Developing effective local industrial strategies

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what works centre for
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Developing an effective local industrial strategy: 10 things to consider

1 What is the state of the local economy?

- The appropriate mix of policies for a LIS will vary across different places.
- Do not focus on measuring economic performance against high-level numerical targets; clarify high-level local objectives, and monitor and evaluate individual programmes and projects that contribute to them.
- Choose the most useful comparison for informing specific policy decisions (for example, the national average or a specific group of places with similar characteristics).
- Sectoral analysis can help to target 'horizontal' policies (for example, skills and employment training programmes) and identify local strengths to facilitate coordination with national interventions. But be wary of trying to achieve a particular sectoral composition.
- Look for new sources of data (data extracted from websites, for example) and find ways to combine quantitative data with qualitative data to build a more granular understanding of the local economy.

2 How is the economy evolving?

- Recognise, and try to mitigate, the political pressures that will tend to favour support for existing employment over new activity that can help to diversify and grow the economy over the longer term.
- Use scenario planning, as opposed to complicated, and often expensive, local economic models to structure thinking about the future and potential changes.
- Be very careful before incurring large fixed costs on a project, and consider options for waiting until there is less uncertainty.

3 Supply side or demand side?

- Distinguish between supply side (for example, constraints on finance) and demand side (for example, weak business plans) as explanations for under-performance.
- Avoid 'build it and they will come' supply side strategies intended to generate sufficient demand.
- Use market signals (for example, land prices and wages) to help make decisions, such as *where* to put specific investments.

4 Targeting the policy response

- Identify the market failures that impact the local economy and whether these can be usefully addressed at the local level.
- Identify a range of policy options to address each local development challenge, and compare the intended costs and benefits.
- Look beyond economic averages to the likely consequences for different types of firms and households.

Impact on competition 5

- LIS will be designed to change market outcomes. But distorting competition may have a negative impact on innovation and productivity growth.
- Preferencing particular sectors or large local employers should be justified on the basis that their size means there are large benefits relative to the costs of addressing market failures that affect them; not simply because they constitute a large share of the local economy.
- 'Horizontal' interventions (i.e. not targeted at particular sectors) mitigate any negative competition effects by supporting multiple firms and sectors.

Experimentation 6

- Experiment to find more cost-effective ways to support economic growth, with a clear idea of what constitutes success (and failure) and observable criteria for monitoring it.
- Share plans for, and results of, experimentation with other local authorities to identify opportunities for collaboration and so everyone can benefit from your experience.

Independent experts 7

- Use independent panels (drawing together individuals with the appropriate expertise, no conflicts of interest and protected from political interference) and peer review mechanisms to scrutinise evidence and policy priorities.

Sharing the risk 8

- Find ways to share the risk of investing by co-funding interventions with the private sector and involving them in the decision-making process.
- Develop ongoing contact and communication with the private sector to help identify and remove obstacles to growth. But remain autonomous and be careful to avoid 'capture' by local vested interests.

Evaluation and feedback 9

- Evaluation, embedded from the start of the policy design process, helps to improve policy design and inform future decision making, by assessing whether policy has the desired impact and is cost-effective.
- Evaluation should be proportionate, and focus on specific programmes and projects where good evaluation is feasible.
- Build in sunset clauses and use monitoring and evaluation to make decisions about whether to continue funding the programme or re-design specific elements.

Coordination 10

- Coordinate across different stakeholder organisations, related policy areas and spatial levels with a broader vision and objectives in mind.
- Accountability and transparency is essential to keep everyone informed and on board.

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Introduction

This report sets out the initial findings from a What Works Centre for Local Economic Growth project which aims to help places develop effective local industrial strategies (as proposed in the national Industrial Strategy launched by BEIS in November 2017). Local industrial strategies (LIS) will 'build on local strengths and deliver on economic opportunities' identifying 'priorities to improve skills, increase innovation and enhance infrastructure and business growth.'[1] While some places might use their Strategic Economic Plan (SEP) as a framework, the intention is that LIS will differ in approach, with joint local-national policy making and collaboration between local leaders in the public and private sectors, and that they will be more focused and action-driven. LIS will be used to 'guide the use of local funding streams and any spending from national schemes.'[2] LIS should help places make choices among different options for investment and support. Alongside LIS, the Local Enterprise Partnership (LEP) review and the forthcoming UK Shared Prosperity Fund are considered interdependent work streams.

Over the last five months, we have worked with a group of local and combined authorities, LEPs[3] and central government to understand the challenges that they face in designing a LIS that is evidence-based and builds upon the Strategic Economic Plans that areas have in place. This report outlines a set of emerging ideas about how both local and central government might address some of those challenges. We do not view these ideas as set in stone, and will continue to work with local and central government to further develop them and to apply the ideas to a range of policy areas.

As is often the case, there has been a great deal of academic work developing theories and conceptual frameworks that might help inform the development of LIS. Unfortunately, as is also often the case, many of the basic principles are strongly contested, even when different perspectives may lead to similar policy prescriptions. And these different principles are not always easy to translate in to practical recommendations that can be used by non-specialist practitioners.

1 HM Government (2017) Industrial Strategy: Building a Britain fit for the future.

2 Ibid.

3 D2N2 LEP, Greater Lincolnshire LEP, Lancashire LEP (including Blackburn, Blackpool and Preston), Liverpool LEP, Newcastle and the proposed North of Tyne Combined Authority, SEMLEP (including Milton Keynes), Peterborough, Southampton (and Portsmouth), West of England (including Bristol), West Midlands Combined Authority and York.

Finally, there is also a strong bias towards national policies and lessons that do not always translate easily to the local setting.

In what follows, we've drawn on a wide range of academic literature (in particular, Rodrik 2004 and Tirole 2017)[4], one-to-one and group meetings with all our local areas, discussions with central government, and the team's many years of experience in advising local government. We have used this collective knowledge to develop a set of principles that we think local policymakers should consider when designing local strategies.

These principles are not brand new, although we've seen nothing that tries to pull them together in the way we have done here and with a specific emphasis on LIS. Many places will already be thinking about some of these issues in their approach to economic development policy, although on the basis of our discussions with local areas, we suspect nowhere is considering all of them. We have tried to be open on issues where there continues to be strong disagreement, while being more forthright on issues where the literature, and our experience and conversations to date suggest that stronger recommendations are warranted.

The second part of the report provides a specific example of how these principles could be implemented. We intend to develop further case studies as our work in this area progresses.

We hope that this document will be a useful outline of first principles and the practical recommendations which follow from them. It should help local areas describe and analyse their local context, understand the case for intervention, and outline the policy options for achieving realistic ambitions based on the evidence around what works. We also hope that it will inform the development of local strategies more generally, and sit alongside our work on the evidence base as guidance for local economic growth policymaking.

4 Rodrik, D (2004) Industrial Policy for the Twenty-First Century. CEPR Discussion Paper 4767. London: Centre for Economic Policy Research; Tirole, J (2017) Economics for the Common Good, Princeton University Press.

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10 Considerations

1
What is the state of the local economy?

Key points

- The appropriate mix of policies for a LIS will vary across different places.
- Do not focus on measuring economic performance against high-level numerical targets; clarify high-level local objectives, and monitor and evaluate individual programmes and projects that contribute to them.
- Choose the most useful comparison for informing specific policy decisions (for example, the national average or a specific group of places with similar characteristics).
- Sectoral analysis can help to target 'horizontal' policies (for example, skills and employment training programmes) and identify local strengths to facilitate coordination with national interventions. But be wary of trying to achieve a particular sectoral composition.
- Look for new sources of data (data extracted from websites, for example) and find ways to combine quantitative data with qualitative data to build a more granular understanding of the local economy.

The appropriate mix of policies for a LIS will vary across different places

The starting point for a LIS should be a clear understanding of the structure of the local economy. Understanding trends in employment, skills, business development, enterprise and innovation, housing and infrastructure will help identify the relative strengths and weaknesses of the economy, as well as potential barriers to growth. Understanding the economic geography within LA, CA and LEP areas, and economic linkages to other areas, is also important. Many local economic strategies already include this kind of analysis. So, how could LIS improve on existing strategies?

Do not focus on measuring local economic performance against high level targets

The ultimate objective of the industrial strategy is to boost productivity and create high quality, well-paid jobs across the country. Such high-level aspirations are important, and need to be worked through to specific objectives and priorities. However, expressing the latter as numerical targets (for example, adding X thousand jobs or raising productivity by Y% over some timeframe) and measuring success against these targets may not be helpful for several reasons. Firstly, such numerical targets are usually highly speculative. Secondly, on their own they don't help with prioritisation or in managing trade-offs. Thirdly, they do not provide credible accountability mechanisms and can lead to unintended consequences. Finally, a great deal of effort can be expended agreeing and monitoring such high-level targets. The national industrial strategy doesn't do this, and LIS should follow this example. Instead of high-level targets, local leaders should focus on clarifying appropriate high-level objectives, while effectively monitoring individual programmes and projects that contribute to these objectives, and evaluating them where possible.

Make the right comparisons

Monitoring and analysis of local economic performance often requires appropriate comparisons to be useful. This might be comparisons to other countries (e.g. for the percentage of UK GDP that will be spent on R&D), to the national level (e.g. to understand the relative importance of different sectors) or to similar areas (e.g. to identify possible explanations of weak performance on a specific economic indicator). It's important that areas make the right comparisons. For example, benchmarking against national averages often won't tell us much about appropriate policy interventions for areas that are disadvantaged on many dimensions. Comparing against other multiply-disadvantaged communities might be more helpful. National averages may be a useful benchmark, however, when trying to identify relative sectoral strengths. There are no hard and fast rules that can be applied, but places should ask themselves what the most useful comparison is to inform the policy decision at hand.

Improve sectoral analysis, and understand its limitations

Given our current state of knowledge about the underlying drivers of economic growth, local policymakers should be wary about trying to achieve a particular sectoral composition (shares of businesses or employment in specific industries) in their area. The sectoral composition of a local economy is an outcome of a large number of decisions taken by both firms and workers about where they want to locate and what they want to produce. Furthermore, the link between sectoral composition and local economic performance is complex. The supply chains (or 'value chains'[5]) for today's industries typically stretch well outside a given local economy, and sometimes across multiple countries. They are driven by factors that are not straightforward to understand, and will change in the future in ways that are hard to predict.

5 The set of activities that is performed to bring a particular product or service to market.

Yet analysing the sectoral composition of a local economy can be helpful for several reasons. Economic conditions can vary across different sectors and sector specific knowledge can help design 'horizontal' policies (such as, skills and employment training programmes) more effectively, for example.[6] Sectoral analysis can also help local policymakers understand the local spatial footprint of a given industry, and how their area is plugged into larger value chains. In turn, this can help local areas coordinate their own policies with national interventions – especially sector deals, but also cross-sector grand challenges – and potentially, justify funding and support for these.

For some questions, simply understanding sectoral shares in the local economy, and the likely pattern of development over time will be helpful – for example, when trying to predict demand for specific skills or types of commercial provision. Shift-share analysis (an estimate of local growth attributable to local, industry and national factors) might help understand current trends. But simple sectoral shares and shift share analyses don't identify areas of relative strength, or help make the case for policy. As discussed above, identifying relative strengths needs appropriate comparisons on appropriate indicators. Comparison with national industry shares, typically through location quotients, is a good first step. Herfindahl-Hirschman indices, which effectively measure the market share of individual firms within a given industry, may also help. But these measures generally need supplementing with analysis of sectoral *productivity* to understand whether relatively large employment shares represent strength or weakness. Even then, none of this analysis makes the case for policy (see *4: The most appropriate interventions*). Similar arguments apply for skills, infrastructure and other key growth drivers.

Develop a more granular understanding

Moving beyond simple summary statistics is important for beginning to understand where policy interventions might be needed. For example, input-output analysis can be used to better understand inter-industry linkages and spillovers. As discussed above, mapping out the geography of particular activities (relating to specific techniques and products as opposed to sectoral shares) may also help make the case for local areas to be involved in national-level sector deals and grand challenges.

In some cases reliance on standard industrial classification systems may be problematic, as codes are often not representative of newer industries. Other sources of data – administrative data or data accessed through collaborations with web-based firms, for example – can be used to complement traditional survey data.[7] Combining quantitative data with qualitative data can help build a more granular understanding of the firm base and where the barriers to growth lie. Information on firm ownership, product investment, value chain linkages, and how new knowledge is accessed and shared by the variety of firms in the area can also be useful.

Policymakers should take a flexible approach, and look to work with other areas – given that activities with a large footprint in one local economy are highly likely to spill over administrative boundaries.

6 Department for Business, Innovation and Skills (2012) Industrial Strategy: UK Sector Analysis.

7 We will be publishing a supporting paper on innovative use of data in the near future.

2 How is the economy evolving?

Key points

- Recognise, and try to mitigate, the political pressures that will tend to favour support for existing employment over new activity that can help to diversify and grow the economy over the longer term.
- Use scenario planning, as opposed to complicated, and often expensive, local economic models, to structure thinking about the future and potential changes.
- Be very careful before incurring large fixed costs on a project, and consider options for waiting until there is less uncertainty.

Balance the old and new

In establishing the priorities for the LIS, areas need to work out how to achieve a balance between fostering new ideas and supporting existing economic activity; and similarly between working with new entrants versus existing employers. Luton Council, for instance, recently signed an estimated £3.2 million investment package with local employer Peugeot SA to help save the town's Vauxhall van factory. While this may safeguard the factory's 1400 jobs for now, it also comes with the opportunity cost of not being able to spend as much on other activities such as skills programmes and innovation grants. Whether this is a sensible intervention or not is as yet undecided. But it highlights how important it is to recognise, and try to mitigate, the behavioural biases (anchoring and loss aversion) and the political economy pressures at play. These will tend to favour existing employers and activities, at the cost of supporting new activity which can help to diversify and grow the economy over the longer term. Decision-making processes should be designed to achieve an appropriate balance. This is an issue we return to below.

Don't try to forecast the future: scenarios versus modelling

As highlighted in the Industrial Strategy Commission report,[8] understanding the potential impacts of technological change must play an integral role in any strategy. Other trends, including globalisation, demographic change, urbanisation and environmental change, will also matter.[9] However, our discussions with local areas suggest there is a danger of too much emphasis being placed on complicated, and often expensive, local economic models. Scenario planning is likely to be more useful in the decision-making process as a way of structuring thinking about an increasingly complex future economy, identifying trends, potential risks and uncertainties, and planning for them.[10]

8 Industrial Strategy Commission (2017) The Final Report of the Industrial Strategy Commission.
9 Bakhshi, H et al (2017) Future of Skills: Employment in 2030, NESTA.
10 For further information see Government Office for Science Foresight Horizon Scanning Centre (2009) Scenario Planning

Scenario planning could also offer a useful way to 'stress-test' the LIS. Local economic models may sometimes be a useful input into the scenario planning process, but should not be a substitute for it. Bear in mind too that, in assessing LIS, central government will want to interrogate supporting evidence and it will not be possible for them to cross-check the validity of outputs from bespoke, proprietary local economic models. This is also an issue for many local organisations who will have an interest in developing or assessing their areas LIS.

Accommodate uncertainty: minimise sunk costs, and have a Plan B

Industrial policy is often experimental, needing to make a series of bets on how firms and workforces are likely to change in future, and how best to support the local economy in light of those changes. As we explain below, successful implementation means being able to scale up activities that work, and being able to shut down things that are not working. In this setting, local policymakers should be very careful before incurring large fixed costs on a project – especially if the project is targeted at a particular sector or activity.

In principle, there are important arguments for making such investments when these fixed costs won't be met by the market, and where there are potentially large benefits to the local economy (Box 1). But it's important to recognise the 'option' value of waiting – sometimes major uncertainties will resolve themselves before big costs need to be sunk. It's also important to be realistic about the probability of success and to think about alternative uses of sunk cost investments in the case of failure. Finally, think about the distribution of costs and benefits (to other areas, or to the private sector) and make sure that risks and costs are shared appropriately. We return to this issue below.

Box 1: MediaCityUK and the National Graphene Institute

MediaCityUK (the BBC's home in the North of England) and the National Graphene Institute (set up to commercialise the one atom thin form of carbon) are two Manchester-based projects with large fixed costs but different rationales, timescales, distributions of benefits, sunk costs and levels of uncertainty.

The MediaCityUK project began with the BBC signalling its intention to move jobs to Manchester. It sought to take advantage of large previous public investment in remediation of the old Salford Docks at the head of the Manchester Ship Canal. Peel Holdings led the development of the mixed use site with the BBC, ITV and University of Salford confirmed as anchor tenants. That is, the sunk costs of the project were shared amongst multiple actors. Risks were also reduced because the project looked to reinforce an existing strength (Manchester was already the northern hub of the creative sector). While the wider benefits, and the distribution of these, are yet to be properly assessed, these cost and risk factors help strengthen the case for local government investment.

The National Graphene Institute (NGI) and the Graphene Engineering Innovation Centre (GEIC) are in contrast a targeted use of EU, national and local public funds to support research and commercialisation. Opening in 2018, the GEIC (also funded through £30m private sector investment) will house a cluster of UK-based graphene firms plus the development labs of larger firms. Sir Andre Geim, who discovered graphene, has emphasised how long the commercial gains can take to realise by citing the 20 to 40 year study of silicon. The commercial gains are also likely to be nationally and internationally spread, as would be expected from a national institute.

While both of these initiatives are sector-specific, they vary by how much the public sector was leading the market, by the timing and spatial extent of benefits, by the risks and uncertainty and by the sharing of costs between different sectors. The investment in MediaCityUK was focused on a mature market with several potential players, as opposed to Graphene which was and still is in its infancy and carries a higher risk, both increasing the probability of there being a sunk cost.

It is far too early to take a position on the relative success and importance of these two initiatives. But they clearly highlight how the distribution of benefits and the profile of costs affect the case for intervention for both local and central government. LIS will need to carefully consider these issues in developing propositions that involve large sunk costs and high uncertainty.

3
Supply side or demand side?

Key points

- Distinguish between supply side (for example, constraints on finance) and demand side (for example, weak business plans) as explanations for under-performance.
- Avoid 'build it and they will come' supply side strategies intended to generate sufficient demand.
- Use market signals (for example, land prices and wages) to help make decisions, such as *where* to put specific investments.

Distinguish between supply and demand as explanations for under-performance

When thinking about policy intervention, be clear about the market forces and underlying factors that are driving change.

For example, for the UK as a whole, the graduate wage premium (the average university graduate earned £10,000 more than the average non-graduate in 2017[11]), coupled with the relatively high employment rates among graduates, suggests that the *supply* of high skilled workers is an important barrier to growth.[12] Many local areas will exhibit similar premiums for graduates again pointing to the supply side as a potential barrier to growth. But in some areas, we might see similar wage and employment outcomes for graduates and non-graduates, which suggests that in those areas, the problem is more likely to lie on the *demand* side – the local economy struggles to generate opportunities for graduates and non-graduates alike.

Similarly, while lack of finance is often cited as a constraint to SME growth, it is important to distinguish between difficulties in accessing finance due to bad projects, poor business plans or tough local economic conditions (a demand side problem) versus credit constraints which stop firms with good projects from borrowing (a supply side problem).

For these examples, the market failures that would justify intervention and the best policy approach to use, depend on whether and which demand or supply side factors matter more (*see 4: The most appropriate interventions).*

11 Department for Education (2018) Graduate Labour Market Statistics 2017.

12 Hausmann, R et al (2008) Doing Growth Diagnostics in Practice: A 'Mindbook', Centre for International Development at Harvard University.

Avoid 'build it and they will come' strategies

'Build it and they will come' – supply side interventions intended to generate sufficient demand – might work if the 'it' in question is both nationally (or globally) important and genuinely unique. Most of the time, however, this is not the case (Box 2).

Box 2: Investing to generate demand

A good example of a *unique* piece of scientific infrastructure is the Diamond Synchrotron at Didcot, Oxfordshire, which replaced an older model in Daresbury, Cheshire. Evaluation shows that the Synchrotron generated a significant increase in scientific research nearby. This was mostly explained by an increase in the number of scientists working in both directly and indirectly affected fields. Supply of the facility helped generate demand.[13]

An example of the more common case of *non-uniqueness* comes from the expensive but unsuccessful attempts of many US cities to develop biotech clusters in the late 1990s. This was an industry that was already highly clustered in a couple of locations, so other places supplying cluster infrastructure (science parks, labs) and incentives (tax breaks) was not enough to shift existing centres. Similar supply side approaches to support innovation in Wales using EU structural funds have also failed.[14]

A different cluster-building approach is the StartUp Chile programme, which provides generous funding for tech entrepreneurs to locate in Santiago, the Chilean capital, for three years, with conditions on making links into the local tech sector. Project evaluations suggest that the programme has been effective in helping the local firms to scale. However, it is much less clear that the programme has helped develop the local economy, or that firms stay in the area as opposed to moving to San Francisco, LA, London or Berlin.

The examples in Box 2, and many more, serve to remind us that areas need to think carefully about supply side interventions whose success relies on generating sufficient demand. Building on existing strengths, credibly analysed and assessed, is one way to help mitigate the risks associated with these strategies (although strength alone does not make the case for intervention – see *4.Targeting the policy response).* Paying attention to sunk costs and uncertainty (as discussed above) also helps in properly assessing the case for intervention.

13 Although it is interesting to note that, in this example, the government reduced some of the uncertainties and risks of a very large sunk cost (see above) by choosing to locate the project close to an existing research cluster. For more discussion, see Helmers, C. and Overman H G (2017) My precious! The location and diffusion of scientific research: evidence from the Synchrotron Diamond Light Source. Economic Journal, 127.

14 Pugh, R. et al (2018) From 'Techniums' to 'emptiums': the failure of a flagship innovation policy in Wales.

Box 3: The Grand Challenges

The government set out several Grand Challenges in the industrial strategy white paper, inviting business, academia and civil society to work together to innovate and develop new technologies and industries in the areas of artificial intelligence, clean growth, future of mobility and ageing society. It is hoped that this Grand Challenge approach will provide value in anticipating future economic trends and opportunities (in a way that goes above and beyond the funding available).

Initial experience suggests that this approach can be helpful for structuring discussions with local areas. Two of the three LIS 'trailblazer' areas, Greater Manchester and the West Midlands Combined Authorities, are both looking at ways to exploit the opportunities presented through the Challenges, with the former particularly interested in the ageing society GC and the latter on the future of mobility GC.

In exploring the opportunities presented by the Grand Challenges, places should consider whether the local economy already offers, or could credibly generate, the appropriate demand and supply side conditions to help make the case for intervention. For example, part of the rationale on Greater Manchester's side could be that, alongside being one of the most populous areas in the country, they have an ageing population combined with devolved powers over health and social care. Perhaps these provide the ideal demographic and institutional setting for *local* experimentation and innovation around this Grand Challenge? In the West Midlands' case, a relatively large concentration of activity in the automotive sector, existing supply of highly skilled workers and innovative firms with appropriate technical and market expertise may mean that the West Midlands is well-placed to trial new technologies relating to mobility.

In both these cases underlying demand and supply conditions reduce risks and uncertainty and help make the case for national investment, although it will still be necessary to identify the market failures that policy can helpfully address. In contrast, many places will find it difficult to make the case that local conditions present a strong enough case for national investment around the Grand Challenges (or at least, that they can contribute broadly to all of them). However tempting it might be to focus LIS around bidding for pots of money targeted at Grand Challenges, places should carefully consider the opportunity costs of spending time and resources trying to attract investment in these areas. In the absence of a credible case for intervention, local efforts may be better focused elsewhere.

Pay attention to market signals as a way of being realistic about market forces

Market signals can be a useful source of information for policymakers to assess local demand and supply conditions and to understand whether intervention is needed on the demand or supply side, or both. In the example discussed above, when considering the supply versus demand for graduates, market signals (in that case the local wage and employment premiums of graduates) may provide a way to help distinguish between different possible explanations.

Such market signals can help inform other aspects of LIS. For example, when a local area is thinking about where to put specific investments (e.g. an Enterprise Zone), data on both firm productivity and land prices can help inform the decision. Within a given local economy, policies that aim to shift the balance of economic activity towards relatively more productive locations will tend

to increase overall productivity. In the absence of data on productivity, commercial or residential land prices may provide a useful signal, as the price of land tends to reflect spatial differences in productivity or amenities. Focusing on relatively productive areas has the added advantage that, while policy may be working against market forces at the national level, it will be working with market forces within the area. Recent advice from central government on the usefulness of land value uplift for appraising some types of interventions is built on this insight.[15]

Arguments that focus on relatively less productive places within an area rely on 'untapped' potential to generate productive employment. Unlocking this potential is a valid objective for a LIS, but as discussed above, is harder to achieve than when building on relative strengths. Clearly, what's feasible in Manchester (e.g. MediaCityUK), differs from what might be achievable in Oldham or Blackpool. Either way, investments to increase productivity of employment in particular locations, will need to be complemented by further interventions in labour markets, skills and transport policy, to ensure that people can access newly generated opportunities.

Box 4: Responding to housing demand

The industrial strategy white paper recognises that housing supply may be a constraint on growth in particular parts of the country and set out a series of housing investments to address these constraints, including a £215m housing deal with Oxfordshire.

The steep rise in house prices over the last three decades is a clear indication that supply has not kept up with demand. Apart from the affordability problems for buyers and renters that this generates, steeply rising house prices act as a barrier to growth as they affect household mobility, and the costs of setting up and running a business, including of accessing skilled workers. This also means that people are likely to have lower levels of disposable income to spend on local services.

Part of the problem, alongside general shortages in housing supply, may be that new supply has not properly reflected differences in demand for type and location of housing. For example, policy has often placed a strong emphasis on the desirability of brownfield over greenfield investments. While the presence of significant externalities – e.g. on the environment – may justify policy intervention, price signals in a number of areas suggest that these would need to be very large to justify existing restrictions.

LIS can help provide a means of balancing the justifiable concerns about the environmental consequences of new development against the local economy benefits that more appropriate development may bring. Experiences in both London and Manchester suggest that the challenges around this particular aspect of LIS will be significant.

15 Department for Communities and Local Government (2016) The DCLG Appraisal Guide.

4
Targeting the policy response

Key points

- Identify the market failures that impact the local economy and whether these can be usefully addressed at the local level.
- Identify a range of policy options to address each local development challenge, and compare the intended costs and benefits.
- Look beyond economic averages to the likely consequences for different types of firms and households.

Identify and understand the reason for intervention: what is the market failure?

Government intends for LIS to boost productivity, earning power and competitiveness. Understanding the market failures that are holding back economic growth – and whether these can be usefully addressed by policy intervention at the local level – will be integral to identifying the mix of policies that should be part of an effective LIS.

Several types of market failure are likely to be particularly important in justifying intervention as part of LIS, including externalities, information failures and coordination problems.

Positive and negative **externalities** occur when benefits or costs are felt by some third party not directly involved in a particular transaction. For example, other firms may benefit from the knowledge created by a company's R&D division. Similarly, when a firm trains a worker, it may worry that rival firms will benefit if that worker leaves and goes to work for them. Such externalities can also occur between firms and consumers, for example when new technology generates benefits to consumers that go far beyond the returns to the private sector that introduces the new technology. If uncorrected, positive externalities tend to lead to under-investment (e.g. in R&D and training), while negative externalities tend to lead to excessive amounts of activity or production (e.g. the production of pollution).

Information failures arise from imperfect information (problems with the availability of information or difficulties in processing it), information asymmetries (where one party in a transaction has better information than the other) and uncertainty or lack of information about future returns. They manifest in the difficulties that SMEs can have in raising funding for profitable investments, for example, as lenders do not have full information on the business proposition and the business may lack collateral to help overcome this information asymmetry. Uncertainty about the financial returns to education and training can result in individuals under-investing in their own skills.

Sometimes positive externalities may take the form of mutually reinforcing interactions whereby investment by one firm affects the returns to investment or activity of others, and vice-versa. This can lead to **coordination failures** where, in the absence of intervention, neither firm invests even though both firms investing would lead to high returns. This is more likely to occur when the potential beneficiaries are spread across a large heterogeneous group. Government may be able to

catalyse, facilitate or encourage coordination, as for example local authorities have done through Business Improvement Districts (BIDs).

There is also **government failure**. Government intervention to reduce market failure can lead to unintended consequences. Typical examples of government failure include: price fixing, information failure, and excessive bureaucracy.

Properly considering market failure in making the case for intervention is a key way in which LIS can improve on existing economic strategies. This will require investment in the analytical work that will inform the development of LIS. Co-design between central and local government is one way to help support this analytical work, but areas will still need to consider appropriate ways to resource additional activity.

Identify a range of options and compare intended benefits and costs

A well-designed strategy should identify a range of policy options to address each local development challenge. These will include capital investments (e.g. infrastructure investment) as well as funding for specific programmes (e.g. to support skills). Directly comparing the costs and benefits of different interventions can be difficult, but a number of local areas have developed good approaches.[16] Our evidence reviews and toolkits summarise the available evaluation evidence.

Central to understanding the likely costs and benefits is an understanding of how individuals and businesses might respond to intervention. What would have happened without any intervention (i.e. what's the 'deadweight')? Will there be displacement from one place to another within the local area? Are there benefits that will spillover to other places? What will be the likely effect on competition?

Some of the available appraisal methods will need to be further developed if they are to be more helpful for LIS – for example, expanding infrastructure appraisal to better capture the local employment and impact of investment. But there is still considerable scope for refining options using a combination of available evidence and existing appraisal tools.

Consider the distributional consequences

To understand the distributional consequences of any policy, it is helpful to look beyond area economic averages to see what is happening to different types of firms and households (Box 5 and 6). Failure to account for changes such as the in-movement of high income workers to a newly regenerated area can vastly overstate the benefits of such policies to poorer households. Similar points apply if we ignore price effects of LIS interventions – for example, where increasing housing costs offset any LIS generated employment and wage gains for renters. There is considerable scope for understanding the implications using available evidence and existing appraisal tools, even if they are imprecise.

16 New Economy have developed a Cost Benefit Analysis (CBA) model that identifies the fiscal, economic, and social value of project outcomes, and specify which public agency sees this benefit. More information including their CBA tool is available here http://www.neweconomymanchester.com/our-work/research-evaluation-cost-benefit-analysis/cost-benefit-analysis/cost-benefit-analysis-guidance-and-model.

Box 5: Inclusive growth and trickle-down economics

The recent emphasis on inclusive growth has brought renewed focus on the distributional consequences of proposed interventions. The best local economic strategies already provided extensive consideration of these issues. It's arguable that these new concepts are rather fuzzy and not particularly helpful, but emphasis on distributional consequences is welcome and looks set to form a core part of many LIS.[17] Somewhat ironically, however, the LIS emphasis on productivity, competitiveness and new technologies, increases the risk that strategies won't necessarily do much to benefit disadvantaged residents. A serious analysis of distributional consequences will help a good LIS to avoid, or at least acknowledge, these pitfalls.

Clearly, the most direct benefits to disadvantaged residents occur when their economic opportunities improve as a result of interventions supported by the LIS. If a primary concern of a LIS is economic and social deprivation, then the focus needs to be on maximising the direct benefits to disadvantaged individuals of increased economic opportunities as the local economy expands.

Available evidence suggests that carefully designed, people-based policies (for example skills development) are more likely to deliver these direct benefits than place-based policies that target particular areas.

There are, however, a number of ways in which area-level growth may have indirect impacts on the economic opportunities of disadvantaged residents. For example, attracting high skilled workers to a city may have positive spillover effects on the productivity of the lower skilled workforce.

A number of mechanisms have been suggested. The simplest is that high skilled workers demand services from lower skilled workers (e.g. cleaning or other personal services). Low skilled workers may also learn through interactions with more highly skilled workers. An alternative argument is that greater numbers of highly skilled workers lead to higher levels of investment, and that this also raises the productivity of lower skilled workers.

How important are these effects? As a starting point, it is useful to remind ourselves that even in London, the UK's most economically successful city, the Index of Multiple Deprivation 2007 tells us that there are many deprived areas. This observation cautions us against expecting too much from any trickle-down.

A recent overview of the literature concludes that there are likely to be some beneficial productivity spillovers in urban areas, but that it is still too early to be able to draw evidence on the size of any such spillovers. The best-known US study finds clear evidence of employment spillovers from knowledge-intensive activity, especially tech, to employment in local 'non-tradable' sectors.[18] A more recent US study finds a positive impact of high tech on labour market outcomes for low skilled workers, although the size of the effect is not substantial enough to alleviate either absolute or relative poverty. [19] A recent UK study finds much smaller effects, albeit in the post-Crisis period.[20] It's also important to note that these kinds of studies often ignore housing costs which could offset at least some of the wage benefits.[21]

17 Lee, N (2018): Inclusive Growth in cities: a sympathetic critique, Regional Studies.
18 Moretti, E (2010) Local Multipliers. American Economic Review Papers and Proceedings 100: 1-7.
19 Lee, N and Rodríguez-Pose, A(2016) Is there trickle-down from tech? Poverty, employment and the high-technology multiplier in US cities, Annals of the Association ofAmerican Geographers, 106 (5).
20 Lee, N and Clarke, S (2017) Who Gains from High-Tech Growth? High-Technology Multipliers, Employment an Wages in Britain, SWPS 2017-14.
21 Kemeny T and Osman T. (2017) The Wider Impacts of High Technology Employment: Evidence from US Cities. Mimeo. University of Southampton.

Overall, the available evidence urges caution in placing too strong a focus on 'trickle-down' as a means by which LIS can generate benefits for more disadvantaged households. LIS should be sure to carefully consider the distributional consequences of any policy that claims to achieve inclusive growth objectives via such trickle-down mechanisms.

Box 6: The role of transport in addressing social deprivation

The Transforming Cities Fund, as part of the Industrial Strategy, will invest in new local transport infrastructure to boost productivity and transform intra-city connectivity on key commuter routes. Improved intra-city transport – in contrast to transport between cities – is an important issue for many local economies and the case for investment may be strong. But careful consideration should be given to the role transport policy has to play in addressing social exclusion and deprivation.

Deprived areas can be poorly served by public transport. Improving these public transport links certainly provides a public good to households living in those areas but there are limits to the extent to which transport provision effectively addresses problems of social exclusion.

The issue is the extent to which transport offers socio-economic benefits beyond those stemming from that direct public good provision – and the evidence is far from clear. Take worklessness, for example. It is true that people who do not work are more likely to live in areas with poor transport links. But this does not mean that poor transport links *cause* worklessness.

It could be that people who do not work choose to live in areas where transport links are bad because these areas generally have lower housing costs, or they accept social housing provision in these neighbourhoods. The academic evidence on spatial mismatch (households living far from jobs) has tried to resolve the direction of causality with little success.

Good transport links are certainly associated with higher housing costs. Once again, however, it is difficult to disentangle cause and effect, because transport links will tend to serve areas where demand for housing is high. In contrast to the link to worklessness, however, the academic literature is clearer that improving transport links raises house prices.

On balance, then, the evidence suggests that improving transport links to deprived neighbourhoods should positively impact house prices, while the effect on worklessness and other economic outcomes for *existing* residents is uncertain. These house price effects will benefit owner occupiers in those areas, but hurt renters. What happens next depends on whether the house price changes and the improved access to jobs are sufficient to encourage the workless to move elsewhere, while people who are employed now move in.

Once again, we are reminded that (i) rising house prices in poor neighbourhoods are not necessarily a good thing; (ii) place-based policies to tackle issues of social deprivation have unintended consequences that tend to limit their impact on individual deprivation; (iii) we need to distinguish between the area level and individual impacts of an intervention.

5
Impact on competition

Key points

- LIS will be designed to change market outcomes. But distorting competition may have a negative impact on innovation and productivity growth.
- Preferencing particular sectors or large local employers should be justified on the basis that their size means there are large benefits relative to the costs of addressing market failures that affect them; not simply because they constitute a large share of the local economy.
- 'Horizontal' interventions (i.e. not targeted at particular sectors) mitigate any negative competition effects by supporting multiple firms and sectors.

Distorting competition may have a negative impact on innovation and productivity growth

Competition for market share is a major incentive for firms to innovate; distorting competition may have a negative impact on innovation and productivity growth. This leads some academics to stress the importance of neutral policy that does not distort competition. Other schools of thought are less worried about the competition effects of policy and would be quite comfortable with government directly intervening in ways that are quite distortive. While this academic debate continues, local policy makers need advice on what these different perspectives mean for the practical considerations of implementing policy.

Preference particular sectors or large local employers only when the case for intervention is sound, not just because they are a large share of the local economy

Preferencing particular sectors or large local employers should be justified on the basis that their size means there are large benefits relative to the costs of addressing market failures that affect them. If support for a particular investment disproportionately benefits a large local employer, is this justified on the basis of some market failure that disproportionately impacts on that employer? For example, does that large local employer train many workers who then may leave to work for other employers? If retention rates are high and skills are employer-specific, it is not clear that subsidising that employer is justifiable (as opposed to the firm investing in training for its own workers). If retention rates are low and skills fairly generic, then a direct subsidy for training could be justified and the market failure argument may outweigh the competition argument. Similar arguments will apply for large local sectors. Other decisions may inadvertently distort competition. For example, local procurement policies to support SMEs to participate in public tenders can distort the public procurement market. Examples include capacity building, price preferences or procurement quotes. These are often justified on the basis that SMEs find it more difficult to access public sector contracts – but it is not clear what the costs are to the public purse and whether these policies actually support SME growth. An alternative approach is to improve overall access to public procurement opportunities, and reduce the complexity of procurement processes and excessive red tape.

Preferencing particular sectors over others can have similar distortive effects, as the recent Industrial Strategy Commission warned: 'sector-focused interventions, unless carefully designed, risk blunting competition, privileging well-organised groups of incumbents (and rewarding lobbying and rent-seeking by them) at the expense of the wider economy, and disadvantaging new, challenger firms and sectors'.[22]

Try to identify 'horizontal' interventions that can support multiple firms and sectors

An alternative approach may be to focus on the area's underlying capabilities that may affect multiple types of activity. Traditionally, the academic literature has placed emphasis on policies that are clearly horizontal – e.g. generic skills investment that may benefit a wide range of industries. But more nuanced arrangements can create investments which are partially targeted, partially horizontal. For example, the National Composite Centre Catapult in Bristol develops numerous capabilities that can be applied *across* firms in aerospace, automotive and high-value manufacturing – each of which would never be able to develop those technologies alone. Other recent catapult initiatives are similarly structured to balance horizontal and vertical.

Such considerations are likely to play an important role in developing bids for the Strength in Places Fund.[23] This fund will be allocated to consortia of publicly-funded research organisations, businesses and local leadership for a flexible range of research and innovation interventions that will impact on local economic growth. Given the Fund's emphasis on inclusive growth, and its competitive structure, other points covered so far are also likely to be important in formulating successful bids.

6 Experimentation

Key points

- Experiment to find more cost-effective ways to support economic growth, with a clear idea of what constitutes success (and failure) and observable criteria for monitoring it.
- Share plans for, and results of, experimentation with other local authorities to identify opportunities for collaboration and so everyone can benefit from your experience.

Experiment to find more cost-effective ways to support economic growth

The purpose of industrial strategies is to find new and improved ways for policy to boost growth. Inherent in this is the risk that projects fail, as acknowledged by government: 'we are willing to take these risks, which means accepting not all will work out successfully. An industrial strategy that avoids risk is no industrial strategy at all.'[24]

22 Industrial Strategy Commission (2017) The Final Report of the Industrial Strategy Commission.
23 For further information see https://www.ukri.org/funding/funding-opportunities/strength-in-places-fund/
24 HM Government (2017) Industrial Strategy: Building a Britain fit for the future.

This requires a clear idea of what constitutes success (and failure), observable criteria for monitoring it and high quality monitoring and evaluation, where feasible (see *9: Evaluation* below).

Share plans for, and results of, experimentation

The What Works Network places a strong emphasis on piloting and testing to better understand cost-effectiveness, and on the importance of learning and sharing across local areas. These considerations will be particularly important for LIS where the nature of policies may require more innovative approaches to testing to be adopted.

7 Independent experts

Key points

- Use independent panels (drawing together individuals with the appropriate expertise, no conflicts of interest and protected from political interference) and peer review mechanisms to scrutinise evidence and policy priorities.

At the design stage of strategy development, using independent panels and peer review mechanisms to scrutinise evidence and policy priorities can help develop more effective strategies. They should have the appropriate expertise, no conflicts of interest, and be protected from political interference. LAs, CAs and LEPs have used independent experts in a variety of ways to inform decision-making, for example a condition of Greater Cambridge Partnership's City Deal, is that a review is conducted every five years by an Independent Economic Assessment Panel. Similarly, Greater Manchester commissioned an independent economic review in 2008/09 and has established an independent advisory board to support the development of its LIS. As should be clear from the discussion so far, the need for LIS to balance targeted (vertical) interventions with more general (horizontal) support make this an even bigger challenge than areas faced in the development of existing economic strategies.

8 Sharing the risk

Key points

- Find ways to share the risk of investing by co-funding interventions with the private sector and involving them in the decision-making process.
- Develop ongoing contact and communication with the private sector to help identify and remove obstacles to growth. But remain autonomous and be careful to avoid 'capture' by local vested interests.

Find ways to share the risk of investing

Co-funding interventions and involving the private sector in decision-making are ways of sharing risks and testing the viability of a particular project or intervention. For example, it may be preferable to offer subsidies or matching grants to private firms or institutes to co-finance their training efforts.

Risk-sharing between UK local government and the private sector has taken a variety of forms. Private sector funding has often been used to match EU funding, including the European Regional Development Fund, for example. Other examples include Liverpool's Mayoral Investment Programme (MIP) which has utilised public and private finance and assets through a single pot. Bristol's Mayor Marvin Rees, has established City Funds to mobilise local investment in to priority areas, such as housing and employment.[25]

Such mechanisms are likely to be increasingly important as LIS develop. Places should look at the potential distribution of costs and benefits across different stakeholders – both at the national and local levels – to help ensure the costs of a given intervention are shared appropriately.

Find the right balance in working with the private sector

Both the public and private sectors have imperfect information. The formulation of industrial strategies requires strategic collaboration between the public and private sectors to identify where the obstacles to growth lie and what types of intervention are most likely to remove them.

Ongoing contact and communication with the private sector are important in order to elicit information to ensure decision-makers have good information based on business realities. The institutional challenge for CAs and LEPs is to find a way of developing these ongoing relationships, while remaining autonomous and being careful to avoid 'capture' by local vested interests (see also points 2 to 4 above).[26]

9
Evaluation and feedback

Key points

- Evaluation, embedded from the start of the policy design process, helps to improve policy design and inform future decision-making, by assessing whether policy has the desired impact and is cost-effective.
- Evaluation should be proportionate, and focus on specific programmes and projects where good evaluation is feasible.
- Build in sunset clauses and use monitoring and evaluation to make decisions about whether to continue funding the programme or re-design specific elements.

25 Centre for Cities (2017) Funding and finance for inclusive growth in cities.

26 Rodrik 2004 views this as the most important element of the industrial strategy design process: 'getting this balance right is so important that it overshadows all other elements of policy design'.

Think about evaluation right from the start

The What Works Network has always placed emphasis on embedding evaluation at the early stages of policy design. This improves both policy design and the ability to learn lessons about what works best. Such considerations are likely to be particularly important for LIS with its emphasis on experimentation.[27]

Evaluation should focus on specific programmes and projects where good evaluation is feasible

As discussed above, evaluation should be focused on individual programmes and projects rather than the LIS as a whole, but it is unlikely that it will be possible to run full-scale evaluations for every intervention. Evaluations should be proportionate and focus on specific interventions where good evaluation is feasible (for example, skills and business support). Suitable monitoring should be used when evaluation is not appropriate.

Build in sunset clauses and use evaluation to make future decisions

Evaluation should be used to make future decisions about the programme. The default should be to phase out support after an appropriate length of time and that specific action (based on monitoring and evaluation) will need to be taken to extend the provision. Partners may decide not to continue funding the programme or to look at ways to re-design the programme to improve its cost-effectiveness.

10 Coordination

Key points

- Coordinate across different stakeholder organisations, related policy areas and spatial levels with a broader vision and objectives in mind.
- Accountability and transparency is essential to keep everyone informed and on board.

Coordinate locally and nationally, and between different interventions

One frequent complaint about local economic strategies was that there was no national plan to align them with. Clearly the LIS process helps address this criticism so it will be important to think about how the LIS aligns with the national strategy. Government will also need to be clear about the status of LIS to ensure there is effective local-national coordination.

As we have discussed above, it is also important to recognise that benefits of LIS strategies will often be felt beyond the local area. As a result, coordination across local areas will be needed to correctly assess benefits and to appropriately share the costs of intervention between local areas

27 See the What Works Centre for Local Economic Growth website for resources on how to evaluate http://www.whatworksgrowth.org/resources/how-to-evaluate-eight-things-to-consider/.

and between local areas and central government. Local areas that face similar challenges will also benefit from coordination.

LIS should work across the multitude of actors and interventions with a broader vision and objectives in mind. Coordination should include but not be limited to:

- Key stakeholders in business, education, healthcare, and other relevant sectors
- Policymakers in related areas including transport, education, and housing
- Other governmental authorities, including neighbours, combined authorities, and national government departments

Different approaches can be taken to policy coordination at the local level. The West Midlands Combined Authority is taking a 'matrix' approach in developing its LIS, mapping out 'horizontal' policy priorities against the area's key sectors. Greater Manchester Combined Authority is taking an evidence-led approach to identifying an integrated package of 'vertical' and 'horizontal' to support increased productivity in the city region, alongside using the grand challenges as a lens to consider how different policies could be coordinated to capitalise on the area's unique assets and strengths.

Accountability and transparency is essential to keep everyone informed and on board

It is important to ensure that policy-design, policy-delivery and evaluation systems are open and inclusive, and allow for a broad range of stakeholders and interested parties to participate.[28] In this sense, it will be important for engagement to go beyond well-organised groups of firms and business organisations, and create wider channels of communication. Accountability and transparency is essential to keep all stakeholders informed and on board.

28 McCann, P (2017) Smart Specialisation, Regional Growth and Applications to EU Cohesion Policy, Economic Geography Working Paper, University of Groningen.

02

Applying these considerations to specific policy areas: skills

In the UK, area level differences in skills are one of the most important factors driving differences in local economic performance. For individuals, higher skills are associated with better labour market outcomes: higher skilled people are more likely to get a job and earn more income than lower skilled people. For local areas, there is a clear link between skills and economic growth and labour market outcomes. That connection holds nationally, across countries and at a local level for towns and cities.

Evidence shows that skills play an important part in explaining the relative productivity of local areas. Skills have a direct effect on productivity (skilled workers are more productive) but there may be additional agglomeration benefits (for example, skilled workers increase the productivity of others and positively affect innovation by firms).[29]

This section works through the considerations set out in the first half of this paper in relation to skills policy to help illustrate how these considerations might be applied.

1 What is the state of the local economy?

The appropriate mix of policies for a LIS will vary across different places

As a first step, local areas should seek to establish the extent to which skills explain their local economic performance. Ideally, analysis would go beyond simple descriptive statistics (e.g. shares of workers with degrees) to identify the role of different factors. The Manchester Independent Economic Review provides an example of how to do this for local productivity.[30]

29 See Duranton and Puga (2014) The Growth of Cities, Handbook of Economic Growth. 781-853, Moretti (2004b) Human capital externalities in cities, in Henderson JV and Thisse J-F (eds) Handbook of Regional and Urban Economics. Elsevier, 2243-2291, and Rodriguez-Pose, A. and Crescenzi, R. (2008) Research and Development, Spillovers, Innovation Systems and the Genesis of Regional Growth in Europe. 'Regional Studies.' 41 (1), pp.51-67 Press.

30 See Manchester Independent Economic Review (2009) The case for agglomeration economies for further information.

Do not focus on measuring economic performance against high-level numerical targets

Avoid high level targets in terms of 'better jobs' or 'higher skilled jobs' given that these are hard to define and do not help with prioritisation or accountability. Focus on identifying well defined measurable objectives (e.g. through the definition of 'better jobs') that can be directly linked to specific interventions. For example, this might include identifying targets around specific types of skills where analysis highlights skill shortages, perhaps because firms are unable to fill existing posts.[31] It's important that analysis helps inform targets, to avoid making assumptions about underlying factors which may be inconsistent with evidence. For example, it may be that firms' inability to recruit is to do with the fact that they are uncompetitive in national or global markets (i.e. the problem is on the demand, not the supply side).

Make the right comparisons

In seeking to understand the contribution of skills to the performance of the Manchester economy, the Manchester Independent Economic Review used a two-way comparison of bigger cities to their surrounding regions, as well as comparing different areas of the country to London and the South East. It made this comparison both before and after taking account of skills differences across areas. The between-region comparison correctly identified the relatively poor performance of Manchester in comparison to London and the South East. The within-region comparison, controlling for skills, helped understand which part of this was explained by size (bigger cities do better than their surrounding regions) and skills (the productivity benefit of size can be offset by concentration of low skilled workers). Simply comparing Manchester and other big cities to their surrounding region, ignoring the differences in skill composition would make it seem like bigger cities are less productive. The right comparison, in contrast, correctly highlights the key role for both size and skills in explaining relative performance.

Improve sectoral analysis, and understand it's limitations

As discussed in the first part, understanding sectoral shares in the local economy, and the likely pattern of development over time will be helpful when trying to predict future demand for specific skills. Shift-share analysis (an estimate of local growth attributable to local, industry and national factors) can help understand current trends if demand for specific types of workers is known to be high in particular sectors.

Develop a more granular understanding

Local authorities are increasingly working with labour market analytic firms, such as Burning Glass and EMSI, which extract data from online job postings and CVs to build a more detailed and timely picture of supply and demand for labour across different geographies. Administrative data (such as Individual Learning Records) is also being used. This quantitative evidence on skills supply and demand can be enhanced by the engagement of relevant stakeholders and testing the evidence with them. As noted above, however, it's important that analysis is careful in moving from data about the local labour market to statements about underlying demand and supply conditions.

31 See Department for Education (forthcoming) Employer Skills Survey 2017.

2
How is the economy evolving?

Balance the old and new

In the skills context, this issue is likely to arise in terms of supporting area specific vocational skills (skills required to enter a particular profession, such as welding or electrical engineering) as opposed to more general skills. Improving the former may result in more immediate improvements in employment outcomes, while the latter may leave individuals better able to adapt to changing demand. As discussed in the main text, there are stronger arguments for intervention in the provision of general, rather than specific skills. Our policy reviews and toolkits provide extensive evidence on the effectiveness of levers that LIS could draw upon to build general skills.

Don't try to forecast the future: scenarios versus modelling

Structural changes in the economy – technological change, globalisation and demographic change – will affect both the demand and supply of skills in local areas. For example, technological change will reduce demand for certain occupations and increase demand for others, impacting on demand for specific vocational skills.[32] At the same time, the supply of skills will shift in response to, for example, an ageing population.

While it is impossible to predict the future in detail and with precision, local areas should identify the broad trends and patterns that can be used to inform skills policy as well as seek to understand how these might play out locally. For example, studies show that there is likely to be a continued trend away from physical skills towards interpersonal skills, higher-order cognitive skills, and systems skills.[33] It is hard to imagine that any local economic model is capable of capturing these developments.

Accommodate uncertainty, minimise costs and have a plan B

This is less of an obvious concern with skills expenditure than other policy areas such as transport. However, when it comes to meeting future demand for particular kinds of skills it's important to recognise that central government may be better placed to undertake investments in a way that manage future demand uncertainty. For example, we might be fairly confident that the UK creative industry will need particular skills, but less certain about which specific areas will be strong in that industry. Such considerations might point towards nationally-funded provision. To take a concrete example central government plays a major funding role in the National College for High Speed Rail (NCHSR). Although even nationally-funded provision still requires decisions about the appropriate location for specific investments (e.g. the NCHSR has campuses in Birmingham and Doncaster).

32 See NESTA (2017) and Centre for Cities (2018) for further information.

33 Dickerson, A and Morris, D (2017) The Changing Demand for Skills in the UK.

3
Supply side or demand side?

Distinguish between supply side and demand side as explanations for under-performance

When thinking about policy intervention, be clear about the market forces and underlying factors that are driving change.[34] At the local level, Skills Advisory Panels (SAPs) will be established to 'produce rigorous analysis of the current and future supply and demand for skills and help areas form a clearer understanding of their skills requirements'.[35] A number of sources provide some good advice on how to do this by combining a variety of data sources to build a comprehensive picture of skills supply and demand[36] and government is likely to provide an analytical framework which places will be able to use. Analysis of future demand should take account of the impacts of replacement demand to address natural turnover, either temporary or permanent, primarily due to retirement; occupational and geographic mobility; and migration. Replacement demands are of an order of magnitude (typically seven to 10 times or more) greater than any net expansion demand.[37]

Avoid 'build it and they will come' strategies

Knowing whether problems are found on the demand as well as the supply side will be particularly important for developing the LIS where the set of available interventions is far more relevant for tackling both sides of the labour market. To continue with the example above, the decision to place one of the NCHSRs in Birmingham reflects the demand for such skills that will be generated by the government's decision to build HS2. We could similarly imagine decisions around investment to support creative industries being driven by decisions around the location of BBC and Channel 4. But we need to be realistic about the extent to which such interventions can generate demand. HS2 is a good example where government has a strong role in creating demand, whereas decisions around the location of BBC and Channel 4 will play a far more marginal role in comparison to private sector decisions.

Pay attention to market signals as a way of being realistic about market forces

When undertaking this kind of analysis, it is important to try to make use of market signals about the functioning of the labour market to complement the more traditional approaches building on data on local sectoral structure and skills shares. Price-based indicators can be used to assess labour market shortages in particular occupations, for example.[38] Rising wages within an occupation can provide an indication of a shortage (as market pressure should increase wages in order to raise supply). Yet rising wages may be the result of other factors (for example, there may have been above average increases in productivity in that occupation resulting in above average pay rises) or not be revealed in wage data (for example, pay within the public sector might rise more slowly than in the private sector).[39] Wage data should be used alongside other indicators (including

34 Tirole J. (2017) Economics for the Common Good.
35 HM Government (2017) Industrial Strategy: Building a Britain fit for the future.
36 See, for example, Centre for Cities (2016) LMI: http://lmi.centreforcities.org/ for further information on sources of local labour market data and intelligence.
37 UKCES (2012) Working Futures 2010-2020: Technical Report.
38 Migration Advisory Committee (2017) Assessing labour market shortages: a methodology update
39 Sample size within the Annual Survey of Hours and Earnings also makes analysis at the local level more difficult.

data on skills shortage vacancies from the Employer Skills Survey, hours worked and vacancy data from online jobs postings) to assess whether the evidence broadly points towards a shortage. It is also advisable to combine data analysis with local stakeholder consultation, as discussed above, to test the findings and develop a more granular picture.[40]

4 Targeting the policy response

Identify and understand the reason for intervention: what is the market failure?

Governments invest in skills and employment training because of the strong links between skills and economic outcomes – and because various market failures mean that both firms and individuals are likely to under-invest. For example, information failures mean that both firms and workers may under-estimate the benefits of training. Alternatively, firms may not provide enough training if they worry that trained workers will leave generating a positive externality that benefits other firms, but not the firm that pays for the training. These market failures mean that the public benefits of training e.g. in the form of higher local economic growth, may exceed the private benefits.

In additional to these traditional arguments around public intervention in skills, the broader local growth arguments can also point to the area-level externalities discussed in part 1. Improving the share of an area's population with higher qualifications will help increase area-level productivity both directly – by changing composition – and indirectly, by generating wider 'agglomeration' benefits.

Identify a range of options and compare intended benefits and costs

One way to increase the share of higher skilled workers is to improve the skills of current residents. The second is to try to attract skilled workers from elsewhere.

Improve the skills of existing workers

Improving the skills of people with no or very few qualifications is a direct way of benefiting those at the bottom of the income distribution (i.e. of generating 'inclusive growth').

Possible options include:

- **Improving early years and school performance.** Geographical patterns of educational attainment reinforce economic disadvantage, with pupils in weaker local economies facing multiple disadvantage. Work is ongoing to better understand how policy can improve educational outcomes and school performance through the Opportunity Areas and pilot projects being run by the Education Endowment Foundation, with emphasis on teaching and leadership, reading and maths, careers advice and mentoring. Evidence suggests that high quality teachers have an impact on school performance, but it is less clear how deprived areas, in particular, can attract and retain a sufficient supply. Real wages are often higher in deprived areas due to national pay scales and low local housing costs but not sufficient to

40 This assessment will involve an element of judgement as there are no set definitions of what constitutes a shortage. The MAC helpfully set out 'absolute' thresholds for a range of shortage indicators, which allows the number of occupations identified as having skills shortages to vary with labour market conditions. Relative thresholds relies on comparisons between occupations and so would fail to identify a shortage that is less prominent that in other sectors but nonetheless exists.

attract and retain teachers due to, for example, the stress of teaching in deprived areas. If LIS aim to improve economic performance in the long run, then early intervention to address long run skills challenges should be a crucial part of the strategy.

- **Informing the choices of individuals.** Improving the availability and accessibility of high quality labour market information and intelligence (LMII) can help individuals make more informed, and hence better, decisions with regards to education and training opportunities. A crucial open question is how best to communicate this information to individuals and firms in a way that cost-effectively changes behaviours. LIS offers an opportunity to pilot and test innovative solutions.
- **Working with employers.** It is now well established that employer engagement and involvement in skills and employment training interventions leads to more positive outcomes – presumably because it helps address information failures and improve coordination between providers and demanders (Box 7).[41] As with the provision of information, a crucial open question is how best to engage employers in a way that cost-effectively informs policy and changes behaviours. LIS offers an opportunity to pilot and test innovative solutions.
- **Increasing demand for apprentices.** Evidence suggests that apprenticeships can improve skills levels, stimulate further training and boost both employment and wages for young people. That said, a major gap in the evidence is the extent to which firms employing apprenticeships experience economic gains, such as higher productivity or profits.[42] At the local level, there is likely to be a role for local authorities in making businesses aware of the potential benefits of upskilling staff through the apprenticeship system and supporting businesses to take on new apprentices. LIS also offers the opportunity to pilot and test solutions (including more flexible use of the Apprenticeship Levy and innovative approaches to targeting or communicating with particular types of firms) while monitoring and evaluating the impact on outcomes for firms, as well as individuals.

Box 7: Working with employers to provide training for low income individuals

The Per Scholas WorkAdvance programme, which delivered IT training and employment support for low-income individuals in the Bronx, was evaluated through a rigorous randomised control trial and has been found to have 'large and growing' impacts on employment and earnings.[43]

The programme has five core components which are sector-specific in design, which include: intensive screening of applicants for motivation, capability and need; pre-employment and career readiness services; occupational skills training that meets the needs of local employers (15 weeks at Per Scholas); job development and placement services based on strong relationships with employers; and post-employment retention and advancement services.

Each component required providers to be more employer-facing than traditional programmes – one of the key design elements identified as helping improve effectiveness in our review of employment training. Comparison between two UK Government programs targeted at the long-term unemployed found that the programme involved an average six months of training and/or job placements with employers was more effective than the one involving work experience, often with voluntary organisations.

41 What Works Centre for Local Economic Growth (2016) Evidence Review 1: Employment Training.
42 What Works Centre for Local Economic Growth (2015) Evidence Review 8: Apprenticeships.
43 MDRC (2017) Can Sector Strategies Promote Longer-Term Effects? Three-Year Impacts from the WorkAdvance Demonstration.

Attracting more high skilled workers

An alternative approach to improving skills of existing workers is to attract more skilled workers from elsewhere. If attracting more skilled workers is considered desirable, what can policy makers do to achieve this? There is considerable debate in the literature on whether high skilled jobs follow high skilled workers or vice-versa. The evidence collected for LIS cannot hope to resolve this debate. Instead, LIS will need to think about assessing the feasibility and cost effectiveness of a range of options that might address both the demand and supply side of the market for skills.

Possible options on the demand side include:

- **Relocation of (quasi-) public sector employment.** Examples include the BBC move to MediaCityUK in Salford. Such relocations can increase the overall size of the market for skilled workers and generate demand for locally produced, non-traded services. Such moves may have important long term productivity effects through building a cluster, as seems likely in the MediaCity case (see Box 1 above). However, the available evidence suggests that the wider employment gains (outside the creative economy) are likely to be limited.[44] These gains may be offset if public sector employment in lower-cost locations causes distortions, e.g. because national public sector pay setting means public-private sector pay differentials creates problems for private sector firms. The existing evidence base to quantify these effects is limited. It appears that the degree of responsiveness in the private-public pay gap is crucial for gauging the extent to which this might occur. Finally, there might be further effects on the private sector via transport and the land markets. We know of no evidence that quantifies this.
- **Ensuring the provision of suitable business premises and infrastructure bottlenecks.** Accelerator and incubator spaces are an increasingly visible feature of UK cities. The accelerator spaces offer short-term, intensive support to a competitively selected group of firms, while incubator spaces offer less-intensive, more ad-hoc support to firms on a rolling basis. There is some evidence that both have a positive effect on employment, although the evidence for incubators is less clear-cut.[45] However, none of the studies provide information on cost-effectiveness, and estimates suggest that accelerators in particular are expensive to run. This suggests that, outside of industries traditionally targeted by accelerators and incubators, policy may be better focused on ensuring that the planning system responds quickly and effectively to private developers who wish to provide new business premises in response to demand from firms. Addressing infrastructure bottlenecks (e.g. broadband) may also be particularly important for firms that employ high skilled workers.
- **Addressing issues of project financing.** A number of organisations have raised specific concerns about the availability of venture capital outside of the Southeast. This form of financing is likely to be particularly important to some types of businesses that employ skilled workers. The problem, as always, comes from trying to assess whether the spatial concentration of venture capital in the Greater South East purely reflects the fact that there are more suitable investment opportunities there, or whether there is some market failure that prevents suitable investment opportunities in other parts of the country from being able to access venture capital. The evidence in favour of the latter is weak.

44 Centre for Cities (2017) Should we move public sector jobs out of London?

45 What Works Centre for Local Economic Growth (2017) Business Advice Toolkit: Incubators and (2017) Business Advice Toolkit: Accelerators.

On the supply side, there are several possible options:

- **Investing in amenities.** There are plenty of stories about possible benefits of investing in amenities that appeal to the high skilled, but almost no systematic evidence. This suggests that decisions on amenities should continue to be made on the basis of their public good aspects not any hypothetical transformational impact in terms of attracting skilled workers.
- **Increase real wages by lowering the cost of living.** Lowering the cost of living for skilled workers by tackling transport and housing problems is likely to have an impact on housing location decisions.

Consider the distributional consequences

It's important to recognise that many of these policies aimed at changing the distribution of skilled workers (rather than improving the skills of existing residents) are 'zero-sum'. A skilled worker that moves to an area has to come from somewhere else. Similarly, only one, or a limited number, of locations are likely to see significant relocation of government or quasi-governmental jobs. This is yet another reason for LIS based skills interventions to have a strong focus on improving skills of existing residents. The inclusive growth box in Part 1 provides further discussion.

5
Impact on competition

Distorting competition may have a negative impact on innovation and productivity growth; Try to identify 'horizontal' interventions that can support multiple firms and sectors

Skills policy can distort competition if it disproportionately benefits particular firms. At a basic level, for example, training subsidies could be used to encourage all firms to undertake more training or a large subsidy could be given to one single firm to enable it to increase its training. Both may address the market failure (firms underinvesting in training) but the latter is likely to distort competition as the recipient's competitors become less able to compete.

Preference particular sectors or large local employers only when the case for intervention is sound, not just because they are a large share of the local economy

As discussed in Part 1, a subsidy to a specific firm may be justified on the basis that a large local employer trains many workers who then may leave to work for other local employers, and the market failure argument may then outweigh the competition argument.

Policy makers (at both the national and local levels) also need to consider how competition between providers may be distorted through investment decisions. For example, as the Competition Commission highlights, support for the Institutes of Technology (IoT) may distort competition between them and other learning providers.[46] Support for all providers for a particular type of learning would be less distortive.

46 Competition and Markets Authority (2017) Response from the Competition and Markets Authority to the Government's Industrial Strategy Green Paper.

6 Experimentation

Experiment to find more cost-effective ways to support economic growth; Share plans for, and results of, experimentation

Policy makers should look to the broader evidence on skills interventions to find new, potentially more effective ways, to intervene. This does not necessarily mean introducing entirely new skills or employment training programmes but rather incorporating and testing new design features or borrowing from approaches elsewhere. We provided several specific examples above and many examples in our toolkits and evidence case studies (freely available online).

7 Independent experts

Use independent panels and peer review mechanisms to scrutinise evidence and policy priorities

As discussed earlier, using independent panels and peer review mechanisms to scrutinise evidence and policy priorities can help development more effective strategies. For skills policy, this has important implications for Skills Advisory Panels and Employment and Skills Boards. These have a role to play in ensuring that the local provision of skills, and the delivery of skills policy in local areas, meets and responds to changing employer needs. LAs, CAs and LEPs need to ensure there is appropriate representation on the panel in the absence of true independence, and that members have the appropriate level of expertise to advise on the most effective interventions.

8 Sharing the risk

Find ways to share the risk of investing

As discussed above, LIS skills strategies should find ways to address the issue that firms tend to underinvest in training. Sharing the cost of training with employers may be a more efficient way to allocate scarce resources when firms are able to capture some of the benefits from training (e.g. because they employ a lot of graduates from a specific programme, and staff turnover rates are low). The more benefits a specific firm, or group of firms, can capture the greater is the argument for them to pay a significant part of the cost of training workers. For groups of firms – e.g. in a supply chain – the appropriate intervention may be to coordinate joint provision, rather than providing direct subsidies.

Find the right balance in working with the private sector

Coordination with the private sector will play an important role in ensuring that interventions respond to employer demand, and that employers are involved in the design and delivery of programmes. As discussed earlier in this section, skills supply and demand can be influenced by interventions across a range of different policy areas (transport can play a role in increasing the pool of workers available to businesses in a city, for example) and so coordinating across policy areas is also necessary.

Given discussions above, more needs to be done to articulate ways in which local interventions can appropriately share benefits and costs with both the private sector and other areas that stand to benefit from any targeted investment in particular skills.

9
Evaluation and feedback

Think about evaluation right from the start

Evaluation should provide a more accurate assessment of the overall effect of interventions and help build understanding of which aspects of programme design can improve cost effectiveness.

There are a number of different ways to evaluate skills interventions. The 'gold standard' is to conduct a randomised control trial (RCT) where individuals are randomly assigned to either receive a new kind of training or to a control group. These two groups are then tracked either through surveys or administrative data to assess whether individuals who received training are more likely to find employment, earn higher wages or take up further training. The most basic version of this approach gives some people the training while the control group gets nothing. An alternative version, which many local policymakers will prefer, randomises the new training policy and the existing policy to see which works better for participants.

If randomisation is not feasible, another approach is to construct a control group by carefully matching people to programme participants on the basis of individual characteristics (sex, age, local area and prior employment) and then controlling for further characteristics such as education and difficulties with literacy and numeracy.

Focus on specific programmes and projects where good evaluation is feasible

Not all interventions are amenable to robust evaluation and it will be important to identify where evaluation resources should be focused. But given the experimental focus of the LIS, it would be disappointing if we don't see some high quality testing of innovative trials to help understand what works better.

Build in sunset clauses and use evaluation to make future decisions

As discussed in the first section, evaluation should be used to make future decisions about whether to continue funding the programme, to redesign it to improve its cost effectiveness, or to scrap it and use scarce resources elsewhere. Building in monitoring and evaluation at the start means that providers can alter interventions while they're still underway if they are found to be underperforming or not having the intended impacts. It is also important to note that it can take at least two years for economic impacts to emerge, reinforcing the need for longitudinal analysis. That said, many skills interventions are particularly amenable to being structured so as to give early indications of impact (e.g. did the intervention affect course choices and completions?) as well as identifying longer term impacts.

The Centre has produced detailed guidance on evaluation of employment training and apprenticeships, including case studies: http://www.whatworksgrowth.org/policy-reviews/employment-training/how-to-evaluate-this-policy/.

10 Coordination

Coordinate across different stakeholder organisations, related policy areas and spatial levels with a broader vision and objectives in mind; Accountability and transparency is essential to keep everyone informed and on board

The majority of employment and skills policy and funding decisions are taken at national level with at least 20 different funding streams for skills and employability policies, managed by eight delivery agencies or government departments. Building understanding of the system and mapping out existing interventions at the local level would help to avoid duplication and poor use of resource. But as much of the discussion above makes clear, the case for more local intervention is not necessarily clear cut. More needs to be done to properly articulate the ways in which local intervention may better address market failures that affect the demand and supply of skills. This will involve understanding the distribution of benefits across different areas (e.g. as increased employment or wages percolate through a supply chain), considering risk, uncertainty and costs of investment, and then seeking to identify the appropriate spatial scale at which intervention might occur.

ANNEX

Rationale for intervention

There is a very large and diverse literature on industrial policy. The subject is covered by lots of different kinds of academics, with different language and approaches. For instance, the field covers endogenous growth theory;[47] Schumpeterian models of entrepreneurship / innovation / creative destruction;[48] industrial economics;[49] science and technology studies;[50] development economics;[51] political economy;[52] urban economics;[53] as well as economic sociology and economic geography.[54]

What can local policymakers learn from this? As expected, academics spend a good deal of time debating the definitions of 'industrial strategy' and 'innovation policy'. Much of the literature is also focused on national government, rather than subnational actors.

47 Lucas R. (1988) On the Mechanics of Economic Growth. Journal of Monetary Economics 22: 3-42; Romer P. (1990) Endogenous Technological Change. Journal of Political Economy 98: 71-102.

48 Aghion P, Blundell R, Griffith R, et al. (2009) The Effects of Entry on Incumbent Innovation and Productivity. Review of Economics and Statistics 91: 20-32; Perez C. (2010) Technological revolutions and techno-economic paradigms. Cambridge Journal of Economics 34: 185-202; Schumpeter J. (1962) The Theory of Economic Development, Berlin: Springer.

49 Aghion P, Dewatripont M, Du L, et al. (2012) Industrial Policy and Competition. NBER Working Paper 18048. Cambridge, Mass: NBER; Jaffe A. (1996) Economic analysis of research spillovers: Implications for the Advanced Technology Program. Economic Analysis: 1-14; Lerner J. (2009) Boulevard of Broken Dreams, Princeton: Princeton University Press; Tirole J. (2017) Economics for the Common Good, Princeton: Princeton University Press.

50 Bresnahan T and Gambardella A. (2004) Building High-Tech Clusters. Cambridge: CUP; David PA. (1990) The Dynamo and the Computer: A Historical Perspective on the Modern Productivity Paradox. The American Economic Review 80: 355-361; Freeman C. (1991) Networks of innovators: A synthesis of research issues. Research Policy 20: 499-514; Mazzucato M. (2013) The Entrepreneurial State. London: Anthem.

51 Harrison A and Rodríguez-Clare A. (2009) Trade, Foreign Investment, and Industrial Policy for Developing Countries. National Bureau of Economic Research Working Paper Series No. 15261. Cambridge, MA: NBER; Wade R. (2010) After the Crisis: Industrial policy and the developmental state in low-income countries. Global Policy 1: 150-161.

52 Rodrik D. (2004) Industrial Policy for the Twenty-First Century. CEPR Discussion Paper 4767. London: Centre for Economic Policy Research.

53 Duranton G and Kerr W. (2015) The Logic of Agglomeration. NBER Working Paper 21452. Cambridge, Mass: NBER; Chatterji A, Glaeser E and Kerr W. (2014) Clusters of Entrepreneurship and Innovation. Innovation Policy and the Economy 14: 129-166; Kline P and Moretti E. (2014) Local Economic Development, Agglomeration Economies and the Big Push: 100 Years of Evidence from the Tennessee Valley Authority. The Quarterly Journal of Economics 129 275-331; Moretti E. (2012) The New Geography of Jobs, Boston: Haughton Mifflin Harcourt.

54 Asheim BT, Smith HL and Oughton C. (2011) Regional Innovation Systems: Theory, Empirics and Policy. Regional Studies 45: 875-891; McCann P and Ortega-Argiles R. (2013) Modern regional innovation policy. Cambridge Journal of Regions, Economy and Society 6: 187-216; Saxenian A-L. (1994) Regional Advantage: Culture and Competition in Silicon Valley and Route 128 Cambridge, MA: Harvard University Press; Storper M. (1997) The Regional World: Territorial Development in a Global Economy, New York: Guilford.

There are two more useful contributions. First, academic authors have developed a number of rationales for doing industrial policy, and associated roles for the state. Much of this is helpful for policymakers developing theories of change, and clarifying objectives. Second, the empirical literature talks in detail about policy governance and management tools, and provides heuristics / 'how to' design principles that derive both from theory and from real world experience.

In the main body of this document, we draw on a number of these heuristics to develop principles and ideas to help guide the development of LIS. Below, we provide a quick primer covering the main rationales for policymakers to conduct industrial policy in the first place.

Supporting entrepreneurs / The Schumpeterian view

One rationale for industrial policy comes from Joseph Schumpeter, the pioneering theorist of entrepreneurship.[55] Schumpeter makes two central points. First, new ideas and innovations change the economy and society through a process of 'creative destruction'. Transitions from one technological paradigm to another are often chaotic, and have winners and losers, even if the long-term result increases overall welfare.[56] Second, the entrepreneur is the central figure in this process, as the transformer of new ideas into new products and services. In this scenario, the State has important strategic roles in supporting entrepreneurship and the creation of new ideas; and in compensating the losers from creative destruction. In practice, this could involve a mix of competition policy, support for startups and scale-ups, welfare programmes for 'losing' groups and ABIs for 'losing' communities and places.

Ideas, skills and the state / endogenous growth theory

A second rationale comes from endogenous growth theory. In this picture, human capital and new ideas are important drivers of long term economic growth.[57] New knowledge and innovations help push the technological frontier forward; these ideas 'spill over' from inventors to the rest of society, which can then make productive use of them. But at the same time spillovers also mean that inventors cannot capture the full value of new ideas, discouraging innovation. Worse, research and experimentation is risky (ideas may not work out), expensive (e.g. accessing skilled people or specialist infrastructure), and may require cooperation to pay off (e.g. setting common technological standards). Taken together, these market and coordination failures mean that societies will typically 'underinvest' in innovative activity.[58] In turn, this suggests multiple roles for the state, in funding and incentivising basic research in universities and businesses; subsidising advanced education and training; supporting knowledge transfer, networks and collaboration; and through regulation, standards and competition policy. In practice, the extent of policy involvement will vary from sector to sector. The standard policy mix involves a series of cross-sector ('horizontal') interventions along the lines above. A more interventionist, active state approach sees market failures as the norm in many sectors, especially knowledge-intensive and 'frontier' activities, and develops more intensive, 'vertical' support and public-private partnership working.

55 Schumpeter J. (1962) The Theory of Economic Development, Berlin: Springer.

56 Aghion P, Blundell R, Griffith R, et al. (2009) The Effects of Entry on Incumbent Innovation and Productivity. Review of Economics and Statistics 91: 20-32; Perez C. (2010) Technological revolutions and techno-economic paradigms. Cambridge Journal of Economics 34: 185-202; Schumpeter J. (1962) The Theory of Economic Development, Berlin: Springer.

57 Lucas R. (1988) On the Mechanics of Economic Growth. Journal of Monetary Economics 22: 3-42; Romer P. (1990) Endogenous Technological Change. Journal of Political Economy 98: 71-102.

58 Jaffe A. (1996) Economic analysis of research spillovers: Implications for the Advanced Technology Program. Economic Analysis: 1-14; Rodrik D. (2004) Industrial Policy for the Twenty-First Century. CEPR Discussion Paper 4767. London: Centre for Economic Policy Research.

Public-private co-creation / innovation systems

Innovation systems theorists argue that the economistic approach of endogenous growth frameworks is too thin to explain actual patterns of innovative activity, and the roles of government and other public actors. Rather, we should see innovation as the product of a system of entrepreneurs, firms, government and other institutions, which collectively shape levels and characteristics of innovative activity.[59] This third rationale emphasises institutions as both actual entities (such as universities and public research agencies) and more intangible norms, customs and rules that influence how communication and interaction occurs. Equally, it highlights the need to understand the roles of different actors in a given national or regional system, and within specific production systems, such as clusters or value chains.[60] Many of these may spill over local administrative boundaries, or national boundaries. It also directs policymakers to fix capacity problems, align incentives and tackle sub-optimal behaviour, with a focus on good governance and management.[61] In one version of this scenario, the state takes on similar roles to the active state approach above, with an emphasis on public-private networking and coordination (exemplified by DARPA or the Fraunhofer Institutes). A more hands-on version is the 'entrepreneurial state' approach, in which government takes a strategic role in picking key sectors, technologies and activities, and directs the most important activity through mission-focused programmes.[62]

Industrial policy for cities and regions / Smart specialisation

A fourth rationale for industrial policy derives from the smart specialisation concept.[63] This approach draws from the three previous rationales, but derives implications for regional and local policymakers. First, it emphasises the importance of 'entrepreneurial discovery' in national long-term economic growth, particular technology-led growth, and highlights the need for countries to identify their own strengths and build on these advantages through a range of national policy measures. Second, it points out that the resources for innovation-led growth are unevenly spread across places. Worse, over time both Schumpeterian and endogenous growth processes are likely to drive up disparities between places. This picture is complicated by the fact that innovation systems and value chains sit across administrative borders, and because policies also have spillover effects (for example, if place X trains people who then move to place Y). Nevertheless, smart specialisation advocates suggest that the smart specialisation concept provides a useful basis for place-based responses. At local level, different places need different policy mixes. Places need to a) prioritise around their strengths; b) have regard to spillovers between places c) set up sound governance structures d) produce a shared vision e) select a limited number of priorities, and f) design specific interventions for these. Smart specialisation design guides emphasise the importance of clear processes, experimentation, robust evaluation and systems that allow policymakers to drop failing interventions.[64]

59 Freeman C. (1991) Networks of innovators: A synthesis of research issues. Research Policy 20: 499-514; Saxenian A-L. (1994) Regional Advantage: Culture and Competition in Silicon Valley and Route 128 Cambridge, MA: Harvard University Press.

60 Asheim BT, Smith HL and Oughton C. (2011) Regional Innovation Systems: Theory, Empirics and Policy. Regional Studies 45: 875-891; Sturgeon T, Van Biesebroeck J and Gereffi G. (2008) Value chains, networks and clusters: reframing the global automotive industry. Journal of Economic Geography 8: 297-321.

61 Rodrik D. (2004) Industrial Policy for the Twenty-First Century. CEPR Discussion Paper 4767. London: Centre for Economic Policy Research.

62 Mazzucato M. (2013) The Entrepreneurial State. London: Anthem.

63 McCann P and Ortega-Argiles R. (2011) Smart Specialisation, Regional Growth and Applications to EU Cohesion Policy. Economic Geography Working Paper 2011. Groningen: Faculty of Social Sciences, University of Groningen; McCann P and Ortega-Argiles R. (2013) Modern regional innovation policy. Cambridge Journal of Regions, Economy and Society 6: 187-216

64 Foray D, Goddard J, Beldarrain XG, et al. (2012) Guide to Research and Innovation Strategies for Smart Specialisation (RIS3). Brussels: DG Regio.

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