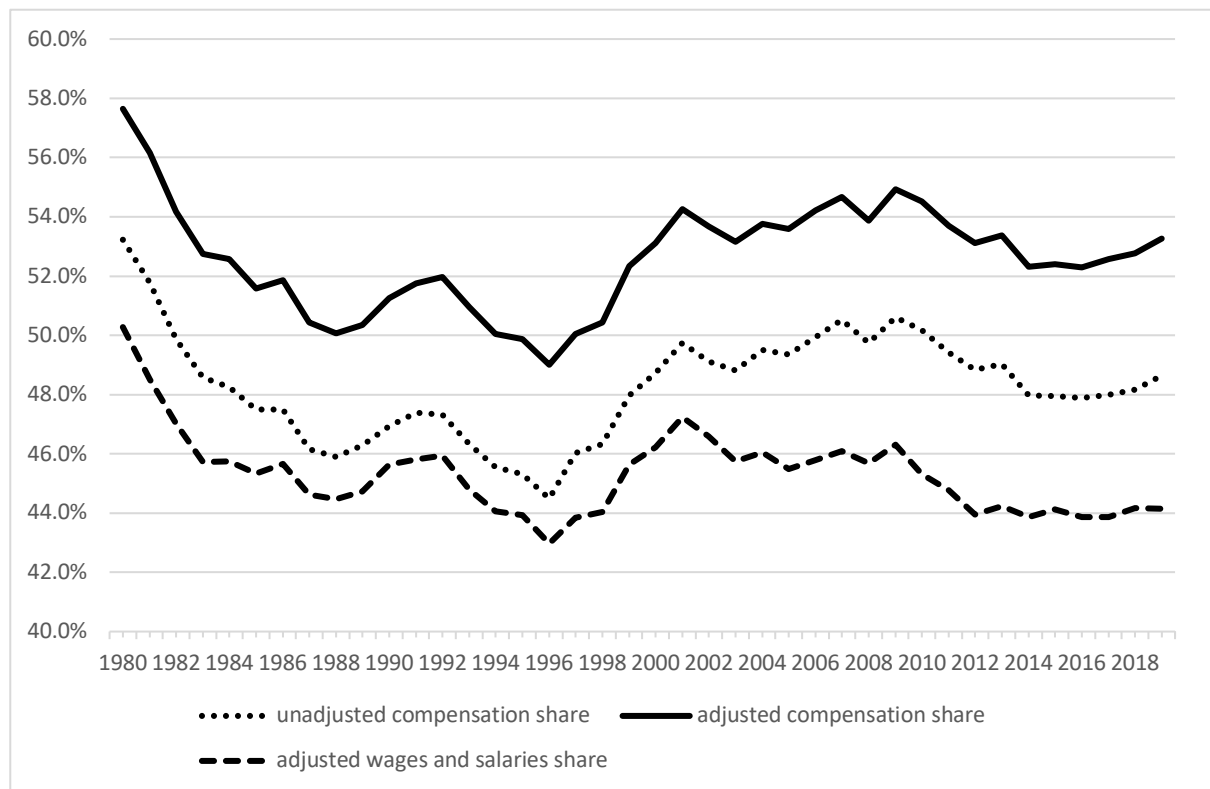
Notes: Gig occupations defined as in Table 1. Three survey wave averages. Sample size over ten survey waves of 117,300 individual-year observations. Self-employment earnings trimmed to remove top and bottom 5% of sample. Survey individual cross-section population weights applied.

Figure 1: Self-employment in the UK



Source: author's own calculations from UK Annual Population Survey (APS), 2004-2020 (ONS, 2022a). Notes: Percentages of total workforce. Survey estimates grossed using from APS population weights. Data refer to main job. Solo self-employed are sole-traders, freelancers and sub-contractors combined. 2020 data are annual estimates for October 2019 to September 2020.

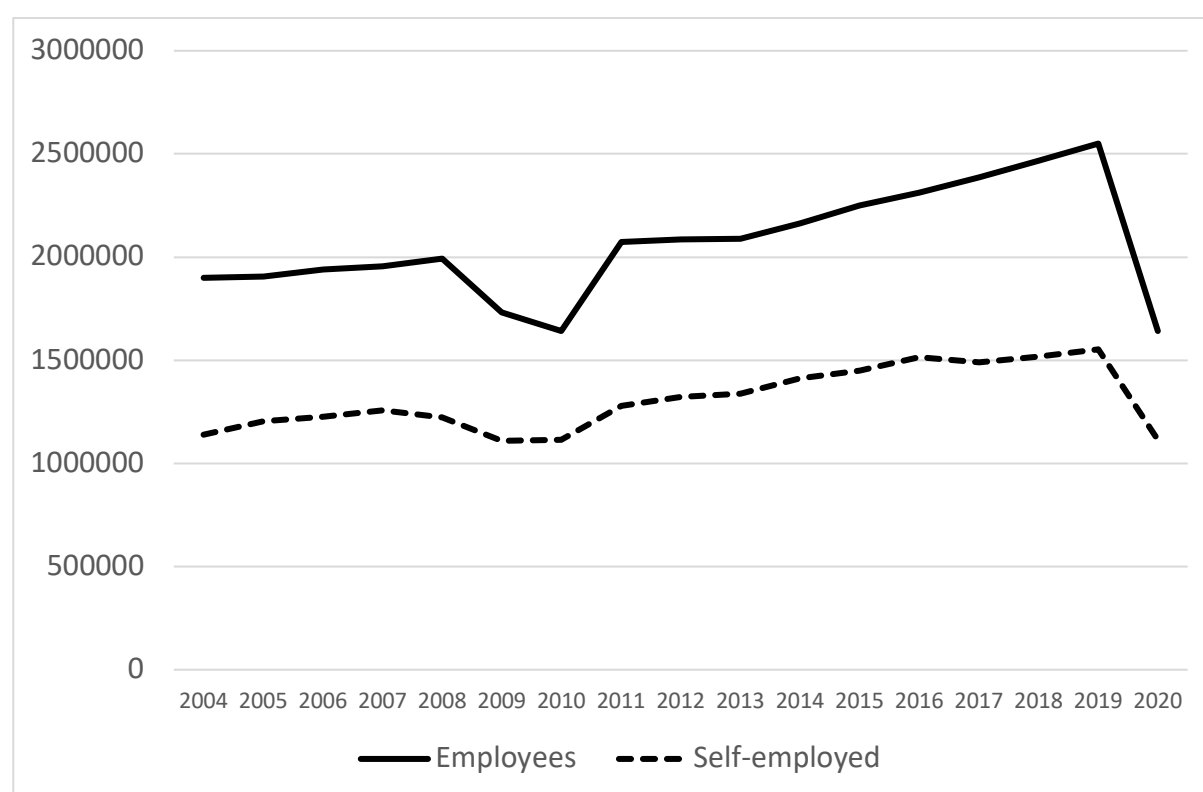
Figure 2: Labour share in the UK since 1980



Source: Author's own computations using various UK Office for National Statistics macro-economic time series.

Notes: Unadjusted compensation share is compensation of employees as a percentage of GDP. Adjusted compensation share includes an estimate of self-employment income as described in Sidhu and Dunn (2018, Table 1, 'method 5'). Adjusted wages and salaries share is the share of wages and salaries similarly adjusted for self-employment income.

Figure 3: The growth of employment in gig economy occupations in the UK



Source: author's own calculations from UK Annual Population Survey (APS), 2004-2020 (ONS, 2022a). Notes: Survey estimates grossed using from APS population weights. Data refer to main job. Gig economy occupations defined, following Kitching (2015), as 2010 Standard Occupational Classification codes 213 (IT and technical professionals), 222 (Therapy professionals), 247 (Media professionals), 341 (Artistic, library and media occupations), 344 (Sports and fitness occupations), 531 (Construction and building trades), 532 (Building finishing trades), 821 (Road transport drivers). 2020 data are annual estimates for October 2019 to September 2020.