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Welsh productivity performance: lost cause or still waiting for a miracle?

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Abstract

Wales has a chronic and severe problem of low productivity, and shares with the wider UK two decades of stagnant productivity. Significantly, Wales has a severe and persistent productivity gap with other UK nations and regions, and with other international competitors. The aim of this paper is to give an overview of the issues together with some analysis of both the Welsh productivity gap and the intra-Wales dispersion of productivity. The paper describes potential macro and micro productivity drivers and argues that there is an urgent need to (re-) promote productivity within Wales as a policy objective.

Introduction

Critics argue that productivity does not matter because it implies too strong a focus on gross value added (GVA), or at the aggregate level the equivalent metric of gross domestic product, as an appropriate indicator of societal well-being. Calafati et al. (2023), for example, dismiss those who focus on productivity/GDP as 'techno-centrists' wedded to a measurement concept no longer fit for purpose. This is a profoundly mistaken view for two reasons. The first is that productivity is not an indicator of societal well-being, although it may correlate with other indicators especially financial ones. Productivity is a measure of business performance and therefore in aggregate measures economic performance in the private- and public-sector supply of goods and services. Businesses below the productivity frontier, whether in technology-driven or so-called 'foundational' sectors, are less competitive and over the long run may only survive if protected by market entry restrictions or public subsidies. The second is that productivity growth is not an end in itself – it is a means to the achievement of other wider societal goals. How the proceeds of productivity growth are distributed, taxed, and spent are a matter of distributional power and political choices. These choices matter because commentators rightly observe that productivity growth often does not benefit consumers and wage earners in a manner which reflects societal preferences. To think that a devolved nation economy, highly integrated within is wider national and international context, can meet its wider societal aspirations in the absence of good productivity performance is wishful thinking of a high order.

Low productivity may be driven by a combination of micro and macro factors and choices. In consequence the location of appropriate policy instruments may reside at both devolved Welsh and non-devolved UK levels. While discussion of policy mix might fall outside the scope of this paper, it can be concluded that the achievement of appropriate policy mix requires a coherent and integrated approach to the design and implementation of industrial and regional strategy. This is a cultural feature of policy making which, over nearly a quarter of a century of devolved government, has been largely absent (Bradbury and Davies, 2022). In summary, a widening gap between the value of what is produced in Wales and the earnings, consumption, and delivery of public goods

aspirations of its population implies over the longer term either a widening Welsh fiscal deficit or the growing political frustrations of its population (Ifan et al., 2022).[1]

Tracking productivity performance in Wales

Table 1 sets Welsh labour productivity in the context of other UK devolved nations and ILT1 regions.[2] Two measures are reported – output per job filled and output hour worked. Any temporal and spatial differences between these two reflect movements in the average hours worked by each worker. Figure 1 shows Welsh trends in output per worker (panel a) and output per hour (panel b) alongside the other UK nations. Across the whole UK there is an absence of any strong upward trend in labour productivity over the past 20 years. In 2004 Wales was ranked 11th of 12 above Northern Ireland in terms of output per worker and output per hour. By 2012 Wales had slipped to 12th, recovering again in 2021 to 11th, just above North East England. By 2021 Welsh output per hour had slipped to bottom place below Northern Ireland and North East England.[3] However, despite not improving in terms of rank, there is evidence since 2012 of modest recovery in real productivity levels. Output per hour has improved a slightly faster rate than output per worker, consistent with some reduction in average hours worked. As Figure 1(b) shows, the gap between Wales and Northern Ireland for output per hour is narrower, reflecting the lower average hours worked in Wales.

Although the Welsh ranking is very poor, overall performance in Wales is not too far distant from productivity levels observed for northern and western English regions. For example, Table 1 shows that there is only £1 per hour worked difference across the lowest six nations and regions in 2021. The table reveals a sharp contrast between the high performing English regions of London, South East and East and the rest. This reflects the very high dispersion of productivity within the UK, much higher than in other OECD nations (McCann, 2016). The final row of Table 1 shows that the Welsh productivity gap with the whole UK has remained between 16 and 18 per cent. The gap in output per worker has not closed, although there is modest narrowing in the output per hour gap.

Figure 2 examines evidence for productivity convergence across the UK nations and regions, for both output per job (panel a) and output per hour (panel b). Both of these confirm pulling away by London and the South East. Although, as noted above, Wales has low initial productivity on both measures, real productivity growth over the period 2004 to 2021 has been at or close to the UK average. In northern and western English regions productivity, although not quite as low as in Wales, has been falling behind London and the South East. Perhaps striking in both charts is that for both Scotland and Northern Ireland productivity performance contrasts that in Wales and in northern and western England, with evidence of significant real productivity growth since 2004. By 2021 Scotland ranks third out of twelve on both measures.

Caution is needed in the interpretation of some quite small differences in productivity levels between the more peripheral regions and nations. However, the difference in the post-devolution development of productivity across the devolved nations is striking. Scotland was already doing well and has improved. Northern Ireland was doing badly but has seen improvement and some convergence. By contrast Wales's productivity performance was already poor and productivity growth has not improved on the UK rate over two decades of devolved administration. This aspect of Welsh performance is arguably what matters most, and it likely reflects differences in industrial strategy and governance arrangements supporting the delivery of strategy. *Prima facie*, Scotland and Northern Ireland appear to have made more advantage of the opportunities

[1] Closing the Welsh fiscal gap with the UK is apparently a stated aspiration of the current First Minister (see Ifan et al., 2022).

[2] At the time of writing ONS provide consistently defined regional and sub-regional estimates of output (GVA) per filled job from 2002 to 2021, and of output per hour worked from 2004 to 2021.

[3] Differences here in both measures are small. Some other recent ONS productivity data series show Wales above North East England in terms of output per hour in 2021.

offered by devolution for better designed economic and business development policy.

There has also been a diversity of productivity experience across the 22 Welsh local authorities, as shown in Figure 3. Output per hour worked is generally higher in urbanised and industrialised south Wales and in north east Wales. In some areas such as Caerphilly, Merthyr Tydfil, and Ynys Môn (Anglesey) real productivity levels, although initially high, have been in decline from the ongoing impact of deindustrialisation. Productivity started low and has declined further in rural mid and north west Wales, areas characterised by low wage levels and high rates of self-employment. There are some exceptions to these patterns. For example, remote Pembrokeshire has high productivity because of the impact of the energy sector, Rhondda Cynon Taff (RCT) and Flintshire have seen improving productivity, perhaps arising from growth in aerospace-related activity.[4]

Table 1: Devolved nation and regional labour productivity in the UK

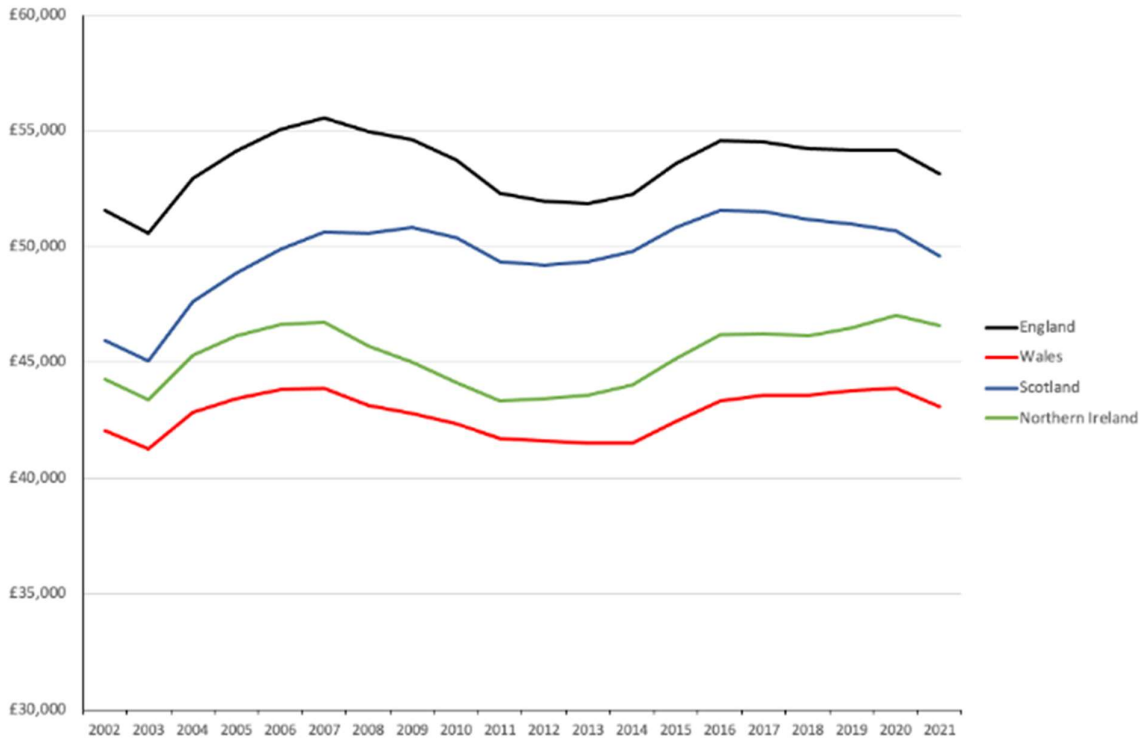
	GVA per filled job			*GVA per hour worked*		
	2004	*2012*	*2021*	*2004*	*2012*	*2021*
Wales	**£42,867**	**£41,636**	**£43,103**	**£27.67**	**£26.75**	**£28.84**
England						
North East	£45,113	£43,667	£42,697	£29.67	£28.18	£29.01
North West	£47,568	£46,171	£46,753	£31.06	£29.30	£30.99
Yorks and the Humber	£45,569	£43,290	£44,120	£29.62	£27.46	£29.20
East Midlands	£45,163	£43,533	£44,673	£28.31	£27.55	£29.77
West Midlands	£45,658	£44,338	£45,086	£29.31	£27.74	£29.88
East	£50,859	£47,368	£48,463	£32.94	£30.09	£32.17
London	£72,336	£73,569	£74,194	£44.48	£43.24	£45.77
South East	£55,800	£54,589	£56,598	£36.50	£34.71	£37.84
South West	£47,082	£44,968	£45,493	£31.03	£29.13	£30.90
Scotland	£47,601	£49,194	£49,574	£31.16	£31.29	£33.11
Northern Ireland	£45,297	£43,459	£46,578	£27.10	£26.16	£29.53
UK (excluding Extra-Regio)	£51,844	£51,052	£52,264	£33.37	£32.01	£34.35
Wales as % of UK	82.7%	81.6%	82.5%	82.9%	83.6%	84.0%

Source: ITL1 regions, computed from ONS sub-regional productivity data (2023), data smoothed and deflated to 2015 prices using CPI all items.

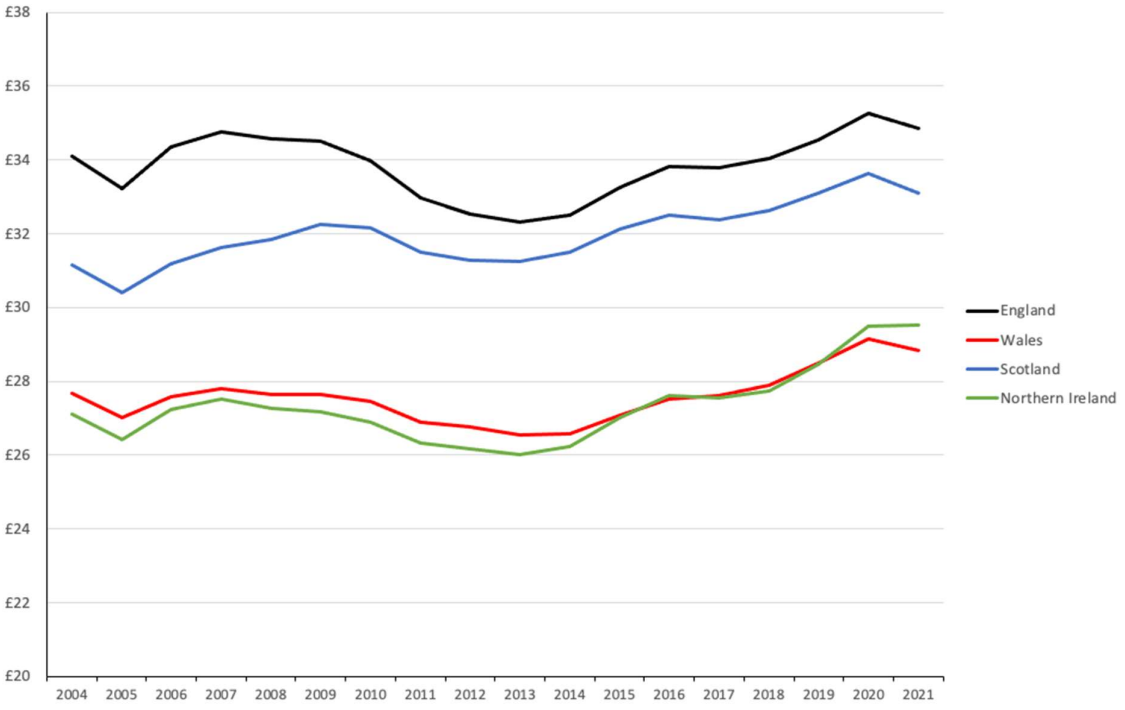
[4] Notably Airbus at Broughton and GE Aerospace at Nantgarw, within Flintshire and Rhondda Cynon Taff local authority boundaries respectively.

Figure 1: Labour productivity trends in UK nations

a) output per job (2002-2021)



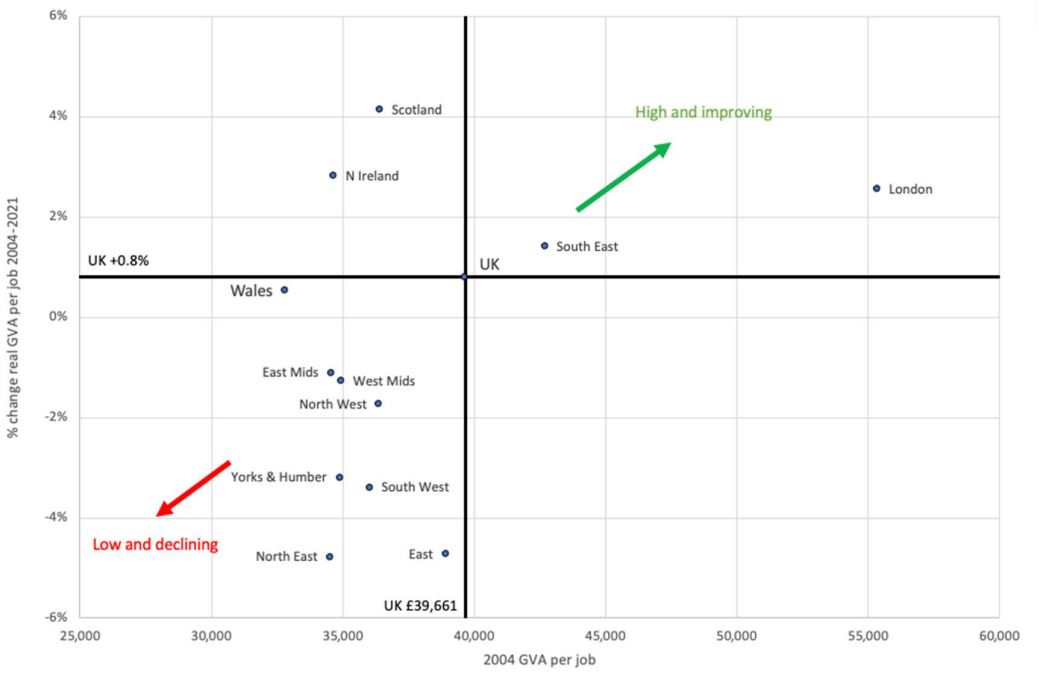
b) output per hour (2004-2021)



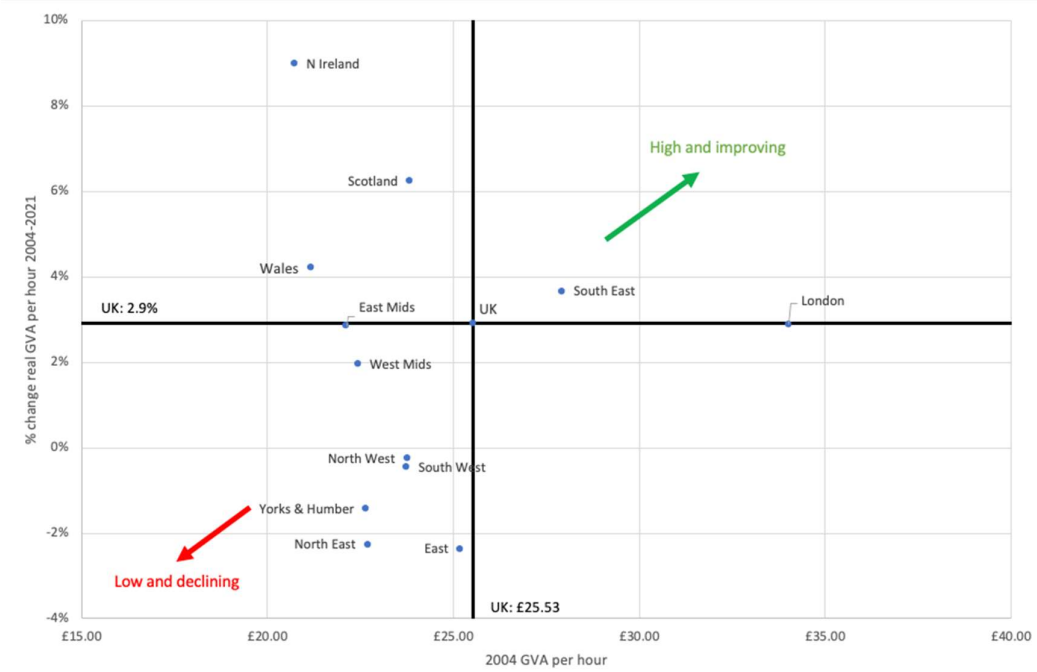
Source: computed from ONS sub-regional productivity data (2023), GVA per filled job and per hour worked, smoothed, deflated using CPI all items.

Figure 2: Labour productivity growth 2004-2021, UK nations and ITL1 regions

a) output per job



b) output per hour

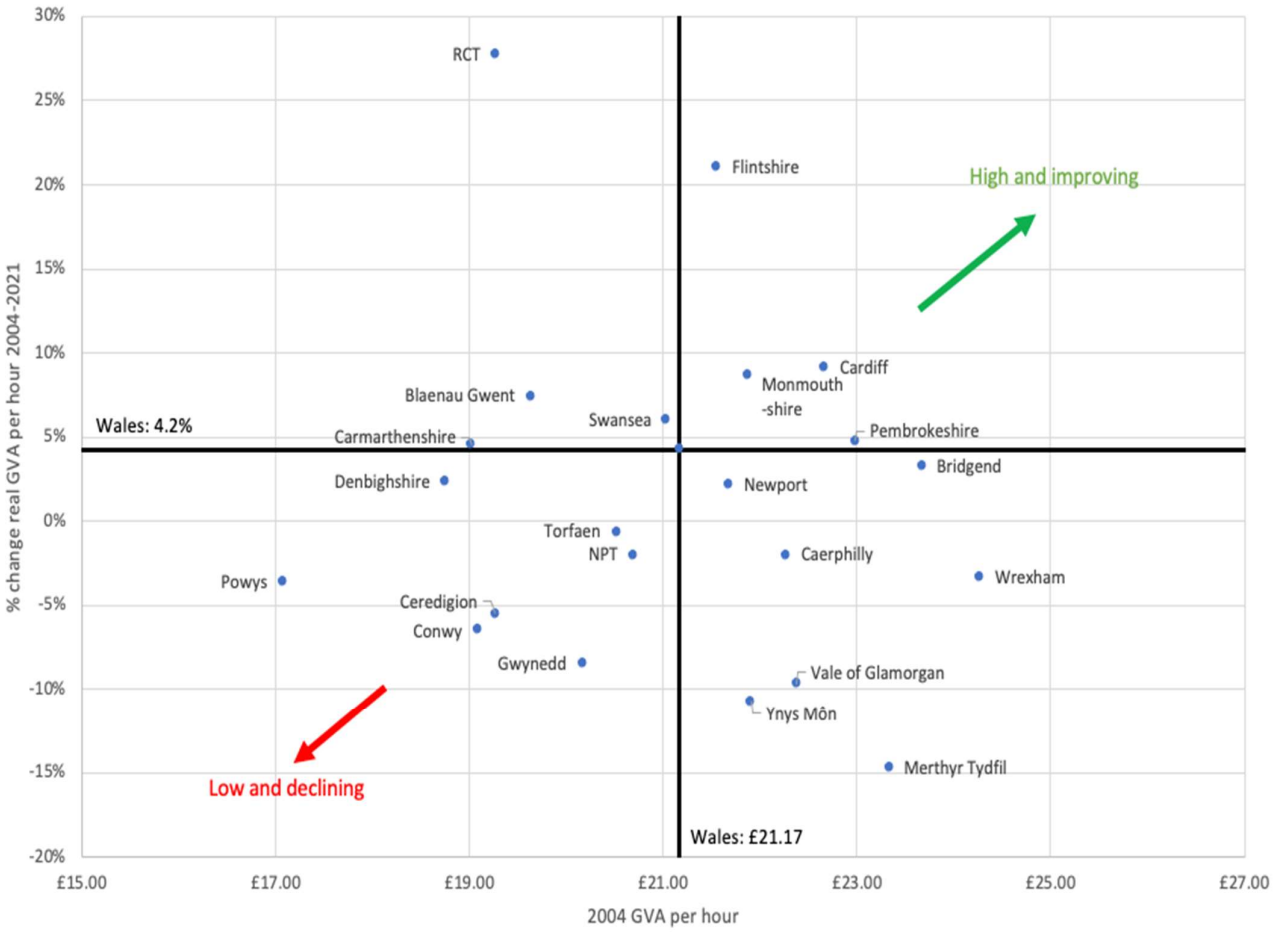


Source: computed from ONS sub-regional productivity data (2023), GVA per filled job and per hour worked, smoothed, deflated to 2015 prices using CPI all items.

Micro-level drivers

Ill-informed commentary on low productivity focuses attention on low worker effort or low leadership quality, or both. For this reason, policy makers may shy away from focusing attention on productivity as an issue, regarding it as too problematic for tractable policy. Although drawing attention to firm-level drivers, this is, of course, far too simplistic. Economic analysis is inclined to treat the firm as a 'black box' into which combinations of resources (human capital, physical capital etc.) are entered, and, reflecting exogenous technology choices, particular levels of output emerge. Total (or multi-) factor productivity analysis, reflecting the productivity of a given combination of productive resources (usually capital and labour), generally also shows Wales lagging the rest of the UK (Harris and Moffat, 2022). Labour productivity is not solely about worker effort but concerned more generally with levels of efficiency in the use of labour, in turn resulting from ways in which firms combine factors of production and absorb and apply knowledge about making best factor combination choices. While worker skills and effort will exert influence, labour productivity will depend on decisions made by firm managers about capital investment, R&D and innovation. In what follows, the focus is briefly on three aspects of this – the 'eco-systems' around workforce skills formation, and around R&D and innovation, and the business support system.

Figure 3: Labour productivity growth 2004-2021, Wales local authorities



Source: computed from ONS sub-regional productivity data (2023), GVA per hour worked, smoothed, deflated using CPI all items.

a) Skills eco-systems

Human capital investment is regarded as a critical driver of productivity. This may happen at various levels: through compulsory schooling, through formal post-compulsory tertiary level education and training in further and higher education institutions, and through formal and informal on-the-job training activity. There is some suggestion that Wales underperforms in the provision of compulsory schooling, for example based on heavily contested international PISA surveys and rankings.[5] Whether this is a cause or consequence of poor economic performance is a matter of debate. At tertiary level the main point of debate surrounds stubbornly high local mismatch between employer demand for skills and the supply ability of providers (Abreu, 2020; Morris et al., 2020). The central issue here is the extent to which the 'eco-system' – the institutional architecture that aims to articulate and reconcile the needs of employers and the capacity of providers – functions effectively. In Wales key institutions such as Regional Skills Partnerships face the challenge of articulating employer demand more effectively. Recent research covering the further education sector in England points to significant points of weakness (Nelles et al., 2023). These findings, although not corroborated for Wales, may have considerable resonance. The need to establish and maintain a well-functioning skills eco-system is likely only to increase in the face of rapid technology-driven changes in demand.

b) R&D and innovation eco-systems

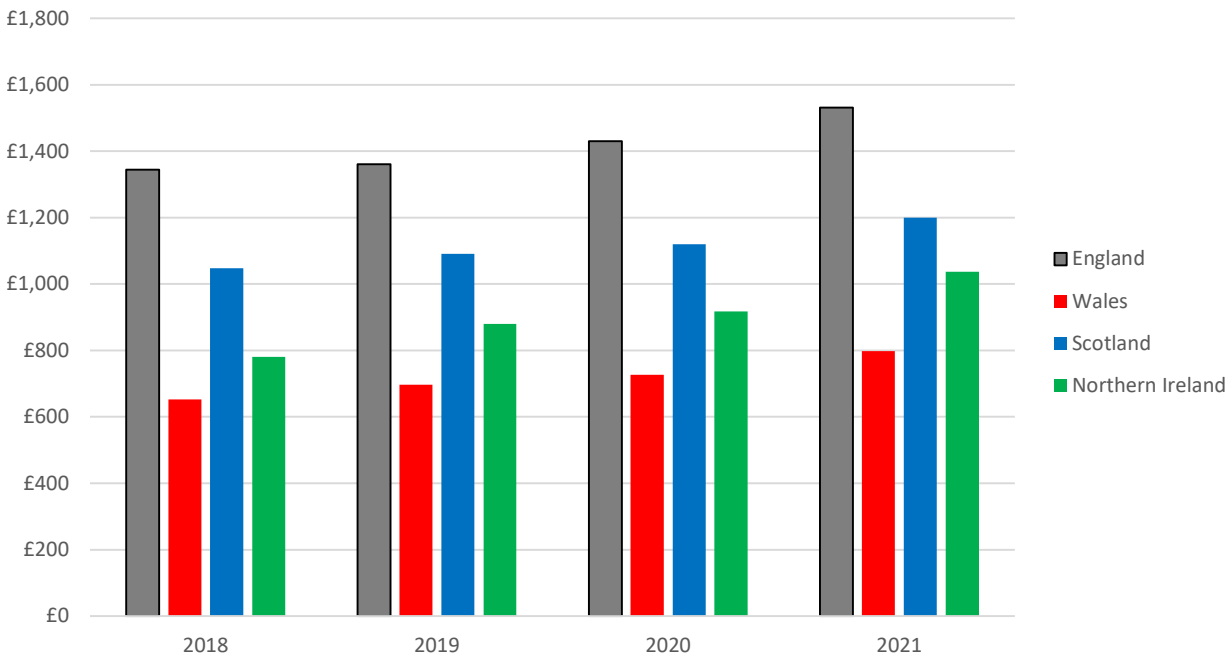
Although survey data tend to show that incidence of innovation among Welsh businesses is at a similar rate to elsewhere in the UK, private sector R&D activity in Wales lags substantially (see Figure 4). Wales lags similarly in terms of public sector R&D expenditure (Jones and Forth, 2020). The quality of innovation originating in Wales may be worse, and thus a significant concern for productivity performance. One contributing factor may be that large multi-site businesses prefer not to site R&D activity in Wales. Very low rates of private sector R&D employment in Wales bear this out. The innovation performance of Welsh businesses therefore depends heavily on knowledge diffusion and absorptive capacity. Although innovation is categorised here as a micro-level driver, public sector decision-making affecting it is largely non-devolved. So, for example, the ability of Welsh universities to catalyse innovation, particularly since Brexit and the end of EU Structural Funding for Wales, depends on their ability to win funding from UK level funding bodies. A key issue for the Welsh innovation eco-system is the promotion of 'translational' activity with inward investment potential, for example as in the Welsh Compound Semiconductor Cluster (Munday et al., 2022). Two critical and urgent questions emerge here. The first concerns achieving an appropriate balance between support for basic research and support for development of new products and services further along the technology readiness scale. The second concerns appropriate institutional design, with actors whose objectives and strategies are not readily aligned (firms, universities, and research organizations, devolved and non-devolved public sector bodies) and with increased post-Brexit fragmentation and lack of co-ordination across funding streams.

c) Business support systems

Regional and national governments seek to support businesses, especially SMEs, through various instruments and interventions. Devolution has conferred significant autonomy in the design and deliver of these. Much has been resourced up to 2021 through three successive programmes of EU Structural Funds, with support ranging across main topic areas including business start-up, signposting to and provision of formal business advice, provision of SME finance, support for social enterprise, skills support including the development leadership and management, and most recently COVID-19 emergency support.

[5]See, for example, https://gov.wales/sites/default/files/statistics-and-research/2019-12/achievement-15-year-olds-program-international-student-assessment-pisa-national-report-2018_0.pdf

Figure 4: Business expenditure on R&D per employee, UK nations



Source: author's computation from ONS BERD and Annual Population Survey data.

Although much of this activity is in principle productivity enhancing, potential benefits are conditional on policy and programme objectives. These in turn have been heavily informed by wider Structural Funding programming objectives, which, although focused to some extent on competitiveness, have largely emphasised job safeguarding and creation. The protection and creation of jobs seeks to raise the labour productivity denominator without necessarily any increase in the value-added numerator. Welsh Government has supported and continues to support high growth potential SMEs, through various means, albeit on a relatively small scale. Here programme success may focus on revenue growth rather than jobs. A 'picking winners' approach will only improve Welsh productivity if revenue growth is achieved alongside strategic realignment towards improved labour utilisation, sufficient to shift the dial on the 'batting average'. Robust evidence on programme effectiveness is often difficult to obtain (Henley, 2022), and in Wales evaluation evidence is largely *ad hoc* and qualitative. In short, the issue is whether SME growth programmes recruit participants who would have grown anyway. ONS survey evidence on management practices adoption by SMEs suggests that Wales lags the rest of the UK, although not by any statistically significant gap (ONS, 2021).

Macro-level contextual issues

The external macro context is also likely to exert a strong level of influence on firm decision making and hence on productivity. Here various areas of influence on aggregate labour productivity salient to the Welsh context are considered.

a) differences in regional economic structure

One contributing factor to the productivity gap between lagging and leading UK nations and regions might be industrial composition. Lagging regions have less activity in high productivity sectors, such as manufacturing and high value-added services, those with multinational ownership and with involvement in international trade. In fact, in Wales manufacturing activity still occupies a higher proportion of the economy than in other UK regions. Although focused on total factor productivity rather than labour productivity, recent analysis by Harris and Moffat (2022) shows that the London productivity advantage

cannot be explained by compositional factors. By contrast, they conclude that the underlying sources of the productivity disadvantage in the periphery, including in Wales, relate to the accumulated effects of lower investment, particularly in public infrastructure.

b) the contribution of inward investment

Wales' total net foreign direct investment (FDI) position between 2015 and 2021 grew from £22 billion to £42 billion, an increase of 90.5% in nominal terms.[6] By comparison the overall UK position grew by 93.4%. This difference should not be over-interpreted. Recent Welsh Government assessments claim that the Welsh FDI position, particularly in terms of associated job creation, has demonstrated robustness to the impact of the COVID-19 crisis.[7] At the sectoral level, because of the small size of the Welsh economy, FDI flows can be quite lumpy. However, it is unsurprising that it is in key manufacturing sectors where Wales tends to perform better (petro-chemicals, metals etc.). Inward investment in financial services, which was prominent a decade ago, has largely disappeared. This picture to some extent reflects the continued relative importance of manufacturing to the Welsh economy, and a legacy of heavy industry – contributing to value added, but also making the goal of decarbonisation more challenging. These points are also set in the context that compositional influences on productivity may not be important. However, overall Welsh inward investment performance should be set in the longer-term context of past successes during the life of the former Welsh Development Agency (1976-2006), when attracting FDI was a major policy objective and FDI success rates were often among the highest in the UK. The more recent approach, rebalanced towards support indigenous business growth (and job creation) in place of attracting inward investment, does not appear to have been particularly successful since 2006.

c) indigenous investment performance

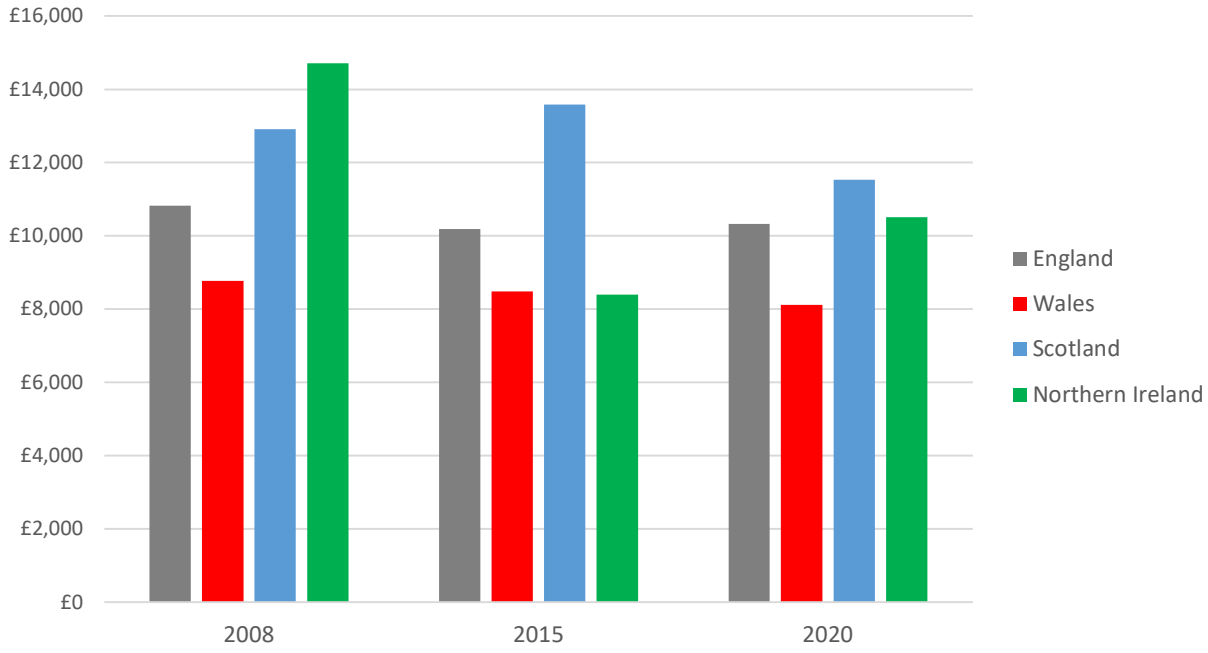
As explained above, low levels of labour productivity arise from allocation choices across all resources. So, at the level of the individual firm, low capital formation (fixed investment) may form an important driver. Capital formation will be influenced by technology choices, although studies rule out low real wages in the UK as an explanation for firms failing to adopt more capital-intensive choices in the aftermath of the global financial crisis (Harris and Moffat, 2017). Capital formation aggregated across the economy encompasses both private sector and public sector investment. Private sector led investment in Wales may be hindered by issues of external ownership and control, as for example in the energy sector (Jones and Munday, 2020), such that investment decisions are made with little reference to local and regional development needs. Public investment influences firm level productivity because firms benefit from local and regional public infrastructure – notably transport infrastructure, investment in education and public health care, and digital infrastructure. In the near future transition to productive net-zero technologies may be constrained by inadequate investment in the electricity distribution grid.

The picture for overall investment in Wales is not particularly rosy. In 2020, the latest available year, gross fixed capital formation per job (at 2015 prices) in Wales stood at just over £8,000 per worker. This figure is the lowest across all UK nations and regions and has been in slight real decline since the global financial crisis (see Figure 5). Table 2 sets Welsh investment performance in a wider international context, showing not only that Wales has performed poorly since 2015 (just prior to the referendum on UK membership of the EU), but also that both Wales and the wider UK have a huge lag with the USA and the EU. Wales has sought to address undersupply of business finance, particularly to SMEs. However, the overall picture is concerning and

[6] Source ONS. See https://www.ons.gov.uk/economy/nationalaccounts/balanceofpayments/datasets/foreigndirectinvestmentinvolvingukcompaniesbyukcountryandregiondirectionalinward

[7] See https://www.gov.wales/wales-only-uk-nation-increase-inward-investment-during-covid-19-pandemic-thanks-welsh-government#:~:text=The%20statistics%2C%20published%20by%20the,compared%20to%202019%20to%202020

Figure 5: Gross fixed capital formation per employee, UK nations



Source: computed from ONS regional GFCF data (2022), total GFCF all industries, deflated using CPI all items (2015=100) and Annual Population Survey data on number of employees aged 16 and over.

Table 2: Gross domestic fixed capital formation international comparison

Average annual nominal growth rate	Wales	UK	USA	EU27
2000-2008	6.9%	6.2%	4.6%	7.7%
2009-2015	6.0%	6.1%	6.1%	2.6%
2015-2021	1.7%	2.6%	5.9%	6.2%

Source: (UK, USA, EU27 OECD) time series data bank, US dollars; (Wales) ONS.

may indicate failure in the wider policy mix available to stimulate private sector investment through engaging in public investment, of which more in subsection d).

d) public investment in Wales

Various points can be made about public infrastructure investment in Wales. New road investment has largely ground to a halt in Wales, caught up in conflicting and confusing policy objectives around decarbonisation and the desire to encourage use of public transport infrastructure.[8] Congestion of the M4 motorway around Newport has also been a major concern over many years for business bodies, who argue that it is discouraging private sector investment and job creation (Senedd

[8] See https://www.gov.wales/putting-brakes-carbon-emissions-steering-towards-alternative-solutions-and-driving-towards-net-zero

Research, 2016; Collier and Tuckett, 2021).[9] Electric vehicle (EV) charging infrastructure needs to keep pace with the rest of the UK, if adoption is to be sustained, particularly in rural mid and west Wales where alternative options for improving public transport are limited and unlikely to be economically feasible. Significant public commuter network infrastructure upgrading is under way in southeast Wales, using Cardiff Capital Region Growth Deal funds direct from Westminster. However, this upgrade includes leveraging of private investment (for example to construct a critical new railway station serving a major business park in East Cardiff) for which delivery appears to be slower. Wales is poorly served by airport infrastructure, largely reliant on major airports in England to serve the needs of the economy.[10] This position contrasts with that in Scotland and in Northern Ireland, where greater distance from English hubs has supported the business viability of regional airports. Broadband infrastructure investment has been a priority for Welsh Government over the past decade and has met with some success. However, this has focused on upgrades to hard wiring and the elimination of dead signal areas. As technology progresses, the challenge now is to ensure that 5G coverage and gigabit-capable connectivity is extended rapidly across Wales. OFCOM data suggest that Wales is at present lagging the rest of the UK.[11]

The overall impact of inconsistent approaches to meeting conflicting policy objectives on infrastructure investment (e.g. road upgrading versus environmental protection objectives) may operate to convey the impression to investors that Wales is less attractive than competitor locations. While it can be difficult to estimate precise impact of infrastructure investment and related agglomeration benefits on productivity, these potential benefits need to be read in the context of a wider literature on the importance to productivity of urban agglomeration and infrastructure which supports it (McCann, 2016). The impression that Wales is a less attractive investment location sits on top of other uncertainty increasing UK-wide factors which also impact Wales, such as the impacts of Brexit, public spending austerity, and recent energy price shocks.

d) economic uncertainties

The best way to characterise the macro-economic environment since the global financial crisis of 2007-8 is in terms of relentless, compounding, externally driven uncertainties. In the case of Brexit, external headwind has been inflicted by internal policy choice. A long-established literature in economics has demonstrated, both theoretically and empirically, that uncertainty causes irreversible damage to corporate fixed investment decisions (Dixit and Pindyck, 1994).

Following the adverse impact on the wider economic environment of public spending austerity after the global financial crisis, uncertainty about future economic prospects was compounded by 1) the outcome of the UK referendum on EU membership in 2016; 2) the subsequent uncertainty about future post-Brexit trading terms arrangements; 3) the impact of the COVID-19 emergency from early 2020; and 4) the energy price and wider inflation crisis resulting from the Russian invasion of Ukraine in 2022. For example, analysis published by the Bank of England confirms the adverse impact of Brexit on longer term investment decision making by UK firms, with the proportion of firms in Wales citing Brexit as a source of uncertainty towards the top end of the distribution of UK devolved nations and regions (Bloom et al., 2019). Wales, and the wider UK, has now experienced a 15-year period of extended macroeconomic uncertainty, which is likely to have been highly

[9] The Welsh Government shelved plans for a major relief motorway investment to relieve congestion on environmental grounds, preferring to adopt alleviation interventions and low-cost improvements recommended by a follow-up commission (Welsh Government, 2020).

[10] The Welsh Government took the small, poorly located and poorly integrated Cardiff Airport into public ownership 10 years ago, and although there were initial successes in attracting business, these evaporated during the COVID-19 pandemic and have not recovered since.

[11] See https://www.ofcom.org.uk/__data/assets/pdf_file/0026/261548/spring-2023-connected-nations-update.pdf for the latest data on coverage, at the time of writing.

damaging for corporate investment activity. This wider context, in which Wales appears an unattractive location for either inward or indigenous investment activity, is not conducive to narrowing the long-term productivity gap. The scope of devolved instruments available to Welsh policy makers offers very limited effective and tractable options for addressing these external uncertainties.

The governance and capacity-building environment in Wales

The institutional elements in considering effective eco-systems to support skills acquisition and innovation activity have already been noted. These, and other elements of capacity building, do not emerge organically *ex nihilo* but require the establishment and development of appropriate governance arrangements and supportive policy instruments (Asheim et al., 2019). Governance and policy considerations must extend beyond the narrow perspective, often expressed in economics, that institutions are largely about the correction of market failures (for example in the provision of finance for SMEs), important though these may be.

Pabst and Westwood (2021) identify four pathologies in UK wide governance arrangements, each of which has salience for Wales: 1) over-centralisation, 2) weak institutions and policy 'churn', 3) siloed policy, and 4) short-termism and poor policy co-ordination. There are obvious inter-connections amongst these. Policy centralisation alongside embedded regional inequalities is a deep-seated feature of the UK policy landscape, resulting in institutions which are not up to the task of addressing the 'levelling-up' challenge (McCann, 2022). Indeed, ironically the consequences of decades of over-centralisation for regional inequality are addressed at present by over-centralised levelling-up policies, managed directly by central government departments. Such an approach only serves to enfeeble already weak policy co-ordination and governance. This point is emphasised by Tilley et al. (2023) in a recent evaluation of three regional growth deals, one of which is the Cardiff Capital Region deal. They conclude that in each case policy institutions are 'nodality' institutions (that is ones operating in a brokerage role) which lack sufficient authority, resources, and organization to gain significant traction on the productivity challenge.

Despite Labour being the party of government or coalition lead partner over six successive Welsh Assembly/Senedd terms, Wales has still experienced significant economic development policy churn. Since devolution the Welsh Government has produced a series of economic development strategies (Bradbury and Davies, 2022). Only the first of these (Welsh Government, 2002) referred to explicit gross value added per head convergence. Initially the construction of an evidence base to support policy design was co-ordinated by a high-level expert panel reporting directly to the First Minister.[12] Convergence aspirations were quickly abandoned in the absence of progress in closing the gap with the wider UK. In the assessment of Bradbury and Davies (2022), prosperity (or productivity) convergence was doomed to fail with no wider UK strategy for addressing regional inequalities, and a heavy focus on supply-side instruments rather than policy to address economic demand deficiency.

Subsequent Welsh Government strategies became less specific, offering greater emphasis on sectoral and (intra Wales) spatial priorities, and most recently (Welsh Government, 2017) on inclusive and sustainable improvements in wider population wellbeing framed in the context of the 2015 Wales Wellbeing of Future Generations Act. A priority here is to develop a clear conceptual understanding of what drives future wellbeing and the critical contribution of (sustainable) productivity growth to this. This more recent change of direction has also led to the pursuit of capacity building initiatives by Welsh Government ministers. One example was the participation of an appointed group of leading business people and other academics in the MIT Regional Entrepreneurship Acceleration Program (REAP), leading to a 'Be The Spark' campaign aimed nobly but with very little success at deepening stakeholder engagement between government, education

[12] First Minister's Economic Research Advisory Panel, 2002-2012.

and business in pursuit of kick-starting improvements in the Welsh entrepreneurship eco-system.

These realignments have taken place alongside periodic internal re-organisation of Welsh Government to meet changing emphases and might be characterised as aspirational rather than built around coherent and specific models of long-term policy logic and design (Bristow, 2018). They might also be characterised, since the abolition of the Welsh Development Agency in 2006, as suspicious of inward investment, but lacking a coherent underpinning model of regional development capable of informing the design of governance arrangements to support increasingly preferred indigenous investment and social entrepreneurship. The establishment of the Development Bank of Wales in 2017, with an explicit remit to address deficiencies in the provision of finance to Welsh SMEs by private sector institutions, is the notable exception in this characterisation, although its achievements remain small scale relative to the overall size of the economy, and largely limited to the provision of loan capital rather than equity investment.

Siloed thinking has been evident in Wales across various dimensions, for example episodes of policy emphasis on 'leading sectors' rather than cluster and supply chain integration across the economy. Carefully developed spatial plans have subsequently been quietly abandoned as the opportunity for local authorities to combine and established Growth Deals have emerged. Furthermore, particularly since the closure of the Welsh Development Agency, siloed policy implementation focused on public sector actors across the main spending areas (education and skills, health, transport), despite recognition of the inter-relationships between public and private sectors in high level economic strategy statements (Bradbury and Davies, 2022).

Poor policy co-ordination follows inevitably from siloed thinking. However, the emergence of the Growth Deals has presented opportunities for increased co-ordination of economic development strategies across the 22 local authorities who make up four economic regions and Growth Deal partnerships within Wales. These map in a consistent manner with the three Regional Skills Partnerships. Emergence of commonality within internal Welsh administrative geography is to be welcomed, but, in most cases, it is too early to see if co-ordination will achieve traction on the productivity challenge. However, the major co-ordination challenge for Wales arises because of the tension between devolved but centralised-within-Wales Welsh Government policy levers and spatially decentralised but directed-from-London Growth Deal and Shared Prosperity funding allocations. The latter undermine the legitimacy and effectiveness of devolved democratic institutions in Wales, while reducing lower tiers of local and regional government to a brokerage role. There is also an urgent need to improve the ways in which the interests of private sector business, especially SMEs, are reflected in a constructive manner in policy design and implementation. This is important to overcome the 'deep story' that low productivity in Wales (and in other lagging UK regions and nations) is so embedded in the narrative of business expectations that nothing can be done about it. This relates especially in terms of skills formation and public investment, in the face of devolved government which is viewed as 'anti-business' (Collier and Tuckett, 2021).

Conclusion

After this rather gloomy assessment it would be tempting to conclude that achieving acceleration of productivity in Wales is a lost cause, in the absence of illusive transformational economic change. Over the past two decades policy in Wales has shifted from recognising that productivity growth was required to close the economic prosperity gap, difficult though that might have been in the absence of any UK strategy for addressing regional inequalities, towards 'wishing away' the problem by focusing on wider but more vague conceptions of wellbeing and levelling-up. This shift is not at present serving Wales well. There is an urgent need for the UK government to address seriously widening productivity disparities across the UK, and for the consequences of low productivity to gain increased policy attention within Wales. The second will only achieve success, conditional on the first. In this sense Wales is in a difficult

position and it is tempting to file productivity, as Welsh politicians appear to have in the past, under 'too difficult'. It is important to highlight that there is also no efficiency-equity trade-off to be exploited here – Wales cannot choose between higher productivity or greater social inclusion. Inclusive and sustainable prosperity in Wales requires policy which will support green productivity growth across the private sector, as an intermediate enabling objective, alongside conversations and action about how the proceeds of productivity improvement are distributed.

The discussion here has allowed some prioritisation for action to be offered. Skills and management practice matter at the margin. However, for Wales there are far bigger challenges involved in raising levels of productivity-enhancing investment and innovation, both important indicators on which Wales lags well behind other UK regions and nations outside London and the South East. A first start would be the creation of a high-level Welsh Productivity and Investment Commission, along the lines of those operating in smaller states such as New Zealand and The Netherlands (McCann, 2022). This would marry expertise alongside high level and committed business stakeholder engagement. It would be charged with commissioning an up-to-date evidence base to inform policy design, to which politicians, from Welsh Government and the four growth deals, would give long-term commitment. Working alongside the Future Generations Commissioner, it would identify second-order policy impacts and have appropriate authority to challenge siloed thinking. It would also, as a necessary condition for success, need to gain support from central government, alongside similar governance arrangements in other UK devolved nations and regions. This would need to shift the debate on UK regional inequalities from London-centric palliative levelling-up towards transformation change which implicitly give emphasis to ending the economic 'dependency culture' which has hindered Wales for so long.

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