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Improving the Economic Performance of Wales: Existing Evidence and Evidence Needs

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Summary

- This report summarises the evidence and evidence needs about what works in improving the performance of an economy such as Wales. These were identified through an expert workshop and one-to-one discussions with researchers and senior government officials.
- Wales lags behind the UK average on most measures of economic performance. While the skills base, demography and geography of the country may go some way in explaining this, international evidence suggests that there are policies which can stimulate economic growth in lagging regions.
- There is good evidence that skills and infrastructure are important factors in driving growth in lagging regions. Infrastructure improvements can provide relatively quick wins, while investment in skills can improve outcomes over the longer term. Specifically, the evidence suggests that lagging regions should focus on:
    - reducing the proportion of individuals with very low skills or qualifications, rather than focusing on the higher end of the skills spectrum; and
    - investing in infrastructure projects that increase economic mass, and improve internal and external connectivity.
- At the firm level, knowledge diffusion plays an important role in encouraging the adoption of innovations to improve productivity. Greater internationalisation (e.g. collaborating and exporting) can also reinforce innovation activity and drive productivity.
- The evidence is less conclusive on the contribution of factors such as support for entrepreneurship, attracting inward investment and the role that government policy should take in these areas. Therefore, it is important to embed ex-ante evaluation in economic development policies that concern these areas.
- Individual policy interventions taken in isolation can sometimes have unintended negative consequences. Policy makers should therefore focus on co-ordinating the right mix of policies.
- There are no silver bullets for stimulating the economic performance of lagging economies. However, a focus on human capital (particularly addressing low skills), connective infrastructure (internal and external), and diffusing knowledge and innovation among firms should form a central part of the policy mix, and benefit the economy of Wales over the longer term.

Introduction

The Public Policy Institute for Wales (PPIW) is co-funded by the Economic and Social Research Council (ESRC) and Welsh Government. It works directly with Welsh Government Ministers to support them to identify their evidence needs and provide access to authoritative independent analysis and advice.

To help inform the PPIW's future work, in the run up to the National Assembly for Wales elections we brought together carefully selected groups of experts to review the evidence base and future evidence needs relating to some of the key challenges that we believed would be important to incoming Welsh Ministers. One of the issues that we considered was what works in improving the performance of an economy such as Wales.

Prior to the workshop we reviewed existing research and had bilateral discussions with a range of experts working in the field of economics, economic geography and regional development to identify some of the main issues that needed to be explored. We then convened a workshop in April 2016 with academic experts and senior officials from the Welsh Government (see Annex 1 for a list of participants). The workshop was conducted under the Chatham House rule to allow an open and free flowing exchange of insights and we followed the event with further discussions with experts.

Since the workshop took place, the UK has voted to leave the European Union. The implications for Wales are complex and uncertain but the fundamental challenges that were identified in improving the economic performance of Wales remain.

This report describes what is already known about the economic performance of Wales; what the evidence tells us about which factors can contribute to economic growth in lagging regions; and summarises some initial conclusions on policy implications and future evidence needs.

Context: Welsh Economic Performance

Across the UK, there is a growing disparity in regional productivity and growth. In 2014, the Gross Value Added (GVA)[1] of the 'Greater South East' region – comprising London, the South East, and East of England – was 28 per cent above the UK average, and long term trends show it has been growing faster than the rest of the UK (ONS, 2015a). This region,

[1] GVA measures the total value of output in an area.

with a major global financial centre, skews regional comparisons across the rest of the UK. Experts emphasise that this should be taken into account when considering the economic performance of Wales.

The relative economic performance of Wales appears to differ depending on what indicators are used (see Table 1). The unemployment rate in Wales fell below the UK average in 2016 and is at its lowest level since 2008 (Welsh Government, 2016a). On the measure of Gross Disposable Household Income (GDHI)[2] per person, Wales performs reasonably well (85 per cent of the UK average). The data show that GDHI per person has increased at a slightly faster rate in Wales than the UK average since devolution (ONS, 2016a). Wales also performs particularly well for average household wealth (95 per cent of the UK average), behind only the Greater South East and South West of England (ONS, 2015b).

Other indicators paint a different picture. Employment and inactivity rates, while improving, remain behind overall UK levels (Welsh Government, 2016a), and GVA per person in Wales is the lowest of any UK country or region (ONS, 2015a). Some workshop participants were critical of the use of GVA per person for measuring productivity at the regional level[3] but despite its limitations, it remains a principal yardstick for measuring economic activity.

Table 1: Welsh economic performance against selected indicators

Indicator	Value	Relative performance	Trend
Average household wealth	£214,200	95% of UK average	Close to the GB average since 2006 [a]
GDHI per person	£15,590	85% of UK average	Increased 64.5% compared with 63.8% across the UK between 1999 and 2014
GVA per person	£17,573	71% of UK average	Increased 69.2% compared with 70.6% across the UK between 1999 and 2014
Unemployment rate	4.6%	0.3 percentage points lower than UK figure	Decreased by 2.0 percentage points between May 2015 and 2016, compared with a UK wide decrease of 0.7 percentage points

Sources: ONS and Welsh Government
(a) GB rather than UK average given as Northern Ireland is not included in this measure.

[2] GDHI is the amount of money that all individuals in households have available for spending or saving after taxes and social contributions are deducted.
[3] Bean (2016) highlights the need to improve regional statistics on economic performance. Dunnell (2009) proposes that GVA per hour worked (rather than per person) is a better indicator of regional productivity. In 2014, GVA per hour worked in Wales was £25.91 (84 per cent of the UK average, and the lowest of any country or region other than Northern Ireland).

Experts suggest that the occupational structure of Wales can in part explain this poor performance of GVA per person. With a relatively high concentration of public sector jobs[4], Wales is more susceptible to cuts in government spending. Analysis of wages and welfare expenditure show that Swansea and Newport – both home to large public sector employers – have been hit particularly hard during the current period of austerity (Centre for Cities, 2016). While the Welsh Government has acted to protect public sector jobs in Wales where it can, this position is difficult to maintain.

The all-Wales picture on GVA also masks substantial regional and local differences. East Wales (84 per cent of UK average) performs better than West Wales and the Valleys (64 per cent of UK average); while at the more local level, GVA per person ranges from 54 per cent of the UK average in Anglesey to 90 per cent in Cardiff and the Vale of Glamorgan (ONS, 2015a).

The economic performance of parts of West Wales and the Valleys is hampered by a combination low wages, and a relatively low employment rate (particularly among men) resulting in low purchasing power. This region, along with Cornwall and the Isles of Scilly, were the only remaining areas of the UK to qualify for EU structural funding as less developed regions in the 2014-20 programme.

Some experts argue that, on the measure of GVA per person, the relative economic performance of Wales may not be that surprising given the skills base, demography and geography of the country. For example, areas with older populations such as Wales naturally tend to have lower GVA per person. When making regional comparisons, experts also suggest that indicators such as cost of living should be taken into account as this impacts on quality of life. Taken together, these indicators help give a more nuanced and complete picture. For example, housing in Wales is much more affordable than London, given average salaries. Under the 'core-periphery model' (Krugman, 1990), it could be argued that Wales benefits from the spillover effects of the strength of the Greater South East core, while foregoing the costs associated with congestion and high cost of housing. Other experts, however, have argued that such an acceptance of uneven economic development leads to poorer life chances for those in peripheral economies (Gwilym, 2015).

[4] In Wales, 20.8 per cent of total employment is in the public sector, below that of Scotland (21.3 per cent) and Northern Ireland (25.2 per cent) but higher than the overall UK average of 17 per cent (ONS, 2016b).

Looking forward, experts identified the challenges faced by the Welsh economy being the ongoing austerity programme (given the relatively large proportion employed in the public sector), and the relatively high proportion of the population that is economically inactive.

Stimulating Economic Performance in Lagging Regions

One of the themes explored in the workshop was the evidence about which factors can contribute to improving economic performance in lagging regions. In developed countries, such regions are often supported by fiscal transfers and subsidies (OECD, 2012). However, emerging evidence suggests that economic growth can be stimulated but different approaches may be needed to those used in leading economic regions. In turn, this section of the report will consider the roles of:

- Innovation and entrepreneurship;
- Infrastructure and agglomeration;
- Education, skills and training;
- Inward investment and local ownership; and
- Government finance

Innovation and entrepreneurship

Innovation is important for improving economic performance as, alongside efficiency, it provides the basis for increasing productivity (Carree and Thurik, 2006). In the UK, the highest levels of business innovation are concentrated in an arc stretching from Cambridge through Oxford and along the M4 corridor (Roper et al., 2015) before reaching Wales, where innovation activity levels are below the UK average.

Experts also noted that the UK average is not a particularly strong benchmark given that innovation activity is below the EU average. Within the UK, innovation activity is generally lower in peripheral regions, as may be expected, although there are notable exceptions such as Tees Valley in the North East of England. Within Wales, innovation activity is generally higher in East Wales than West Wales and the Valleys (Table 2). This is particularly the case for product and service innovation, where firms in East Wales are among the better performers across the UK. However, both regions are ranked near the bottom for ‘new to the market’ innovations.

Table 2: Ranking of East Wales and West Wales & Valleys by innovation benchmarks (N=45)

	East Wales	West Wales & Valleys
Overall	**29**	**34**
Product and service innovation	12	35
New to the market	36	37
Process innovation	34	20
Strategic and marketing innovation	20	28
R&D	32	28
Collaboration	28	27

Source: Enterprise Research Centre (2015)

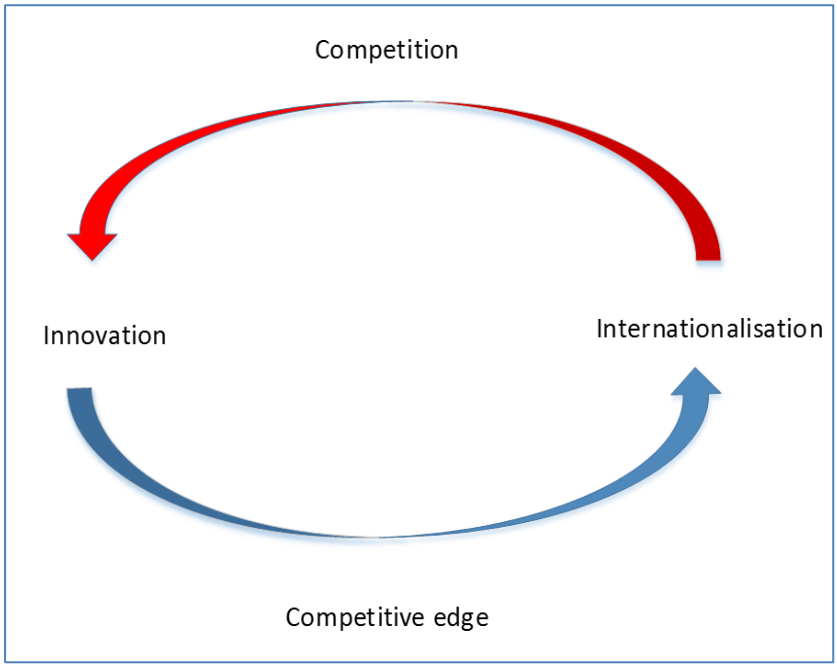
The literature suggests two specific ways that productivity could be improved through innovation in an economy such as Wales. The first is to improve **knowledge diffusion** of innovations among 'laggard firms', while the other is to increase **internationalisation** (or, at least, exporting).

Studies published by the OECD (see, for example, Andrews et al., 2015) emphasise the substantial productivity gap between 'frontier firms' and 'laggard firms', the latter of which tend to be more domestically focussed and less innovative. Promoting knowledge diffusion among laggard firms can be a key mechanism to encourage the adoption of 'new to the firm' innovations to help improve their productivity (Roper et al., 2015). Linked to this, Harris et al. (2015) identify **absorptive capacity** as a key factor explaining regional differences in productivity across the UK. Absorptive capacity refers to the ability of firms to internalise external knowledge and information. To increase productivity, firms can incorporate methods and practices developed elsewhere that will allow them to operate at the limit of their production in terms of efficiency (producing goods and services more cost effectively) and innovation (using innovative processes to produce new goods and services).

The literature also suggests that a virtuous development cycle exists for firms that combine internationalisation with innovation (Figure 1). Innovation allows firms to enter international markets, with 'new to the firm' innovation linked to exporting to Europe, and 'new to the market' innovation linked to wider global exporting (ERC et al., 2015). The virtuous cycle happens where exporting generates learning which in turn reinforces innovation activity, with the positive benefits accruing from firms' increased learning and adoption of innovative processes. True internationalisation, however, goes beyond exporting as it includes international cooperation that can introduce 'new to the market' innovations. For example, SMEs that collaborate with an international university are around a third more likely to

introduce ‘new to the market’ innovations (ERC et al. 2015). According to some experts, innovation and internationalisation has been a key plank of economic policy in the Basque Country – a peripheral region that over the last few decades has turned from post-industrial decline to relatively strong economic growth.

Figure 1: Cycle of innovation and internationalisation



Source: Enterprise Research Centre (2015)

Recent business survey data (BIS, 2016) show that the proportion of innovative businesses[5] in Wales increased from 47 per cent to 51 per cent between 2013 and 2015. During the same period, the overall UK figure increased from 45 per cent to 53 per cent. Experts emphasised the importance of firms engaging in R&D and exporting to help drive greater absorptive capacity. Firms in Wales record the second lowest spend on R&D of all UK countries and regions at 0.45 per cent of GDP, compared with 2.4 per cent in East of England (Harris, 2015)[6]. However, this again masks regional differences within Wales where R&D expenditure is very concentrated in the south-east and Deeside. Experts also noted that R&D spend has been growing at a faster rate in Wales than the UK average since the 1990s. Linked to this, evidence shows that when takeovers of SMEs take place, it tends to

[5] Businesses were defined as innovative if they (a) introduced a new or significantly improved product or process; (b) engaged in innovation projects; or (c) significantly improved their business structure/practice and marketing strategy (BIS, 2016).
[6] It should be noted that regional data on R&D spend can be quite volatile and skewed by large individual projects in a small number of companies.

increase productivity as there is greater investment in R&D, and the firm benefits from increased knowledge diffusion, opportunities to export and greater internationalisation (Foreman-Peck and Nicholls, 2010).

In terms of evidence gaps, experts discussed the possible benefits of deconstructing overall measurements of R&D into different components. For example, it was asked whether productivity gains for Welsh firms would be greater if more was spent on technical development (as is common in Chinese firms) rather than the more abstract research side, although this may vary from one industry to another. It was also questioned whether the assumption that all businesses (particularly micro and small businesses) are profit maximisers is realistic, or whether such business owners prioritise lifestyle and sustainability of their business ahead of business growth, as emerging research appears to suggest (Webber et al, 2016).

Takeovers of SMEs

Despite their relatively low levels of productivity compared with the rest of the UK, Welsh SMEs play an important role in the economy accounting for almost two thirds (62 per cent) of total employment in Wales (Welsh Government, 2015). Historically, Wales has been a net importer of SMEs – i.e. more SMEs relocate *to* than *from* Wales (Foreman-Peck and Nicholls, 2015). These imported SMEs tend grow faster than the homegrown firms – the success of Admiral Insurance being an extreme case. Analysis has also found Welsh SMEs to have the lowest probability of being taken over of all UK countries and regions (Foreman-Peck and Nicholls, 2010), which experts suggest is indicative of weak competition. As takeovers tend to raise productivity, their relative absence in Wales is likely to be restricting growth.

There are debates in the literature over what the role of government should be in encouraging entrepreneurs to innovate – i.e. whether government should take an active or permissive role (see for example Boschma, 2016; Huggins, 2016). However, one area where there is more consensus is regarding the evidence that SMEs that are able to relocate easily and quickly are more likely to grow faster. The policy implication is that obstacles to quick relocation – for example, planning permission for new sites – should be minimised to enable SMEs to grow faster and reduce lost output (Cheshire and Gordon, 1998). In addition evidence from research by Cheshire et al. (2015) suggests that interventionist local planning policies that direct shops to open in certain areas (e.g. town centres) results in lost output for firms.

Unintended outcomes of business improvement methods

Some experts suggested that innovation driven by entrepreneurs can have potential negative feedback loops at the local level if it is disruptive to competing firms. Experts discussed the possibility that naturally occurring competition between firms can lead to a drive to innovate which has positive effects locally, particularly in cutting edge industries. However, attempts to engineer innovation in less competitive regions – for example through business improvement methods (BIMs) – may not be so successful (Harris et al., 2015).

BIMs, such as continuous improvement and Investors in People, are often promoted among firms by policy makers and regional development agencies as a way to develop better management and workforce skills, and improve efficiency. Analysis by Harris et al. (2015), however, found that SMEs in peripheral regions that used BIMs were more likely to be unsuccessful at innovating. This suggests that while BIMs may help firms improve their efficiency, they have the unintended consequence of restricting innovation, at least over the short term. This matters as efficiency and innovation are both key drivers for improving productivity in firms.

While experts argued that more research is needed in this area to unpick the reasons behind this finding and establish if it holds in different contexts, policy makers should be aware that efforts to encourage firms in peripheral economies to adopt BIMs may have unintended negative outcomes for innovation activity.

Infrastructure and agglomeration

Infrastructure is a catch-all term that covers a range of networks used by citizens and businesses, including transport, communications and energy. Areas with good infrastructure tend to be able to support a range of economic activities and there is good evidence that investment in infrastructure is an important factor for driving productivity and growth, particularly in lagging regions and peripheral economies (Haussman et al., 2008; OECD, 2012). Investment in infrastructure is less of a priority in the more advanced regions, often because they already have good infrastructure in place.

Experts noted that current infrastructure investment in the UK – as is the case with many other developed countries – tends to be reactive rather than strategically planned e.g. responding to bottlenecks in the transport network (Eddington, 2006). As a result, infrastructure development will tend to lag behind economic activity, rather than lead it. An implication of this is that a reactive approach to infrastructure planning would presumably show the costs of improving connectivity between north and south Wales to outweigh any benefits – in part because not enough people currently travel between the two areas.

Analysis of the economic geography of the UK shows that there isn't a single unified 'Welsh economy' when measured in terms of human interactions (Ratti et al, 2010). South Wales has a reasonably integrated economy but north Wales is part of a wider region that covers the north-west of England (and the West Midlands economy encroaches on mid Wales).

A number of evidence gaps remain in determining how different infrastructure projects should be prioritised in lagging regions where they will often be competing for investment of finite resources. Given the high costs often associated with infrastructure investment, experts emphasised the need to prioritise different options according to their likely social return on investment, and to also compare with returns on other forms of investment in public goods (such as education). To address this, one suggestion from experts was to have a 'clearing house' or infrastructure commission which could sit within government or as an executive agency to prioritise the different options through estimating their likely social return on investment.

Experts noted that infrastructure investment, while expensive, can pay off relatively quickly, help raise short-run economic growth, and build capacity for the future. Some experts cautioned however that in the case of transport infrastructure, while investment can lead to a concentration of activity in the 'centre' and bring people living in peripheral areas closer to jobs, it can also have the disadvantage of taking activity away from the periphery.

Economies of agglomeration

The literature suggests that large urban areas benefit from economies of scale and associated network effects, which can help generate higher wages. When large urban centres are underpinned by good transport networks and other types of infrastructure, this allows workers to be closer to jobs, and makes business to business contact easier. Agglomeration also enables better matching of skills to jobs – almost three quarters of high skilled jobs in Britain are in cities (Centre for Cities, 2016). It also supports the transfer of ideas between firms, which in turn enables innovation and increased productivity (Volterra, 2009). Experts commented that the better GVA performance of East Wales compared with West Wales and the Valleys is in part due to the proximity to major centres of population in England.

As productivity levels are higher in larger cities, a policy implication of this may be to invest more in developing city regions (Rosewell, 2016) – something that is clearly relevant to the Cardiff Capital Region and Metro projects. Analysis of employment density and earnings shows Cardiff to be 'on the cusp of achieving a scale and density which would allow higher wages and productivity' (Rosewell, 2016: 29). However, while investment in infrastructure

may bring benefits to south-east Wales, experts also argued that other forms of investment may be more valuable for the large swathes of Wales that are rural, such as investment in digital infrastructure. To complement these multi-billion pound investments, experts questioned whether more could more be done to retain students graduating from universities in Cardiff and Swansea, and to advocate these cities as attractive bases for large companies looking to relocate outside London. Studies also suggest that cities and regions should look to attract the 'right sort' of companies that will make use of a high-skilled workforce – a spillover effect of this is that lower skilled jobs in such companies (such as administrative or back office positions) will tend to pay more (The Economist, 2016).

Cardiff's city deal bid has attracted money from the UK Treasury, creating opportunities for the area. Experts discussed whether this could be replicated elsewhere in Wales. The evidence suggests that the Swansea region is currently some way off being large enough to benefit from agglomeration effects, and so the proposed city deal is instead focussed on smart specialisation based on testing internet and digital innovations (Swansea Bay City Region, 2016). While north Wales lacks a large urban centre, experts suggested that north-east Wales could take advantage of linking across to the 'northern powerhouse' – something that is being pursued in the Mersey-Dee Alliance[7].

Overall, the evidence shows that effective infrastructure in its various forms (transport, communications and energy) is a key driver of increased connectivity, productivity and economic growth in peripheral economies. The key evidence needs for Wales in this area relate to prioritising different projects according to the likely return on investment according to economic success and general wellbeing of the population.

Education, skills and training

Evidence shows that skills are an important driver of economic growth (Leitch, 2006). An increase in educational attainment makes individuals more likely to be employed and more likely to earn more. Specifically, there is good evidence that reducing the numbers of people lacking basic skills and investing in early childhood development are good ways of improving long-term economic outcomes in lagging economies (Cunha and Heckman, 2007; Heckman, 2007; OECD, 2012). In addition, experts have also pointed to emerging evidence on higher education strategies and vocational training which may be of benefit to the Welsh context.

[7] See http://www.merseydeealliance.org.uk/

Early childhood development

Studies from the United States provide evidence that investment in early childhood development, particularly for disadvantaged families, produces a positive rate of return for economic productivity over the longer term (Cunha and Heckman, 2007; Heckman, 2007). The analysis suggests that the earlier the investment, the greater the return:

> "The highest rate of return in early childhood development comes from investing as early as possible, from birth through age five, in disadvantaged families. Starting at age three or four is too little too late, as it fails to recognize that skills beget skills in a complementary and dynamic way. Efforts should focus on the first years for the greatest efficiency and effectiveness." Heckman (2012)

This literature suggests that investment in early years education and childhood development is less costly and more effective than corrective action taken in later life. While its applicability in contexts outside the United States is not clear, experts commented that the Welsh Government's Foundation Phase initiative is notable for being based on international evidence of 'what works'. The implementation and impact of the Foundation Phase is being evaluated, and the long term economic outcomes will not be discernible for many years. In any case, disentangling the long term impact of early interventions can be notoriously difficult to do (Feinstein, 2015).

Higher education

Evidence from large sample cohort studies of graduates in the UK show that certain subjects – particularly medicine, economics and law – have significantly higher returns on investment in terms of median salary and likelihood of employment than other degrees (Walker and Zhu, 2010; Britton et al., 2016). Physical science, mathematics and engineering graduates, meanwhile, have lower employment probabilities than social science and business graduates.

As a potential policy implication of this, experts discussed the value of focusing on skills and qualifications that are rewarded in the labour market in terms of employment and salaries, rather than having a blunt approach in targeting STEM subjects, which the emerging evidence suggests may be partial, or misguided. This would align with the Welsh Government's most recent long term higher education strategy (2009) to invest in skills that underwrite the country's competitive advantage. However, it is plausible that the impact of certain degrees may be overestimated if the abilities of those studying such subjects differs to others. In other words, subjects with the higher returns on investment may reflect the selection of better equipped students into those subjects (Walker and Zhu, 2010). In

addition, given that the returns on investment for different subjects were calculated at the UK level, it is not clear to what extent these returns would be on offer to graduates in Wales. It is apparent that more research and analysis is required in this area before making firm conclusions.

Basic skills and qualifications

For lagging or peripheral economies, the evidence shows that reducing the negative impact of the large share of a workforce at the bottom of the skills distribution is of more importance to the economy than increasing the proportion with degrees and other tertiary qualifications. A focus on reducing the number of people lacking basic skills and qualifications could therefore have a large pay-off for economies such as Wales:

> "For all types of region, human capital appears to be critical, though its relative importance varies according to the level of development. Overall, reducing the proportion of people in a region with very low skills seems to matter more than increasing the share with very high skill levels." OECD (2012)

As well as providing the basis for improved outcomes at the individual and regional level, some experts also commented that a spillover effect of such a policy would be to help reduce socio-economic inequalities and promote greater social cohesion.

OECD data show that there is a positive correlation between educational attainment and GDP per capita across developed countries – but the economic performance of countries with similar education levels can also be markedly different (Grugulis et al., forthcoming, cited in Mayhew, 2016). This suggests that an increase in education or skills will only directly impact on economic performance if the skills acquired are being used in the labour market. Where the skills in supply do not match those demanded by the labour market, a 'vertical mismatch' occurs – in other words, individuals are over or under qualified for the jobs on offer. Applying this insight to Wales, Mayhew (2016) recognises that many jobs currently on offer in Wales are low skilled and low waged, and a high proportion are held by workers who are over-qualified. This would suggest that the skills held by the workforce in Wales are not being fully used, and are therefore not making the contribution to productivity and economic performance that they could be.

Given that reducing the number of individuals with very low skills is a key mechanism for improving the relative economic performance of lagging economies, an apparent evidence need for policy makers is to identify how best to achieve this. Mayhew (2016) suggests that Dutch vocational schools offer a relevant model for Wales to prepare school leavers for the jobs that are on offer in the current labour market. Currently, those who leave school with no

qualifications are unsurprisingly the most likely to fair badly when entering the labour market. However, a focus on increasing their skills and qualifications to a basic level is likely to better prepare them for the existing labour market, echoing the finding of the OECD. As employers that offer low skill / low wage jobs are unlikely to provide training (Keep and Mayhew, 2014), funding for vocational schools may offer a better return on government investment than paying direct employer subsidies.

Experts also suggested changes being made to the school leaving age to reduce the proportion of pupils leaving school without qualifications, and investing more in apprenticeships could be effective ways of reducing low skills. The evidence on apprenticeships, for example, shows that the returns for individuals tend to be high although evidence of the impact on firms is lacking (What Works Centre for Local Economic Growth, 2015). Policy makers in Wales should therefore look to undertake systematic comparisons of evidence to identify a model that is most likely to achieve the desired outcome of reducing very low skills and qualifications.

Overall, while there is a strong consensus among the experts and in the literature that education and training are a vital part of any government's plan to improve economic performance, there may be a tension in the policy implications between short-term and long-term planning. While investing in technical and vocational training may be appropriate for the contemporary labour market in peripheral economies, over the longer term it may be desirable to invest more in generating employment that makes use of higher skills, which in turn could improve the relative GVA position (Mayhew, 2016).

Inward investment and local ownership

The literature suggests that inward investment can play a role in improving technology, productivity and international competitiveness of lagging economies. Analysis of inward investment across different regions of Europe has also found that local firms benefit from learning about the new technologies and management skills brought with such investment (Copenhagen Economics, 2006), reflecting the role that knowledge diffusion, absorptive capacity and internationalisation can have in stimulating innovation and productivity. The paper concludes that there is strong evidence that inward investment plays a pivotal role in developing the economies of Europe's lagging regions. This analysis identified a number of factors for attracting inward investment, including:

- good infrastructure in transport and communications;
- having a highly educated workforce; and
- a high level of R&D spend.

This echoes the findings from the OECD (2012) that policies in lagging regional economies should focus on improving human capital (skills) and infrastructure. Such policies make investment more attractive, and productivity spillovers to other firms more likely.

However, with the growth of emerging economies and the relatively recent expansion of the European Union, regions like Wales are facing increased competition to attract inward investment than they experienced in the 1990s and early 2000s (Crawley et al., 2012). Attracting inward investment under such competitive circumstances may have less positive consequences. Some experts commented that large multinational companies encourage regional development agencies to compete with one another to attract investment – effectively resulting in a 'race to the bottom' where the successful region is the one that undercuts its competitors the most (e.g. relaxing labour standards) and/or offers incentives that diminish the net benefit of the investment (Davies and Vadlamannati, 2013).

According to some experts, in-situ growth of firms can be a more important contributor to job creation than inward investment, suggesting that policy makers should focus on fostering internal growth and entrepreneurship rather than prioritising inward investment. Overall, however, there is little consensus among the experts on the value of attracting inward investment, or how much of a priority it should be – especially in a climate of increased competition between regions. An evidence need of this may be to examine further the potential contribution of inward investment in economies such as Wales, and to establish the existence of trade-offs (if any) in fostering internal growth.

Government finance

High growth start-ups can play an important role in driving economic growth as they tend to account for most new jobs created in the private sector (Decker et al., 2014). The evidence suggests that different types of financing are appropriate for SMEs depending on their maturity. For example, venture capital style financing is suitable for new start-ups as it allows risk to be shared, while repayable loans are more appropriate for established or growing firms. As a result, start-ups, growing firms, and those involved in takeovers all have different sources of finance. Experts identified a gap in the market for continuity capital for start-ups and SMEs that are looking to expand – a role that could perhaps be played by a public bank.

When looking for financial support, many start-ups are hampered by not having a track record or collateral, and lagging regions may suffer an absence of private venture capital funding. Therefore, there may be value in exploring the effectiveness of establishing a public development bank that would help pool risks in the same way that would occur in private

venture capital financing. For this to happen however, there must be acceptance of some losses of public money.

Rigby and Ramlogan (2013) examined the international evidence base of the effectiveness and implementation of measures taken by governments to provide financial assistance and subsidies to firms, focusing on venture capital and loan guarantee schemes. It was difficult to establish conclusive evidence on the effect of these schemes on innovation at the firm level and in the wider economy. However, the authors suggest that the two forms of government finance should be used at different stages: venture capital at the more risky pre-market development stage, followed by use of credit guarantees upon market entry.

Evaluations of government loan guarantee schemes for SMEs in the UK, such as the Enterprise Finance Guarantee Scheme and its predecessor (see Allinson et al., 2013; Cowling, 2010), demonstrate their success in creating additional output and employment, and in providing a substantial net benefit to the economy. Such schemes are established to address the market failure of viable SMEs not having access to commercial loans due to a lack of collateral.

In recent years, government financing of firms has tended to concentrate on high growth firms. Analysis shows that financing small business start-ups is often costly and ineffective, generating little employment or wider economic impact (Shane, 2009). Conversely, high growth firms (i.e. those that quickly grow from being small to medium or large in size) are responsible for a high proportion of job creation. Therefore, policy makers need to consider how best to encourage the growth of such firms. According to Mason (2008), public venture capital funds are a preferred tool of policy makers in many peripheral or lagging regions, often in response to the absence of sufficient private venture funds. However, there is growing evidence that these funds are ineffective in stimulating high growth firms (see for example Munari and Toshi, 2015). Mason (2008) suggests that peripheral regions lack the absorptive capacity to make the most of venture capital funding, and argues that policy makers should instead focus on enabling firms to invest more effectively, for example through the use of ‘angel syndicates’ as used in Scotland.

Future evidence plans may therefore wish to incorporate an examination of the role of government finance in promoting economic growth (particularly regarding an SME development bank), and whether business rates relief impacts on innovation, productivity and wider economic growth.

Policy Implications and Future Evidence Needs

Wales lags behind the UK average on most measures of economic performance. While the skills base, demography and geography of the country may go some way in explaining this, the evidence suggests that there are policies that can help stimulate economic growth in regions like Wales, and that they benefit from different approaches to those used in leading economic regions.

Table 3 (below) summarises some of the existing evidence base and evidence gaps regarding the role of different factors in stimulating growth in lagging regions. This is by no means comprehensive but represents the main insights gained from the workshop and our discussions with experts. Overall, the existing evidence on 'what works' appears to be strongest in the areas of skills and infrastructure, while there is also good evidence of how firms can become more productive through increased knowledge diffusion and absorptive capacity.

Table 3: Evidence base and gaps for stimulating economic growth in peripheral regions

	Evidence base	**Evidence gaps**
Innovation and entrepreneur-ship	Innovation (alongside efficiency) is a key driver for improving productivity. Knowledge diffusion, absorptive capacity and internationalisation play an important role in improving innovation. Flexible provision of (cheap) business premises can help firms relocate and grow quickly. Removing obstacles to quick relocation could help.	What types of R&D should Welsh firms engage in to boost innovation and productivity? Should governments take an active or permissive role in encouraging firms to innovate? More evidence needed on the long term effects of business improvement methods possibly inhibiting innovation in peripheral economies. More evidence needed on the priorities of micro and small business owners (e.g. personal objectives or maximise profits), and implications this may have for support offered.
Infrastructure and agglomer-ation	Good infrastructure helps support a range of economic activities. Laggard regions have the most to gain from improved infrastructure and connectivity (both internal and external). Agglomeration and improved connectivity helps match skills to jobs,	There is a limit to how much can be invested. Key evidence need is to estimate likely returns on investment, and to prioritise projects on this basis. What is the social return on investment in infrastructure projects versus investment in other public goods, such as education?

	and transfers of ideas between firms.	What infrastructure investments should be prioritised in more rural or sparsely populated areas of Wales?
Education, skills and training	Lagging economies gain more from reducing the proportion of the workforce with very low skills, rather than focussing on increasing the proportion at the top of the skills distribution. Investment in early years education and childhood development has long run productivity benefits, and has a better return than corrective interventions later in life.	Should the HE strategy in Wales be tailored to encourage a greater uptake of degrees that are more highly rewarded in the labour market, and to what extent would these greater returns be on offer to graduates remaining in Wales? What role could vocational schools and apprenticeships play in preparing young people for the labour market? While focusing on the lower end of the skills distribution is suitable for the current labour market, what long-term measures should be taken to encourage a highly skilled workforce with access to high skilled jobs?
Inward investment and local ownership	Inward investment may have the potential to play a pivotal role in lagging economies. Local firms can benefit from knowledge spillovers. Good infrastructure, a skilled workforce and high R&D spend can attract investment.	Increased competition may be creating a 'race to the bottom' for inward investment. In such an environment, is the contribution of inward investment diminished, and should policy instead focus on in-situ growth? Establishing what Wales is 'already good at' will help guide investment and smart specialisation. Does this need to be more focussed (i.e. spread less thinly) than it currently is? What are the trade-offs (if any) between attracting inward investment to Wales and fostering internal growth? Investigating in more detail the role of international trade and innovation alongside inward investment.
Government finance	High growth start-ups can play an important role in job creation. The financing of many small business start-ups can however be costly and ineffective in generating wider employment. There appears to be a gap in the market for 'continuity capital' that could target high growth firms looking to expand.	The role of government finance in the form of an SME development bank (e.g. to provide continuity capital for firms looking to grow) and the wider impact of business rates relief on local economic growth should be examined. More research needed on the effectiveness of different types of government finance schemes to promote innovation at the firm level.

There is good evidence to suggest that skills and infrastructure are important factors for driving growth in peripheral economies such as Wales. Infrastructure improvements can lead to relatively quick wins, while investment in skills can affect outcomes over the longer term. While the levers available to the Welsh Government to directly influence economic performance are relatively limited (particularly over the short term), it can determine policy in its education and skills strategy, and in its strategic approach to infrastructure investments in Wales.

International comparisons on economic growth in developed countries have found that areas that are growing fastest have, "more infrastructure [and] better human capital" compared with under-preforming areas (OECD, 2012: 65). This emphasises the importance of improving skills (specifically, reducing the proportion of individuals with very low skills – something that would presumably require cooperation between the economy and education departments in Welsh Government) and investing in infrastructure to increase economic mass, and improve internal connectivity within Wales, and external connectivity with the nearby major centres of population in England.

To improve the productivity of firms in lagging regions, the evidence suggests that knowledge diffusion can play an important role in encouraging the adoption of innovations that will help improve productivity. Linked to this, greater internationalisation (e.g. collaborating and exporting) can reinforce innovation activity and drive productivity. However, an area for further investigation may be to explore the degree to which owners of micro and small firms in Wales are profit maximisers (as standard theory would assume), or whether aspects such as lifestyle and personal objectives are a greater priority.

Beyond these areas, there is less conclusive evidence on the contribution of other factors, or the direction that policy makers should take. Therefore, it will be important to embed ex-ante evaluation in economic development policies that concern innovation and supporting growth of SMEs through government finance (where more research needs to be undertaken) or attracting inward investment (where the evidence can be conflicting). As an area for further investigation, there may also be benefit from examining the role of international trade alongside inward investment (this research has considered them separately).

One suggestion made by experts was that such an evaluative approach to a Welsh economic strategy could be supported by a 'productivity commission for Wales' made up of business people, academics and other experts with a remit to identify problems, gather evidence and make recommendations on priorities for investment. Another suggestion to build capacity for appraising priorities and evaluating return on investments could include the

development of an independent 'IFS (Institute for Fiscal Studies) style' organisation in Wales that would inform public debate on economic development policy.

Improving official statistics on regional economic performance has also been identified as a future evidence requirement. The Bean Review (2016), for example, discusses the need to expand the range of economic indicators used at regional and local levels to support policy making. The Welsh Government (2016b) now publishes a basket of high-level indicators[8] covering four themes (income, output, work and poverty, and wealth) to provide a more comprehensive picture of the economy than would be given by focusing only on GVA measures.

Given that individual policy interventions taken in isolation can sometimes have unintended negative consequences (such as the potential for business improvement methods to inhibit innovation), policy makers should focus on co-ordinating the right mix of policies that complement one another.

There are no silver bullets for stimulating the economic performance of lagging economies overnight. However, a focus on human capital (particularly addressing low skills), connective infrastructure (internal and external), and diffusing knowledge and innovation among firms should form a central part of the policy mix, and benefit the economy of Wales over the longer term.

[8] See http://gov.wales/statistics-and-research/economic-indicators/?tab=ei_home&lang=en

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* Submitted a written contribution and presentation in advance of the workshop but could not attend on the day.

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