



Ministry of Housing,
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ERDF 2007-2013 Analytical Programme Workstream Two

Economic efficiency and what works in local economic policy

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Note: While the Department for Communities and Local Government changed its official title to the Ministry of Housing, Communities and Local Government in 2018, this report refers to activity between 2007-2013 and so it is referenced by its former name throughout the document.

Introduction

- 1) The Department for Communities and Local Government (DCLG)¹, as the Managing Authority, has a responsibility for evaluating the performance, impact, implementation and lessons for the 2007-13 programme, as well as to build on this in developing the new programme for 2014-20 with the European Commission. As part of this responsibility, DCLG commissioned Regeneris, Cambridge Econometrics and Professor Peter Tyler in November 2012 to progress a research and evaluation programme.
- 2) The primary purpose of the analytical programme was to deliver a package of evidence that informed the implementation and effective delivery of the 2014-20 ERDF programme. Workstream one consisted of an assessment of the economic impacts of the current ERDF programme 2007-13. Workstream two assessed the economic effectiveness and lessons to be drawn from different types of interventions, across a range of relevant policy areas, in supporting local economic growth. Workstream three reviewed the role for and effectiveness of decentralised delivery and local incentives in local economic growth and the manner in which this can contribute to national economic growth.
- 3) A range of reports have been produced as part of the analytical programme, for instance draft final versions of the reports for Workstream two and three were completed in November and August 2013 respectively. The Workstream two report informed DCLG's consideration of the types of intervention that could be effective in supporting local economic growth through the new ERDF programme and the lessons which should be considered. The draft report was also shared with Local Enterprise Partnerships (LEPs) to inform the preparation of their European Structural and Investment Fund plans, which were initially submitted at the end of November 2013 and revised in January 2014.
- 4) This report presents the final findings from Workstream two. It focuses on three main research questions:
 - What is the role of ERDF in addressing spatial disparities and promoting growth?
 - What has ERDF been used for, and what can it be used for in the 2014-20 programmes?
 - What does impact evidence suggest should be the focus of future ERDF interventions?

¹ DCLG was renamed the Ministry of Housing, Communities and Local Government in January 2018.

- 5) The reduction of spatial economic disparities continues to be central to ERDF and to EU cohesion policy generally. The draft regulations for the 2014-20 programmes and the policies that shaped them are underpinned by a place-based strategy for tackling these disparities and promoting economic growth. This sets the framework both for what ERDF is expected to be invested in, and how it is delivered.
- 6) Understanding the local economic development interventions that work most effectively has an important part to play in designing the 2014-20 programme. There are difficult choices to be made about where to concentrate ERDF resources, and evidence about the impact of previous interventions, including those funded by the current ERDF programmes, should help to guide this process.

What are the challenges that ERDF is intended to address?

- 7) Spatial disparities in England are relatively large, persistent and have been increasing. On key measures such as household income and earnings, relative rankings across areas have not changed much over many years. In 2009 differences in GDP per capita between NUTS 2² areas in the England were largely the same as those of 2000.
- 8) These persistent spatial disparities reflect differences in the ability of areas to increase the volume of goods and services they produce and deliver growth, to achieve increases in productivity or to increase employment. Much of the research on the issue suggests that they are deeply entrenched in national economies and tend to be reinforced over time.
- 9) Research into the causes of sub-national variation in economic performance and growth emphasises the critical role of skills and labour productivity. Areas with the strongest growth in output and productivity are generally those with the largest concentrations of higher skilled labour.
- 10) In turn, higher performing areas attract more such labour, further reinforcing the underlying variation. This 'sorting' occurs both within local areas (e.g. as people move to work in larger urban areas) and between areas (e.g. as people move to areas offering a larger number of higher skilled, higher paid employment).
- 11) For businesses, decisions about investment and expansion are linked to the benefits to be gained from place specific scale economies or increasing returns by gaining access to skilled workers, knowledge and specialised suppliers. These benefits of scale are particularly associated with larger urban areas.
- 12) While skills and the labour force are clearly critical, there is a substantial

² NUTS has been created by the European Office for Statistics (Eurostat) as a single hierarchical classification of spatial units used for statistical production across the European Union (EU).

research literature on the role of infrastructure (physical capital) investment in supporting growth. Infrastructure such as transport information and communication technology (ICT) and business sites and premises is seen as an important counterpart to investment in education and innovation.

- 13) Together, the combination and interplay of skilled labour, physical capital and the business environment represent the assets that underpin growth and policy makers have to be clear about the underlying rationale behind their intervention. In the light of their assessment of constraints on growth in the local economy they will have decisions to make about the areas on which they should focus their efforts and which types of intervention they should prioritise.

How is ERDF used?

- 14) A review of the current (2007-13) and previous ERDF programmes in England (See workstream 1 report) shows that both programme priorities and actual investments have been strongly focused on support to businesses (SMEs), innovation/R&D, sites and premises, the low carbon economy and, in transitional and convergence areas, transport infrastructure.
- 15) This pattern of investment underlines the extent to which ERDF is configured as a source of funding to address the factors that contribute to lagging performance in some areas, to remove perceived barriers to growth, and to strengthen local assets (for example R&D facilities, key business sectors).
- 16) This is set to continue in the 2014-20 programme, with the competitiveness of SMEs, innovation, energy efficiency and renewable energy intended to absorb at least 80 per cent of ERDF in more developed areas of the EU, and at least 50 per cent in less developed areas.
- 17) The shift to a combined Structural and Investment Funds programme - which brings together ERDF and the European Social Fund (ESF)³ in 2014-20 is intended to better connect investment in skills and the workforce with the broader range of investment supported by ERDF. This further reinforces the message that the funds are designed explicitly to be invested in some of the key factors that determine economic performance and growth.

How does ERDF tackle disparities and promote growth?

- 18) The concept of market failure is central to the way that ERDF is expected to tackle disparities and promote growth. It is part of the rationale that ERDF programme designers are required to provide in justifying the allocation of funds, and the evidence to support specific project interventions.
- 19) The nature of the market failures which are particularly relevant to ERDF include for example:

³ Together with elements of rural development programme funding.

- SME competitiveness and new SME formation, where information failures can limit access to the knowledge needed to strengthen performance or deter new entrants.
 - Business finance, where information failures play a part both in a lack of demand for equity or loan finance, and a deficit of suppliers.
 - Interaction between knowledge assets (i.e. universities, R&D centres) and businesses where there are both coordination failures in making this knowledge accessible and useful to businesses, and where information failures limit commercial demand.
 - Land and property, where information failures can make investors risk averse, thus restricting development.
 - Environmental technology development and resource efficiency, where information failures are present in encouraging businesses to adopt such technologies, and where some forms of environmental protection measures can be regarded as public goods (e.g. reducing carbon emissions from private transport).
- 20) Although market failure is seen as important in justifying ERDF investment, the need for ERDF is often reinforced by reference to positive benefits to an area. Localised initiatives to support unemployed people to start a business or enter self-employment (which may assist in reducing unemployment levels on those areas) are a good example. Similarly, investments in technology-based facilities at universities are sometimes seen as a means to develop new assets of this type with benefits for the area in which it is located. It is the wider benefits of such initiatives, rather than market failures specifically, which provide the rationale for investment.
- 21) To some extent, this positive rationale for ERDF investment reflects its role in enabling choices to be made.
- Businesses may choose to invest where profits can be maximised, and investment in education, innovation or infrastructure can create a more attractive environment to this end.
 - In turn, areas which offer a wider range of employment and good quality local facilities and services influence the choices of working people about where to locate.
- 22) This is important in understanding how ERDF has been used in individual programme areas. For example, many of the investments in the current and previous programmes were intended to improve local capital assets (e.g. R&D facilities, business premises) or strengthen and expand the area's SME base (e.g. business start up, high growth business support).
- 23) Whilst the purpose of ERDF is reasonably clear, there is a need for realism about what it can achieve, and its potential impact must be seen in context:

- The investment it provides represents a small component of overall public and private investment for an area, even in lagging areas where ERDF investment is highest.
 - It is conditional on being combined with other sources of investment, and is constrained by this requirement and the rules and regulations which apply to it.
 - Many of the market failures it is intended to address are deep seated and are shaped by economic forces, including international factors, which public policy can influence in only a limited way.
 - Institutional factors, such as the constraints on development imposed by the planning system, may present barriers which ERDF investment can do little to address.
- 24) The upshot is that ERDF can only be expected to work at the margins and support changes that will occur over a long period. This underlines the need to invest limited ERDF resources where its effects are greatest, and the need for evidence to inform such decisions.

What works?

- 25) There is an extensive body of evidence about local economic development and regeneration interventions. However, much of this research is limited in the conclusions it draws about their economic impact. There are few examples of studies which have used control group and econometric based methodologies. This has implications for the robustness of the impact evidence.
- 26) This study has drawn on evaluation evidence from the UK and elsewhere to understand what is most effective in strengthening economic performance and promoting growth. The focus is on the investment themes which will be central to the 2014-20 ERDF programme for England.

Enterprise Development and Support

- 27) A substantial proportion of ERDF investment is expected to be targeted at business competitiveness and business formation. Review of the evidence points to the following key messages about what works most effectively:
- The overall picture is mixed, with the evidence showing supported SME beneficiaries grow faster than non-supported beneficiaries for some interventions. However, in some cases there are risks of high levels of displacement and low levels of additionality.
 - Selective and targeted support to local business in general (including business start-ups) can stimulate business growth and job creation in a cost effective way, with some comparatively low cost per job (i.e. high efficiency) results from a number of recent interventions.

- While there is evidence that larger scale support programmes to SMEs have enabled businesses to expand or improve productivity more rapidly than non-supported businesses, studies suggest that the biggest impacts are often concentrated in a small number of the more intensively assisted businesses.
 - Grant based schemes remain the preferred option where riskier investment (e.g. R&D) is involved. However, there are concerns in the evaluation evidence about deadweight with this type of intervention, and studies suggest it is less effective for larger businesses.
 - There is limited control group based evidence about the impacts of entrepreneurship and start up interventions.
- 28) The overall message is that this type of intervention does assist in improving productivity, enabling businesses to expand and in creating new enterprises. It points to the benefit of a targeted approach and of more intensive forms of support generating better returns.

Access to business finance

- 29) There is limited evidence on the impact of Financial Engineering Instruments (FEIs) at the present time. There appear to be very few econometric based studies, and there is a general deficit of data measuring the economic impact of such schemes, in part because many are currently still in their delivery phase.
- Studies show that this type of intervention has positive effects on beneficiaries, and that some schemes report high levels of additionality (i.e. impacts that would not otherwise have occurred).
 - There is evidence that publicly funded schemes targeted at addressing recognised gaps in the SME finance market (e.g. early stage equity finance in peripheral areas) have contributed effectively to improving the supply of finance and stimulating demand from businesses.
 - Considerable expertise and judgement is required to balance the costs of setting up and managing funds in relation to future returns, the deal flow, and the rate of market absorption that can be secured. It is essential to ensure that schemes are of sufficient size to be viable.
- 30) The availability of SME finance in the current economic context means that FEIs are expected to be a feature of the 2014-20 Structural and Investment Fund programmes. While such instruments deliver demonstrable benefits in terms of business growth and improved performance, attention to the design of FEIs, so that they are targeted at specific gaps in the market and the need for scale, should be prerequisites.

Innovation, research and development

- 31) This is a key priority in EU policy and will be a major investment theme for the 2014-20 programme. Research evidence underlines the role that publicly funded intervention plays in addressing both the problem of coordination failure and information failure, the latter reflecting the risks and uncertainty about returns associated with this type of investment.
- 32) In terms of impact evidence, the evaluation of interventions is more challenging in this area. The returns from investment, particularly support for early stage development of new products and services, tend to be realised over a much longer period than for established businesses. The evidence suggests that:
- The clearest impacts centre on the leverage of investment generated by interventions (both public and private) and the benefits of encouraging more SMEs to engage in innovation.
 - The few counter-factual based studies available are equivocal about the economic impacts (increased productivity, job creation) of interventions and levels of additionality. This may reflect the lag between investment and the launch of new products and technologies on the market.
 - Support for innovation credits and other measures to encourage knowledge transfer between academics and SMEs and science to business programmes have proved to be more cost-effective than more intensive forms of support to businesses, reflecting lower delivery costs.
 - As is the case with other forms of support, the evidence suggests a need to focus on the types of business or facility that are likely to generate the biggest impacts.
 - Evidence about the benefits of capital investment in scientific facilities and other HEI facilities is not clear cut, partly because the impacts of such facilities (e.g. job creation in businesses that work with such facilities) are indirect and likely to take time to emerge.
 - There appears to be little evidence that interventions aimed at creating clusters are effective, although there is a role for policy to support established business clusters.
- 33) Given its centrality to the 2014-20 programme, lessons from previous interventions have a particularly useful role in shaping future interventions. The evidence is stronger about principles for delivery than it is about impacts, but the targeting of investment (by type of business, by technology) and the need to strengthen coordination between R&D activity and businesses are consistent messages from the research.

Land and Property

- 34) Land and property interventions are a well-established pillar of economic

development and regeneration policy. They are seen as a measure both to support business expansion and inward investment, and as a means to correct deficits in local physical infrastructure.

- 35) The indirect nature of the economic impacts that arise – growth of businesses that occupy premises, jobs created by businesses - from this type of intervention make it difficult to assess. Review of the evidence points to the following key messages:
- Evidence about economic impacts is at best mixed. Studies show that there have been production related benefits from investment, but also that there are often high levels of deadweight and displacement.
 - The market failure rationale for land and property interventions is not always clear cut. Arguments about information failure and public goods arguments are deployed, but the case for such investment is often made on the grounds of the shortage of commercial property in an area and the need to de-risk private sector investment, the weakness of a local property market or the high costs of remediating land.
 - The evidence points to the role of land and property interventions in addressing local barriers to growth. So where additional employment is generated in a locality, in part as a result of businesses establishing new operations, these are seen as positive economic impacts although displacement may be an issue.
 - Research also points to other barriers, including the constraints of planning system, as factors which impede land and property development. There is no obvious role for ERDF (or other similar mechanisms) in overcoming such barriers.
 - It should be emphasised that investment in land and property related initiatives have an important role to play in removing contamination, and blight, enhancing environmental amenity and contributing to targeted physical regeneration initiatives. There are also benefits in helping to overcome access and transport related issues and assisting with the provision of housing.
- 36) Opportunities for ERDF to fund land and property investment are likely to be more limited in the 2014-20 programme than is currently the case, particularly in more prosperous areas. In this context, decisions to invest in such interventions would be expected to be more competitive and require stronger justification, including evidence of market failure.

Transport Infrastructure

- 37) Transport infrastructure investment maintains a prominent role in local economic development policy and has featured extensively in ERDF investment across the EU. The substantial body of research on the effects of transport infrastructure investment focuses primarily on its indirect economic

benefits. Key points from the evidence include:

- The public goods rationale plays a key part in justifying transport infrastructure interventions. It applies both to the use of infrastructure and to the environmental benefits associated with some forms of such investment.
 - Alongside this, impact evidence points to the facilitating role of transport in enabling the more efficient and effective movement of goods and labour. Studies show that there have been indirect economic development benefits, such as reduced transport costs to business which have in turn contributed to new business investment.
 - The evidence also links transport infrastructure to agglomeration economies, specifically to its enabling role in building scale and concentration of businesses and labour. Investments in ports, airports, and major transport interchanges in urban areas are good examples.
 - Some econometric based studies have found positive effects on wages and employment levels, which result from its impact on improved access to labour for businesses and improved access to work for the labour force.
 - As is the case with land and property interventions, the rationale for transport infrastructure investment is also grounded in arguments about how it supports business growth and inward investment (i.e. a facilitating role).
- 38) Transport infrastructure investment is expected to be a more limited feature of the 2014-20 programmes. While its role in facilitating growth should be recognised, this suggests a more selective approach to such investment driven by evidence of where its impacts are likely to be greatest.

Digital Infrastructure

- 39) This type of investment is a relatively recent strand of economic development policy. The weight of impact evidence is therefore still limited, but there are studies which provide useful pointers to future investment:
- Information failures in the case for broadband investment are reflected both in the uncertainty for infrastructure providers about the potential scale of uptake and in the lack of understanding of business about its potential benefits.
 - There are also public goods arguments, in that access to high speed broadband improves access to goods and services (online), enhances communication and better connects peripheral locations.
 - Impact assessments from the UK, EU and US have pointed to both increases in Gross Domestic Product (GDP) and employment associated with the uptake of high speed broadband infrastructure.

- Stimulating business demand (i.e. uptake) is critical to the scale of economic benefits associated with superfast broadband investment. It is the uses of broadband – to access new markets, implement new software or carry out transactions more efficiently – that drive business growth and job creation.
 - With both the market and technology rapidly developing, the evidence is not yet clear about what should be the limits to public subsidy, since the returns to network developers (and thus their propensity to invest) will take time to become established.
- 40) Extending high speed and ultrafast internet access across the European Union is a priority identified as part of the 'digital agenda for Europe' in the EU's 2020 strategy. With substantial growth in online commercial activity anticipated, there is likely to be strong pressure for further ERDF investment to enable businesses to make best use of connections where they exist, and to continue the roll out of new networks.

Low Carbon Energy and the Environment

- 41) This is a broad area for intervention driven by both the rapid progress of new technology and the need to reduce or mitigate the effects of carbon dioxide emissions. Evaluation evidence reflects this, with research focusing on the effects of interventions in addressing environmental problems but also on the economic impacts (e.g. new business formation, job creation, productivity improvements) associated with a growing market.
- Part of the rationale for this type of intervention is grounded in uncertainty about the commercial returns from emerging technologies. However, externalities and public goods arguments are also prominent given the nature of measures aimed at environmental protection.
 - Studies have concluded that public investment to support the development of new technologies (e.g. biomass plants, hydrogen fuel cells) has contributed to job creation and increased value added where the returns to private investors are uncertain. Others point to productivity benefits associated with improved resource efficiency in businesses.
 - Wider research in this area points to amenity benefits from environmental improvement measures, although these are difficult to measure and to link to economic development.
- 42) This will be a major area for investment in the emerging 2014-20 programme for England. While there is already a platform of previous investments on which to build, the pace of changes in technology and its use, and the growing imperative to reduce carbon dioxide emissions, point to a need for flexibility about the range of investments to be made.

Conclusions and recommendations

- 43) The challenges at which ERDF is directed are substantial and deep-rooted. Spatial disparities in economic performance are common to many economies and are the result of the complex interplay between market forces, locational characteristics, institutions and culture.
- 44) Economic growth, whether the priority is increased GDP or employment, is the result of similarly complex forces. The impact of the current economic climate, which has seen sustained falls in output and employment, has underlined the limits of local economic development policy in promoting growth.
- 45) With these dynamics in mind, it is important in considering where the emphasis should be in the emerging ERDF programme for England that policymakers recognise that the funds can make a difference only at the margins. Significant change in performance only occurs over the long term, and ERDF must be seen as a mechanism that works alongside other private and public investment over a sustained period.
- 46) The causes of disparities in performance and the factors that support economic growth do not provide a straightforward menu of options for deciding how best to invest ERDF. This applies both to what ERDF should be invested in, and where it is best to focus investment.
- 47) Labour mobility is central to economic performance, and one perspective on how to use ERDF suggests that the biggest returns are likely to be generated where there are concentrations of higher skilled labour and a high density of businesses. In other words, invest ERDF where economic opportunity is assessed as being greatest.
- 48) However, the evidence suggests that this effect reinforces spatial disparities. An approach based on opportunity alone may fail to reflect the growth potential of locations within less prosperous areas, while growing spatial disparities in economic performance are associated with adverse effects on people and businesses in those areas.
- 49) EU cohesion policy was established to reduce the gap between the most prosperous regions of the EU and weaker economies, and this has remained a cornerstone of ERDF and other Structural Funds. The expectation is that the 2014-20 programmes will invest further in addressing some of the factors which have limited the growth of less prosperous areas.
- 50) In considering the principles for allocating ERDF, there is increased emphasis on the options for investment in major urban areas and in particular cities. Research points to the importance of large and better performing cities in delivering wider growth objectives, and an element of future ERDF funding has been earmarked for interventions specifically targeted at urban areas.
- 51) While the relative success of some UK cities has been recognised, research suggests that analysis of the implications of this should be undertaken, and further evidence gathered, before any decision about prioritising particular

cities is made.

- 52) Nevertheless, there are strong grounds for focusing some types of initiative in and around major urban areas where there are likely to be higher numbers of businesses, larger labour forces and other characteristics of scale and agglomeration. These characteristics may help to make economic development interventions more viable and efficient, better enable them to reach a more extensive target market etc.
- 53) If there is some uncertainty about what the evidence tells us about what to invest in and where, research on the impacts of economic policy, including ERDF investment, suggests a need to focus on particular intervention types and investment principles:
- Addressing the market failures and related factors that inhibit investment in business development, new company formation (including entrepreneurship) and the ability of companies to grow.
 - Interventions which support commercial innovation in established businesses, connecting R&D activity (public and private) to the business base and particularly to SMEs.
 - Selective investment in measures to provide finance to SMEs, with a focus on tackling gaps in the supply of finance and the cost-effectiveness of repayable finance mechanisms.
 - Investment in infrastructure including land and property, transport or digital infrastructure where evidence of market failure is clear and where it generates the maximum benefit to cost. This will be important given the lower levels of funding available for such investment.
 - Continued investment in initiatives to reduce carbon dioxide emissions and mitigate the effects of climate change. These are headline objectives in EU policy, shared by the UK government, and are anticipated to be an increasingly important component of the economy.
- 54) While there is clearly choice about the interventions that ERDF will support in England during the 2014-20 programmes, it is important to recognise that the framework for investment is set by EU policy and by the regulations for Structural and Investment Funds. This applies both to the range of investments that can be made and to the finer detail about how they are designed and implemented.

1. Introduction

Background to this analytical programme

- 1.1 The European Regional Development Fund (ERDF) is a key funding instrument of EU Cohesion Policy which aims to promote economic, social and territorial cohesion across the whole territory of the European Union. ERDF is specifically focused upon investment to support economic growth and job creation in order to reduce intra and inter regional economic disparities within the EU. A further round is under development for 2014 to 2020.
- 1.2 The UK government's priority is to restore the health of the national economy. This includes targeted interventions in support of local economic growth to strengthen the overall performance of the UK economy and support the rebalancing of the economy, in favour of a strengthened private sector. The government's objectives reflect the current and future priorities for the use of EU Structural and Cohesion Funds across England and the Devolved Administrations in the funding period 2014-2020.
- 1.3 In the current context of constrained public spending, the ERDF is an important potential source of public funding to support local economic growth. The Department for Communities and Local Government (DCLG) in its capacity as the Managing Authority for ERDF in England has strengthened local management arrangements and increased local influence over the direction of funds.
- 1.4 DCLG, as the Managing Authority, has a responsibility for evaluating the performance, impact, implementation and lessons from the 2007-13 programme, as well as to build on this in developing the new programme for 2014-20 with the European Commission. As part of this responsibility, DCLG commissioned Regeneris, Cambridge Econometrics and Professor Peter Tyler in November 2012 to progress a research and evaluation programme.
- 1.5 The primary purpose of the analytical programme was to deliver a package of evidence that informed the implementation and effective delivery of the next round of ERDF. It consisted of three workstreams:
 - 1) **Workstream 1.** An assessment of the economic impacts of the current ERDF programme 2007-13. DCLG required an economic evaluation of the types of funding interventions that have worked and, linked to workstream 2, the factors which have been critical to success. The focus was on using counterfactual impact evaluation techniques, informed by the National Audit Office⁴ report on evaluation on government, to test the robustness of these approaches.
 - 2) **Workstream 2:** An assessment of the economic effectiveness and lessons

⁴ Cross Government Report on Evaluation in Government, National Audit Office, December 2013

to be drawn from different types of interventions, across a range of relevant policy areas, in supporting local economic growth, as well as the factors which contribute to successful local economic development.

- 3) **Workstream 3:** A review of the role for and effectiveness of decentralised delivery and local incentives in local economic growth and the manner in which this can contribute to national economic growth.

Purpose and focus of Workstream two

- 1.6 The key requirement of workstream two is to understand which interventions should be prioritised, and what should be their spatial focus. This report considers the question of the EU's role in tackling spatial disparities and promoting growth. Drawing on a wide range of evaluation research, it asks what this evidence suggests should be the focus of future ERDF investment.
- 1.7 The report is structured as follows:
- Section 2 briefly summarises key evidence about the presence of spatial disparities in the UK and explores the role of ERDF investment in addressing this issue.
 - Section 3 sets out the key findings from the evaluation of the impacts of economic development interventions, both from the UK and elsewhere. It considers the rationale for these interventions, evidence about their effectiveness and the implications of this evidence for ERDF.
 - Section 4 sets out the main conclusions and recommendations
- 1.8 While there is a substantial body of research on the implementation and impacts of economic development policy, the complexity of the factors that generate disparities in economic performance and that drive growth present challenges in determining the weight that should be attached to different forms of intervention. In short, there are no simple answers.
- 1.9 How far lessons about what works can be applied to future ERDF investment is also determined by the EU's regulatory framework for the funds. This sets out the range of measures that ERDF is expected to fund, and is underpinned by detail about precisely which activities are eligible and ineligible.
- 1.10 To this end, the report assesses the evidence across the main areas for ERDF investment which are to be part of the 2014-20 programmes.

Outputs from the analytical programme

- 1.11 A range of reports have been produced as part of the analytical programme, for instance draft final versions of the reports for workstream two and three (November and August 2013 respectively). The workstream three report informed DCLG's consideration of the approach to the delivery and management of ERDF through the LEPs in the new programme period. The workstream two report informed DCLG's

consideration of the types of intervention that could be effective in supporting local economic growth through the new ERDF programme and the lessons which should be considered. The report was also shared with the LEPs to inform them in the preparation of their European Structural and Investment Fund plans, which were initially submitted at the end of November and revised in January.

- 1.12 Workstream one has been completed over the course of 2013 and first part of 2014. Given the nature of the counter-factual approach adopted, it was necessary to focus the analysis on the beneficiaries of ERDF funded SME interventions. It has taken longer to complete the analysis, primarily due to delays in accessing and the matching of beneficiary data to the corresponding business records on the Business Structure Database (which is part of the Interdepartmental Business Register, held by the Office of National Statistics) and the selection of suitable control groups from the same source.

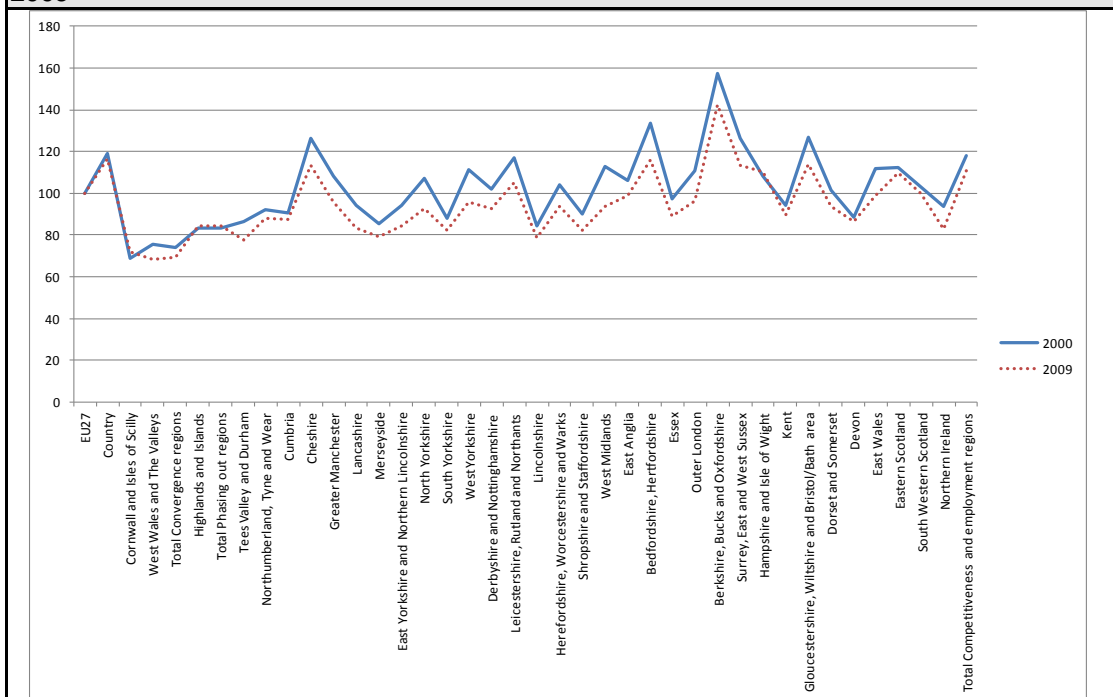
2. Spatial disparities and the role of ERDF

- 2.1 Tackling spatial disparities has been a core objective of EU cohesion policy since its inception. It sought to reduce differences in the economic performance of regions across the EU, with growth in lagging areas expected to contribute to an overall increase in prosperity across the EU. While this remains a key objective for the 2014-20 programmes, the emerging regulations for ERDF and other Structural Funds now puts increased emphasis on the need to promote growth, a response to deep recession across the continent.
- 2.2 This section provides an overview of evidence on the problem of spatial disparities in economic performance in the UK and related economic growth objectives. It sets out how ERDF is intended to address these issues, focusing on the range of interventions it funds. It considers what research tells us works in tackling disparities and promoting growth, and lessons for the design of the 2014-20 programmes.

The nature of the problem: long term spatial disparities in England

- 2.3 Disparities in the performance of different areas of the UK are deeply entrenched and have been a focus for economic development policy. GDP per head (PPS) is among the most widely used measures of disparity. As Figure 2-1 shows there is substantial variation within the UK, variation that has changed little over the past decade. Thus, for example, GDP per head is just over 50 per cent above the EU27 average in Berkshire, Bucks and Oxfordshire but some 31.5 per cent below the average in the Convergence region of West Wales and the Valleys.

Figure 2-1: GDP per head (PPS EU=27) Across the UK NUTS 2 regions in 2000 and 2009



Source: Eurostat. Note that the chart excludes Inner London and North West Scotland for reasons of scaling.

- 2.4 While GDP measures continue to be the most commonly used to understand spatial disparities and economic growth performance, a broad range of alternative measures further underline the wide variation between different areas of the UK. Differences in household income, for example, are a useful proxy indicator for concentrations of higher skilled labour and the prevalence of higher paid employment.
- 2.5 The concentrations of higher income households across the greater South East, the M4 corridor and into the south midlands are consistent with the recent economic performance of these areas and their proximity to London. Elsewhere, there are smaller concentrations of higher income households, generally located within commuting distance of major employment centres (for example Leeds, Manchester, Newcastle).
- 2.6 There has been much recent interest in understanding the causes of such disparities, and the reasons why variation in GDP growth rates is so marked. Their extent and persistence has been recognised by government as a key challenge to recovery from the recession and to economic development policy more generally (BIS, 2010).
- 2.7 Most sub-national growth theories suggest that spatially imbalanced growth is an entrenched feature of national economies and that there are powerful forces at work that tend to amplify and reinforce these disparities such that spatial economic imbalance may increase. One perspective points to disparities as the outcome of market forces. As Garretsen et al (2013) emphasise:
- ‘...in the real world, place-specific scale economies or increasing returns exist and moving goods or factors of production across space is certainly not costless. If that is the case an uneven regional allocation of income or employment (growth) can be the outcome of the unhampered working of market forces, not the result of market failures and barriers, as in the neoclassical interpretation.’*
- 2.8 Other studies that have sought to understand the specific factors that lead to spatial differences in economic growth. Labour productivity consistently emerges from this research as the dominant factor compared to other factors such as labour utilisation. Areas that grow fastest have the highest labour productivity. For example, research by the OECD has found:
- ‘Among the 20 OECD regions with the highest GDP per capita growth rate during 1995-2007, labour productivity growth is a major determinant compared to changes in labour utilisation. In 17 of the 20 regions, labour productivity growth accounted for 70% or more of the rise in GDP per capita’ (OECD, 2009).*
- 2.9 The areas that grow the most quickly, and have the fastest growth in productivity, have the highest concentrations of the most skilled workers. There are extensive sorting effects within regions, and particularly within urban areas, where people move to maximize their intrinsic real income (determined by the nominal wage they can earn compensated for cost of living effects and quality of life enhancing factors). (Gibbons et al, 2010). People tend to want to live in areas where economic factors

are leading to growth and they can maximize the economic return on their human capital and they can afford to live.

- 2.10 Theorists adopting often quite different perspectives tend to argue that, other things being equal, people reinforce disparities in GDP per capita and income as they move from areas of low to high economic opportunity. Spatial differences in economic performance are thus amplified as better performing locations attract a greater amount of higher skilled labour, and with it increased investment and higher productivity levels. Research on Manchester's labour market suggests that the city has drawn higher skilled labour from other northern English cities, in part explained by the breadth and density of firms and employment offered by the city.
- 2.11 There is much research on the specific factors that attract businesses and people to particular places. In the case of businesses the importance of proximity to other companies, and thus the role of spatial agglomeration, or economic mass, is a prominent source of investigation.
- 2.12 The OECD has recently conducted a comprehensive study to identify the key determinants of spatial differences in economic growth (OECD, 2009). It argues that 'infrastructure is the foundation of regional development and has been the target of significant investment through regional policies over the past decades'. However, the study recognised that infrastructure investment alone would not generate growth, but needed to be combined with improvements in education and innovation.
- 2.13 The OECD's research emphasised the critical role of human capital, supporting growth in all types of area. It found particularly high returns in regions with a high level of tertiary education and 'in general the results highlight the influence of the main theoretical factors that promote innovation-the usual list of 'hard' inputs such as education, research investment (OECD, 2009).'
- 2.14 The conclusions from the very significant amount of research and econometric modelling undertaken by the OECD and other researchers is that regional economic development is the result of 'the interplay between physical capital, human capital and the business environment' and the 'benefits of strong interaction between different types of regional assets'. The argument is that the determining factors of regional performance are mutually reinforcing and that this 'underlies the importance of a cross-sectoral approach to policy formulation and delivery'. Interestingly, the OECD research suggests that the impact of investment in human capital and infrastructure take around three years to have an effect on regional growth.

What is the Purpose of ERDF?

- 2.15 If ERDF is to contribute to tackling spatial disparities, it must identify and address the factors that are preventing local areas from increasing the volume of goods and services they produce. This is reflected in the way it is allocated and configured:
 - It is distributed on the basis of economic performance, with lagging areas eligible for higher amounts of funding, and the best performing areas entitled to much lower amounts.

- Working alongside other sources of public and private investment, ERDF programmes should focus on removing barriers to growth that constrain business and infrastructure investment, but are not designed to invest in education and skills development.
- It is intended to address the market and institutional failures that impede local economic development and which constrain locational choices.

2.16 The framework of ERDF interventions is set by EU policy, with programmes required to set out the need for investment, what conditions in the economy they expect to change and what outcomes will be achieved in terms of business growth, new firm formation, job creation and other related objectives.

Market Failure Rationale

2.17 Market failure is expected to be a key part of the rationale for individual ERDF investments, and to be demonstrated in the investment decision making process. These failures take a number of different forms, but the following types are particularly relevant to ERDF.

- Information failure – This is a version of the asymmetric information problem in economic theory, where businesses or consumers lack the right information to make rational and informed decisions about the volume, price and risk of particular choices. Applied to local economic development policy, it centres on the extent to which established firms, newly forming businesses or investors lack the information they need to either take rational and informed decisions (and the high costs of obtaining it), or which lead to inefficient and sub-optimal outcomes (e.g. under supply of goods or services).
- Coordination failure – This type of failure occurs where the initiation costs of collective action are high and the benefits are likely to be shared, limiting the likelihood of the private sector taking the initiative. There is a role for the public sector in bearing the costs of coordination.
- Public goods – This occurs where the benefits of a good or service are shared, and it is unrealistic to charge beneficiaries for their consumption.
- Externalities – There are both positive and negative forms of externality. Positive externalities occur when wider benefits are generated which are not factored into the economic decisions of producers or consumers. Negative externalities occur where the costs of economic activity (e.g. pollution) are not borne by the producer.

The Role of ERDF

2.18 The primary objective of the current 2007-13 ERDF programmes underlines the extent to which it is designed as an instrument to help reduce spatial economic disparities in the EU. Its stated role is to 'help reinforce economic and social cohesion by redressing regional imbalances by providing support for the development and structural adjustment of regional economies, including the

conversion of declining industrial regions'. The emphasis is thus on removing barriers to business growth, so that areas whose performance is lagging are better placed to catch up with better performing areas.

2.19 The range of interventions typically included in ERDF programmes is clearly consistent with this underlying rationale. Much of the investment available is allocated to the following types of investment:

- Enterprise formation and development, providing support to SMEs to improve their competitiveness (productivity, efficiency), assist their growth (into new markets, new employment creation) and enable new businesses to be created.
- Business finance, with ERDF used as co-investment alongside other public and private funding to boost the supply of finance (loans and equity) to SMEs.
- Innovation, research and development to strengthen the infrastructure and services required to promote commercial innovation, and to ensure that more European businesses engage in innovation.
- Low carbon technology and services, spanning an extensive range of measures to support the reduction of carbon dioxide emissions from economic activity and mitigate their environmental impacts.
- Infrastructure investment, covering a full spectrum of physical infrastructure ranging from roads and rail to ICT and energy.

2.20 Expenditure of ERDF in the current programmes in England reflects this focus. With the addition of the newest member countries in 2004 and 2007, the EU average GDP fell. As a result, some regions in the EU's "old" member states, which used to be eligible for funding under the Convergence objective, became above the 75% threshold. These regions received transitional, "phasing out" support during the previous funding period of 2007–13. Regions that used to be covered under the convergence criteria but got above the 75% threshold even within the EU-15 received "phasing-in" support through the Regional competitiveness and employment objective. In less prosperous areas (Convergence) some 43 per cent of ERDF went to enterprise support. Of this 43 per cent was for RTDI projects and 42 per cent for innovation in SMEs) and around 20 per cent was allocated to investment in transport, 13 per cent in energy and environmental projects. In more prosperous areas, (Competitiveness and Employment) the focus on enterprise was stronger with 68.5 per cent of total support committed to it, with 13 per cent allocated to environmental and energy projects and 10 per cent for territorial development.

2.21 The proposed regulation for the 2014-20 ERDF programmes reemphasises the "large differences across the EU in terms of development (per-capita GDP), productivity and employment" and identifies ERDF as being tasked with reducing these disparities.

2.22 With action to reduce disparities remaining central to ERDF, the pattern of investment is likely to follow that of the current programmes. In the less developed

regions at least 50 per cent of support is expected to go to support to SMEs, innovation, energy efficiency and renewable energy. In the more developed regions this must be at least 80 per cent of the total support available.

2.23 Two elements of the proposed regulation are noteworthy in that they imply a sharper focus on where and how ERDF should be invested:

- There is an increased focus on sustainable urban development. This is to be achieved by earmarking a minimum of 5 per cent of ERDF resources for sustainable urban development, the establishment of an urban development platform to promote capacity building and exchange of experience, and the adoption of a list of cities where integrated actions for sustainable urban development will be implemented.
- The importance of investing in research, innovation and entrepreneurship is reinforced by the requirement that regional authorities produce research and innovation strategies for smart specialisation (EC,2011). This is an ex-ante condition for the approval of the 2014-20 programmes.

2.24 While ERDF is well established as a source of investment to address economic disparities and strengthen economic performance, it must be seen in the wider context of economic development policy and funding, the forces that drive economic performance and the complex factors that present barriers to growth.

2.25 First, ERDF represents only a small proportion of total public and private investment in a local area. Even in less prosperous areas which are eligible for higher amounts of funding, total ERDF investment is a fraction of the overall value of the economy. To this end it can be expected to make a difference only at the margin, and is best seen as a contributor to change rather than a transformative instrument.

2.26 This said, for particular localities some of the effects of ERDF investment are significant. The current programmes have seen ERDF committed to major physical infrastructure investment in employment sites and premises, R&D facilities and other infrastructure that represents new economic assets for the locality, particularly where these had not previously existed.

2.27 Second, ERDF is designed as a co-financing mechanism and its use is contingent on other investment being provided alongside it. It is intended not as a standalone investment instrument, but as a means to support interventions which would not otherwise be delivered, or would not be delivered on the same scale.

2.28 Third, it is not designed to address some constraints on growth which can be characterised as institutional. Planning policy and regulation is a good example, with ERDF having to work with the planning framework in supporting development rather than being a mechanism to change it.

2.29 In considering how ERDF should be used to maximum effect, it is therefore essential to take a realistic view of what it can achieve. It is perhaps best seen as a source of investment that will contribute to change in the long term, rather than a means to secure immediate and substantial change.

Where should ERDF be invested?

- 2.30 In allocating ERDF support there are choices over where in the local area it might be best to stimulate investment and overcome relevant constraints. Thus, should cities of a particular size be prioritised? In order to produce strong advice in this respect it is important that there be a robust evidence base to draw upon. However, at the present time the evidence is both limited and relatively mixed in terms of the policy inferences that can be made. Thus, Overman and Rice (2008) suggest that 'regional strategies based on resurgent cities may offer the best hope of delivering regional growth objectives. The benefits of this growth will be, however, unevenly distributed across people and places. What is most evident from this discussion is the paucity of the evidence base and the need for more work to understand and quantify these effects'.
- 2.31 Research undertaken by the OECD also tends to reinforce the view that there is no particularly consistent relationship between urban concentration and the amount of economic performance that can be realised, at least in terms of contribution to national economic growth. The OECD (2011) has recently produced further research on this important area.
- 2.32 Recent research has also been focused on the relative ability of England's second tier cities (Birmingham, Manchester, Leeds, Newcastle, Bristol, Sheffield, Liverpool, Nottingham and Leicester) to be able to offer in-migrants the sort of career and thus social mobility that is available in London. But, as the authors comment, there is a need for careful interpretation of the findings before inferring that some cities growth should be stimulated more than others (Champion, Coombes, Gordon, 2013).
- 2.33 Thus, in the light of quality of the existing evidence base, it is unwise at the present time to be too prescriptive as to which cities and other parts of the settlement pattern in a region should receive ERDF support over 2014-2020. Rather, the choice should be based on a realistic appraisal of where economic potential can be most effectively realised on a project by project basis.

3. What works? The Effectiveness of Local Economic Growth Interventions

- 3.1 This section considers what is known about the effectiveness of interventions that could form part of the mix of ERDF investment in the 2014-20 programmes. It considers what research tells us about the impacts of a range of economic development interventions, drawing on evidence both from the UK and elsewhere.
- 3.2 The main interventions considered in this section are enterprise development and support, finance for enterprise, innovation, research and development, land and property, transport, ITC, energy and environmental protection. These are the backbone of the emerging 2014-20 programmes and will absorb much of the investment allocated to England.

Enterprise Development and Support

Range of Interventions

- 3.3 Support for enterprise formation and development features prominently in economic development policy, including ERDF. The range of interventions is extensive but includes:
- Enhancing SME competitiveness by providing general and specialist business advice covering an extensive array of support from assistance with resource efficiency to advice about exporting and new market entry
 - Encouraging start-ups and entrepreneurship by providing assistance to individuals seeking to launch a business or support to newly formed enterprises to bring products and services to market
 - Sector development, where ERDF is invested in initiatives which build networks of firms and institutions in specific sectors
 - Grants to businesses to invest in capital or to safeguard employment, often large companies.
- 3.4 Attention to skills and people related factors has been an important element, although mainly funded through ESF or other forms of government assistance. Throughout it has been recognised that it is important to provide an integrated and coordinated approach that is sensitive to business need and the often quite different constraints that companies face.
- 3.5 One of the most common forms of intervention has been the provision of grant based support to businesses in assisted regions. The approach can vary depending on whether the incentive is applied in a blanket or selective fashion and the targeting adopted. Support with business advice has often been given as a discretionary grant whilst larger scale assistance with major capital investments has taken the form of a

selective grant. Many countries have adopted such measures and the United Kingdom probably has most experience dating from at least the early 1960s.

- 3.6 Many of these interventions are central to ERDF, which has been widely used to support SMEs in the current and previous programmes. Interventions range in their spatial focus from highly targeted investments in specific localities (e.g. city wide advice programmes) to national or regional services with a local delivery presence.

Rationale for Intervention

- 3.7 The objectives for this type of intervention vary considerably, but it is common to emphasise their role in providing targeted support to improve productivity levels and/or generate employment. Emphasis is given to building business assets to promote competitive advantage. Against a backdrop of seeking to encourage areas to shift employment from public to private employment there is a concern to diversify regional economies.
- 3.8 The underlying rationale for the policy intervention is usually defined in terms of some form of market failure and/or deficiencies in the provision of support services. Justification for such policies includes:
- Information failure relating to the benefits of business support, where businesses may lack access to or awareness of the information they require for example to improve their productivity, reduce their operating costs, or compete in a new market.
 - Information failure relating to new business formation Rigby et al (2013) argue that 'there is a lack of or low awareness among individuals of the potential benefits of starting a business'. This is reinforced by 'ignorance on the part of business owners of the benefits of obtaining external advice from experts' (Rigby et al, 2013).
 - The under supply of support services, since there may be insufficient demand in a local area for the private sector to generate profit in providing them. Here, reference is often made to the wider benefits to an area of delivering business growth in justifying public sector intervention.

Evidence of Impact

- 3.9 There is reasonably extensive research evidence on the impact of this type of intervention. However, studies which draw on self-reporting methods of assessing impact (i.e. business surveys) are more frequent than approaches which use control group and econometric methods. Some key findings from the evidence reviewed are summarised in the table below.

Source	Key Findings
BERR (2008)	Econometric approach with suitable controls indicated that supported firms tended to grow more quickly than the non-supported group both before and after the assistance. Supported firms saw faster growth in GVA than non-beneficiaries for 2 years post assistance. The scheme delivered net additional

	employment, higher value-added and wider benefits including skill enhancement.
Koski and Pajarinen (2011)	Assessed the impact of business subsidies on companies with 10+ employees, including fastest growing firms, using an econometric based approach. It concluded that subsidised firms grew faster (in employment terms) than non-subsidised firms.
Einio and Overman (2011)	Used panel data to identify the casual effects of the Local Enterprise Growth Initiative programme considering a period before and after the programme started and controlled by comparing non-LEGI areas. The report found increased employment, created businesses and reduced worklessness in the treated areas. Displacement effects were more pronounced the closer the control group was to the treated area.
Criscuolo, Martin, Overman and Reenen (2012)	Study the impact of Regional Selective Assistance from 1986-2004 using an econometric impact with controls. It found a positive effect on employment, investment and net entry but not on total factor productivity. The 'cost per job' of the programme was low at £5,300 considered to be a cost effective use of public resources.
European Commission (2010)	A counter-factual study of R&D grants to German businesses using econometric methods. The study found significant induced investment effects, but limited additional employment effects.
DCLG (2010)	National evaluation of the LEGI Programme concluded that it had a positive impact on enterprise activity, particularly on start-ups, in targeted deprived areas and has promoted enterprise as a local priority. However, levels of additionality with existing businesses were low as a result of deadweight and displacement effects.

- 3.10 Evaluation evidence on policies to stimulate entrepreneurship is relatively weak with little in relation to recent policy initiatives, or attention to proper control group comparison. Earlier evaluative work on cultural and behavioural effects has been undertaken including those that fall under the heading of some form of education policy. The effects on an individual wishing to start a business vary according to the stage of intervention with a negative deterrent effect at the school level but a more positive effect at the university level. Schemes to provide information and advice have been quite common and there is some evaluation work that tends to show varying results with some positive impacts.

Implications for ERDF

- 3.11 The research points to a number of factors which influence the impact of this type of intervention and to the lessons which might be drawn for ERDF:
- **The characteristics of firms are important.** For example, the additionality and low levels of deadweight reported in the assessment of Regional Selective Assistance (BERR 2008) was partly attributed to younger, larger and more export oriented firms than the control group having received assistance. Other studies point to support to faster growing firms delivering bigger returns on investment (e.g. additional employment, productivity gains) (Koski and Pajarinen 2011).
 - **Targeted and selective assistance is more cost effective than broader business support provision.** There is related evidence that targeted and

selective support (i.e. to faster growing firms, younger firms) is a more cost effective way to deliver support in terms of the cost per job or cost per new business created.

- **Effects of assistance are often short term and time limited.** Several studies have suggested that improvements in performance and employment creation may be short term (e.g. 1-3 years) and that non-supported firms catch up over a longer period of time (Koski and Pajarinen 2011).
- **There are risks of displacement and deadweight.** The evaluations of LEGI have highlighted the localised benefits of the scheme in terms of new employment and business formation, but point to the likelihood of high levels of displacement of activity from neighbouring areas where no similar subsidy is available. The risk of deadweight effects is higher with grant subsidies to large companies than to SMEs, reflecting differences in access to finance. To reduce the risk of deadweight there has been a move towards repayable forms of finance.
- **Grant based assistance is better suited to larger capital projects.** This may be a preferred route when companies/developers seek funding for large capital projects where timing is of the essence and the business investment is believed to be of strategic importance to the economic development of the area.
- **There are potentially significant leverage effects.** The evidence suggests that some forms of grant (e.g. R&D) are particularly effective in leveraging additional public and private investment, although the extent of deadweight varies by firm type.

- 3.12 Many of the key messages from this evidence are already well-established in enterprise development policy, and emphasise the design of interventions and delivery mechanisms (i.e. process issues). They suggest that it should play a key role in ERDF programmes, since it directly addresses the factors that may impede business growth and new business formation.

Business Finance

Range of Interventions

- 3.13 The recession and challenging conditions in the banking sector have focused attention on the supply of finance to businesses. In recent years increased attention has been given to how ERDF might be used in this way. The term Financial Engineering Instruments (FEIs) has become widely used, but in reality the broad approach has been widely adopted for many years by development agencies.
- 3.14 By the end of December 2010 the United Kingdom had twenty five financial engineering instruments for enterprise in a Holding Fund all with a regional scope and six offering loans and the rest equity participation. There were also five financial engineering schemes for enterprise without a Holding Fund. All had a regional scope. Three of these offered loans and two equity support. The United Kingdom

has one of the largest concentrations of FEIs for enterprise across both Convergence and Competiveness regions with around 10 per cent of total ERDF funds currently allocated to them.

3.15 The range of interventions to which ERDF has contributed includes:

- **Large scale, evergreen or revolving equity and loan finance schemes.** The European Commission has allowed ERDF alongside other public and private finance to create funds that are then used as loans or to make investments which are subsequently repaid generating returns that can be reused for further investment. Examples include JEREMIE and JESSICA which operate at a NUTS 1 level. These may be targeted at specific areas, sectors or types of firm but are generally broad based, providing:
- **Specialised equity schemes.** Schemes such as proof of concept funds intervene at specific stages in the lifecycle of an enterprise. They may form part of a larger scale initiative such as JEREMIE.
- **Grant based schemes,** the majority of which tend to be for capital investments (e.g. productive infrastructure, new technology, business premises, R&D).
- **Loan Guarantee schemes,** where governments underwrite private finance to businesses.
- **Micro-finance,** often operating in a particular locality, this type of intervention is targeted at the smallest enterprises and individual entrepreneurs, providing access to small amounts of finance.
- **Temporary or transitional finance,** which are instruments are typically used to respond to shocks in the economy, with several areas of the UK having developed grant, loan and equity schemes during between 2008 and 2009 to assist firms through the initial stages of recession.

3.16 This type of intervention now features in many ERDF programmes, and is expected to form part of the 2014-20 programmes.

Rationale for Intervention

3.17 Much recent attention has been given to overcoming market failure in the provision of finance for SMEs, reflecting the impact of the 2008-09 global recession on the banking system. The market failure rationale for such intervention is therefore reasonably well established and centres on information asymmetries. This provides the justification for FEIs along the following lines:

- Lenders and equity investors face uncertainty about the level of risk associated with a potential investment. Public sector finance can help to signal confidence to the market (e.g. as firm repays loans) or help to de-risk the investment by working alongside private finance.

- Companies at an early stage in their development may find difficulty securing finance, particularly if they can demonstrate only a limited track record of investing for growth or they seek to exploit untried and untested technologies.
- A lack of demand for finance from businesses in an area, or a comparatively small business base, may limit the number of private finance providers operating in that area (since potential returns are low), leaving gaps in the supply of finance.

3.18 Alongside this information failure based rationale, research on FEIs points to a wider range of reasons for this type of intervention. As Fraser et al (2013) emphasise, 'the academic literature on firms' financial decisions and their access to finance indicates that the underlying issues go well beyond traditional discussions of failures in entrepreneurial finance markets to include contingencies such as differences in: entrepreneurs' objectives, ownership types of firms and firm life-cycle stages.'

3.19 The development of revolving funds also points to benefits to the wider economy from FEIs. In this case, the ability of such instruments to generate funds for reinvestment in an area extends their rationale beyond one of market failure alone (European Commission 2012).

Evidence of Impact

3.20 The European Commission has signalled its intention to make further use of FEIs in the 2014-2020 round of funding. However, there is to date limited evaluation evidence on the impact of Financial Engineering Instruments in the 2007-2013 ERDF period, although there are evaluations of Financial Engineering Instruments used in the previous period of Cohesion Policy 2000-2006. Key findings from the evidence reviewed are summarised in the table below.

Source	Key Findings
DCLG (2007)	National evaluation of venture capital funds concluded that such funds were a relatively expensive way to stimulate economic development, even after allowing for legacy returns. However, they generate a wider range of harder to quantify benefits.
Scottish Government (2008)	Evaluation of Scottish venture capital and loan funds, and the Scottish co-investment fund, reported high levels of additionality (90%) and had contributed to developing the business finance market rather than displacing existing providers.
Allinson et al (2013)	Econometric and survey based evaluation of UK Enterprise Finance Guarantee scheme which found that the scheme had delivered significant net benefit to the UK economy in the form of additional Gross Value Added. It was assessed as highly cost effective (less than £5,000 per net additional job created) compared to other SME interventions. However, growth rates for beneficiaries were similar to those for non-assisted businesses.
Bondonio and Martini (2012)	Counter-factual study of impact of investment subsidies on Italian firms. Found that non-repayable grants to large businesses were ineffective as a means to improve performance or lever additional investment. Grants to small

	and medium sized businesses were more effective, but were outperformed by repayable forms of finance.
Cowling (2012)	Econometric and survey based study of the UK Small Firms Loan Guarantee Scheme concluded that the initiative delivered net additional GVA and net additional jobs at a cost of £5-10,000 per job, in the two years following the loan. Supported firms grew more quickly than non-borrowing firms.

- 3.21 There is limited access to evaluation evidence, and particularly counterfactual based studies, of FEIs in the EU. This is a problem recognised by the European Commission (Mouqué 2012). Those that have been undertaken generally indicate positive effects on the performance of the firms supported, but there is limited evidence on the achievement of wider objectives-on the competitiveness of the business.
- 3.22 The research also suggests that, in general, publicly funded FEIs have filled gaps in the supply of finance, and that crowding out of private finance (or substitution) has not been a significant problem in most cases.

Implications for ERDF

- 3.23 The evaluation evidence reviewed for this study points to a number of implications for the 2014-20 ERDF programmes:
- **FEI development must be underpinned by clear evidence of market need.** Research undertaken for the European Commission (Tyler 2012) indicates that when creating FEIs it is important to research the market shortfall being addressed and thus where the application of a well-defined investment strategy can be most effective.
 - **Scale is critical to achieving viability and cost effectiveness.** Whilst the benefits of FEIs are recognised, considerable expertise and judgement is required to balance the costs of setting-up and managing the funds in relation to future returns, the deal flow and the rate of market absorption. Localised provision increases the risk of excessive management costs compared to delivery at a higher spatial level.
 - **Evidence of repayable forms of finance generating better returns than grants. Some studies point to loans and equity investment as a more effective means to improve business performance or lever in further investment than grants.**
 - **Growth benefits appear to be relatively short term. Several studies suggest that the benefits of subsidised finance (and of grants in particular) in terms of employment creation, improved turnover or productivity) are short term in duration.**
- 3.24 While there is still only limited impact evidence on which to base the design of FEIs, the principles for operating cost effective funds which demonstrably address market failures, or clearly evidence gaps in the market, are now well established.

Innovation, Research and Development

Range of Interventions

- 3.25 Many areas of the UK have sought to develop and nurture the relationship between their knowledge based institutions (universities and research centres) and companies. Recent developments in innovation policy have increasingly emphasised the objective of driving up rates of private sector R&D and innovation, reflecting comparatively low levels of R&D investment by SMEs.
- 3.26 This well-established component of economic development policy includes the following types of intervention supported with ERDF.
- **Research and development activity** in higher education institutions, specialist public sector research centres or commercial R&D centres;
 - Assistance aimed at **early stage commercialisation** such as support for proof of concept activity;
 - Initiatives targeted at **business formation**, often in the form of grant, loan or equity investments in start-ups bringing new products or services to the market;
 - Interventions which support **innovation in established businesses**, including services to assist in the development of new products or services, or the use of innovative technologies and processes to improve business performance;
 - Broader initiatives aimed at **stimulating innovative activity**, often area based, which target businesses, education and communities;
 - **Cluster** policy.
- 3.27 In the United Kingdom there has also been the extensive use of grants for business (as in the use of grant based instruments like Regional Selective Assistance) and the use of R&D tax credits.
- 3.28 Grant based approaches have tended to remain the preferred option when investment in R&D is being supported where a commercial payback may be many years into the future ('blue-sky') and conventional sources of finance are too risk averse. It also has advantages where support is being provided to social enterprises in the early stages of their development where conventional funding routes may not be well developed or not even exist at all.

Rationale for Intervention

- 3.29 As is the case with other economic development policy interventions, the market failures to which policy responds are well understood.
- Information failure has a prominent role in the justification for publicly funded

intervention. For R&D investment, it centres on the level of risk and uncertainty involved in the process of developing new products or services and bringing them to market (OECD 2010). This makes it less likely that conventional private finance providers will invest.

- There are also information failure arguments relating to the propensity of SMEs to engage in innovation. The risk and costs associated with this type of investment and uncertainty about its returns are a deterrent for SMEs, while there is a lack of awareness about the benefits available from it.
- With commercial R&D tending to be concentrated in a small number of large firms, there are perceived to be barriers to entry for smaller firms seeking to engage in new product development in the face of tight control over patents, the costs of licensing etc.
- There is also seen to be a public good case for R&D investment. The payback from investment in basic R&D may be many years into the future and it may also be difficult to assign intellectual property rights. Increasingly, R&D is seen by the EU as a means to solve common social problems (e.g. ageing population and healthcare, lower carbon emissions), an extension of the public good rationale.

- 3.30 Companies find it difficult to find the finance they need at specific phases of the technology cycle. The role for policy is to ensure that the right kind and mix of financing is available as companies start, develop and advance past key thresholds in the development cycle recognising that at all stages many companies report difficulties in obtaining finance from conventional sources. Many places that are seeking to exploit the commercialisation of their knowledge base may not have the required access to venture capital. In some cases companies require seed funding, or what are sometimes called 'ignition grants' to help ideas developed in the lab to begin the journey to 'proof of concept' and hopefully a commercial future. The relevant stages of the cycle are discovery, product concept, product development and commercialisation. Policy intervention may assist at all stages.
- 3.31 A common argument for intervention is to assist in building the capacity of the regional innovation system and to broker the boundaries of interaction between universities, business and those agents in a region responsible for providing finance (See Baxter et al, 2007). In some cases the required boundary spanning activities are encouraged by supporting intermediary bodies or partnerships to help integrate the actions of the relevant stakeholders in the region. A central goal is to increase higher value added, more productive, economic activity by driving up rates of innovation, new product and service development.
- 3.32 The rationale for encouraging greater research collaboration between academic and industry has been widely researched, particularly as it relates to cluster policy. Cunningham and Gok (2012) have recently undertaken an extensive study of them and they refer to the work of O'Kane (2008) who argues they include 'the achievement of critical mass; overcoming fragmentation caused by distance and a smaller resource base; bringing together different perspectives, experience, skills and knowledge; breaking down specialist silos and restrictive organisational

boundaries and fostering cross-disciplinary interactions; encouraging skills and knowledge transfer; promoting mutual understandings; and managing risks’.

Evidence of Impact

- 3.33 Evaluation evidence is more extensive for this area than other intervention types, which perhaps reflects the range of investment that has been made and its prominence in economic development policy. Key findings are summarised in the table below.

Source	Key Findings
HMRC (2010)	National evaluation of R&D tax credits pointed to increased levels of R&D investment as a result in the UK and elsewhere. There are wide variations in the estimated benefit as a result of the different forms of interventions and contexts but in the UK it appears that up to £3 of R&D may be created by £1 of tax revenue foregone.
European Commission (2012)	Study analysed the outcomes of enterprise and innovation support to over 235,000 firms. It found that innovation support for SMEs is more effective than for larger organisations. This finding was consistent across all the four different policy instruments examined in the four different countries studies. The study also pointed to the high quality and durability of jobs created as a result of intervention.
Czarnitzki et al (2011)	Multi-country counterfactual based study found that grants for innovation delivered leverage effects of 1.7 on average, implying that they assisted in unlocking additional investment. The study found no relationship between the size of the grant and innovation activity. Small grants had the same innovation impacts as large grants.
Bakshi (2013)	Evaluation of creative credits schemes showed that they were successful in stimulating demand from businesses to engage in innovation with creative enterprises (i.e. inter-firm collaboration) and that this led to short term increases in employment and turnover.
Czarnitzki et al (2007)	Econometrics analysis of the impacts of R&D subsidies in Finland and Germany, concluded that subsidies only had a significant impact on commercial innovation (patenting) by firms when they also engaged in networking activity with other firms.
Cunningham and Gok (2012)	Research by NESTA on the effectiveness of innovation policy, assessing the evidence on additionality from some 18 different evaluation studies that adopted a wide range of different methodologies. The study found evidence of additional patenting and collaborative R&D in most evaluation reports, and some evidence of net additional job creation and gross value added.
Uyarra and Colgan (2012)	Review of evaluations on cluster formation and development policies. The study concluded that policies provided the resources and the framework to advance the innovation potential of different interest groups but no clear and unambiguous evidence that over the long term clusters were able to generate strong and sustainable impacts in terms of innovation, productivity or employment.
Ecorys (2010)	Evaluation of innovation vouchers initiatives in England’s West Midlands pointed to success in enabling SMEs to access practical academic assistance with commercial innovation. In terms of the economic benefits, the study pointed to increased Gross Value Added in relation to the investment, although the study did not use econometric assessment.

- 3.34 The immediate economic benefits of this type of investment are less clear cut, since it may take considerable time for such investment to be brought to market. However, schemes such as innovation vouchers or knowledge transfer partnerships have demonstrated impacts on job creation and productivity.

Implications for ERDF

- **Finance for R&D and commercial innovation activity is important in stimulating further investment.** The evaluation evidence consistently points to the leverage effects of public investment in commercial R&D, an indicator of the extent to which it helps to reduce uncertainty about the costs and risks involved.
 - **Collaboration between firms and the knowledge base is critical.** Evidence suggests that measures to support the recruitment and exchange of scientific and engineering staff can open up R&D and innovation support schemes and connect SMEs to providers of knowledge able to inform them at different stages of their product life-cycle.
 - **Innovation vouchers and KTPs are cost effective mechanisms to support commercial innovation and business-research engagement.** Support for innovation credits and other measures to encourage knowledge transfer between academics and SMEs and science to business programmes are identified as effective and comparatively low cost interventions. There is a strong case for their inclusion in the 2014-20 programme.
 - **Intervene closer to the market.** There are strong arguments for intervention to be targeted across the spectrum of interventions in innovation but with an emphasis on later stage R&D, commercialisation support, innovation networks and SME innovation.
 - **Mixed messages about cluster based approaches.** While their economic impact is at best uncertain, what is clear is that the approach can provide a framework and the resources to coordinate the actions of different interest groups engaged in innovation in a local area (businesses, individual innovators, universities, investors). It can offer the opportunity for local public and private stakeholders to target business support to key markets.
- 3.35 With commercial innovation identified as an EU priority for the 2014-20 programmes, this is expected to be a key focus for ERDF investment. Research suggests that public investment is likely to continue to play an important role both in underpinning further commercial investment and in encouraging higher rates of innovation amongst SMEs.

Land and Property

Types of Intervention

- 3.36 An extensive range of interventions have been supported with public investment, including ERDF. They include:

- Land remediation to prepare sites for the development of employment uses.
 - Grant support to provide infrastructure for employment sites and premises, along with direct investment in this infrastructure.
 - Fiscal incentives to support private investment in land and premises, including enterprise zones.
 - Development of general business premises such as small business units or incubator facilities.
 - Larger scale employment developments such as science parks or business parks.
- 3.37 ERDF has invested widely in these types of intervention, although with some constraints about the scale and nature of investment that is permitted. For example, there are some exclusions including investment in retail (due to the potential for displacement and EU competition rules), support for public expenditure on land acquisition not directly linked to productive investment, the building and renovation of housing except where there are possible energy efficiency improvements.

Rationale for Intervention

- 3.38 Intervention is generally justified on the grounds of market failure but public investment (including ERDF) is often used as part of a package of funding where some policy instruments are addressing institutional issues around land assembly and planning (a recent example has been in the development of Enterprise Zones).
- 3.39 The market failures involved take a number of different forms.
- A common form relates to externalities arising from land contamination, where the full costs of remediation would not be borne by the market alone. This may apply both to small scale sites and larger strategic developments such as enterprise zones, where the costs of remediation represent a deterrent to private sector investment.
 - Information asymmetries, since property markets display considerable aversion to risk and uncertainties because property development is immobile, 'lumpy' and subject to long gestation and payback periods with a limited second hand market (especially for bespoke premises and small premises) and highly cyclical demand. The localised nature of property development means that potential developers may lack information about the opportunities available.
 - Positive and negative spill over effects, with the public sector having a role to play in encouraging high quality design (with benefits for regeneration of a wider area) and for mitigating negative spillovers (such as the adverse impacts of low quality sites and premises).
 - The commercial development market may also be constrained by institutional

factors like planning that are argued to be constraining economic development (Nathan and Overman 2011). While this does not provide the rationale for public investment in development itself, it does point to a role for the public sector to address such constraints as part of the process of enabling development to take place.

- 3.40 Two key conditions must be fulfilled if property markets are to provide an adequate supply of property for new economic development. Firstly, rents must be at a level that ensures that there is a surplus of net capital value over development cost. Secondly, the private developer and/ or investor has to be sufficiently confident that there will be a high and persistent level of demand for premises at these rents over perhaps a twenty year period so that voids and vacancies will only be for short periods.
- 3.41 In some areas these conditions may not be met and there is a chicken and egg situation whereby new development will not occur unless there is an adequate supply of new premises but at the same time the market will not provide these new premises because of uncertainty about the future demand profile and thus economic rate of return. The role of policy is to stabilise and put a 'floor' into the market so that the normal property market can begin to work again.

Evidence of Impact

- 3.42 Support for land and property interventions have been a strong element of many economic development and regeneration initiatives and their impact has varied considerably by type of intervention and location. However, the evidence on their impact is mixed. Some have argued that the investment in infrastructure should mainly be based on 'tangible benefits of that infrastructure to consumers, not the ability of that infrastructure to change location patterns' (Glaeser et al, 2008). In other cases, there is a substantial amount of evaluation work commissioned by HM Government that demonstrates local production related impact, although again it is recognised that there may be quite high levels of local displacement (Tyler, 2011).
- 3.43 Some key findings from a review of the research are set out in the table below.

Source	Key Findings
DCLG (2007)	Evaluation of England's Coalfield Regeneration initiative pointed to some projects reporting a relatively high level of output additionality and others with partial output additionality with site clearance and development proceeding at faster pace, at greater scale and or/higher quality in many cases.
National Audit Office (2009)	Review of interventions in UK coalfields areas concluded the initiative had improved the physical landscape in many areas and developments brought in new employment and business, although the study highlighted uncertainty about the extent to which new jobs were net additional to the areas targeted by policy.
SQW (2009)	Evaluation study covering 49 projects and £183 million of investment in England's West Midlands. The study found that targeting investment efficiently at areas experiencing market failure had created more high quality employment sites and contributed to employment growth and economic diversification. Policies to encourage inward investment and business relocation alongside land and property investments

	underpinned the initiative.
Bondonio and Greenbaum (2007)	Major study assessed outcomes for ten US states using enterprise zone policy from 1982-1992. In line with other US studies an overall net no zone impact on employment was in fact the result of positive effects on the expansion of new and existing companies being offset by loss of employment from closures
Mayer, Mayneris and Py (2011)	A wide-ranging study on the impact of urban enterprise zones on company location decisions in France. The study concluded that they had a positive and significant impact on the probability of establishments locating in zones with this impact being highest for those areas that were initially the less economically distressed and in those sectors where relocation costs could be considered to be relatively small. However, they did not create new economic activity in the municipality of the EZ, but attracted businesses to locate there from within the area.

- 3.44 A common finding is that the zone package of property tax breaks and relaxation of conventional planning restrictions can act as a powerful catalyst for growth in areas that require a substantial economic boost. However, the policy can lead to extensive displacement of activity between areas and this aspect of the policy needs to be managed carefully.

Implications for ERDF

- 3.45 The expectation is that ERDF will invest more selectively in land and property schemes in England than previous programmes. However, land and property investment is likely to remain part of the economic development policy mix, with ERDF likely to play a bigger role in convergence areas such as Cornwall where the ERDF regulation is less prescriptive about how much should be allocated to different types of intervention.

- **The current weakness of the commercial development market will sustain the case for public investment.** At the present time there is a critical shortage of development finance in many areas across England with most speculative development constrained to locations in the South East and London. This position is only likely to unwind slowly over the coming years, and strengthens the case for public intervention to enable development to take place.
- **Economic benefits are highest where investment occurs close to areas of higher economic opportunity.** This was a key finding of evaluations of enterprise zones and reflects the need to ensure there is sufficient local demand for sites and premises in identifying where to invest, and what type of investment to support (Tyler 2012).
- **Recognise the risks of displacement.** The evaluation evidence points to clear risks of displacement with land and property interventions. These should be recognised in the design of interventions and in investment decision making.
- **Treat land and property investment as part of a wider package of**

measures. The effectiveness of land and property based initiatives may be limited in terms of delivering businesses and employment into new premises if they are poorly coordinated with other initiatives. Thus 'opportunities for smarter working locally and across Whitehall to coordinate physical regeneration with enterprise and skills initiatives have been missed' (NAO, 2009). With a growing number of enterprise zones designated in locations across England, there is potential for ERDF to support them through associated investment (for example, enterprise support measures, access to finance to support business growth).

- **Address practical difficulties including site assembly and planning policy.** Research indicates that the relative performance of a zone is influenced by the nature of the site assembly process. The key considerations here being whether there is a number of fragmented sites or one or two large areas; the size of the zones and the availability of land to allow future expansion; and the extent of dereliction and thus land clearance required before development can take place; the amount of new infrastructure required and the split of land ownership between the public and private sector. While ERDF investment cannot directly affect planning policy, the investment process should address planning requirements (and potential constraints) at an early stage.

3.46 Many of the most significant economic development projects have a land and property requirement, particularly when it involves investment in the older urban areas for regeneration purposes. Thus there is likely to remain an important role for area based land and property initiatives but research points to the need for careful management to ensure ERDF is used in a cost effective manner.

Transport Infrastructure

Types of Intervention

3.47 EU cohesion policy has enabled investment in all forms of transport related infrastructure (road, rail, air and internal waterways). ERDF specifically has been used to provide support for a broad range of transport projects where the overall objective is often to reduce travel time and costs, and improve access so that economic development can occur in a particular location. The scope for ERDF intervention has varied depending on whether the area is defined as less prosperous in the programme. It has spanned the following investment types.

- Targeted investment in road infrastructure improvement and connections.
- Transport interchanges or gateways, both to improve their capacity and design quality.
- Access to port infrastructure
- Rail infrastructure
- Transport services, including bus services

- Initiatives to provide access to employment locations for residents of deprived areas
- Sustainable transport infrastructure such as cycleways
- Transport technologies to address bottlenecks or improve connections between different modes of transport.

3.48 ERDF is not generally used to subsidise public transport directly, nor for major port infrastructure that is felt not to need public subsidy and could distort competition. The role of ERDF in developing Trans-European Networks (TENs) – cross-border infrastructure between member states - is particularly well established (Vickerman, 2008).

Rationale for Intervention

3.49 The case for public investment in transport infrastructure is well established and centres on both the need to manage problems generated by economic activity and to support economic development objectives through improvements in the movement of goods and labour.

- Transport infrastructure such as roads or cycle networks have tended to be regarded as a partial public good, since it is practically difficult to charge end users.
- Externalities are frequently used as part of the justification for transport infrastructure investment. For example, the need to reduce congestion and associated carbon emissions linked to car travel may provide the grounds for public investment in light rail infrastructure.
- Improved transport infrastructure and facilities can reduce the costs faced by businesses in securing inputs or delivering to markets.
- Research points to wider economic benefits being used to justify public investment. The Department for Transport considers that a transport scheme may have an effect on productivity (and thus economic welfare) if the transport investment is in an area that has sufficient proximity to an economic centre or large employment centre.
- Deliver social benefits, for example reducing social exclusion by enabling people to access work or leisure more cheaply and easily.

3.50 The case for ERDF investment specifically is often made in terms of the contribution of well-functioning transport infrastructure to the economic development of an area. This may relate to individual employment sites, where investment in local road or rail infrastructure is critical in enabling development to occur. Alternatively, it may be about how effectively and efficiently transport services to and from large urban areas operate.

Evidence of Impact

- 3.51 Evidence of the impact of transport infrastructure investment on local economic growth is limited, with evaluation tending to focus on the measurement of time savings and related efficiency benefits (i.e. indirect effects on economic performance). Nevertheless, research points to a number of impacts summarised in the table below.

Source	Key Findings
Eddington (2006)	Major study of transport investment in the UK pointed to relatively high returns that could be secured from strategic investment in urban areas, ranging from £4 to £11 for every £1 invested in infrastructure such as congestion management systems.
Steer et al (2010)	Review of ERDF funded transport investments between 2000 and 2006 found that, for many projects, the economic benefits of the investment were unclear. The evaluation recommended a more rigorous approach to the prioritisation of road schemes in future programmes, which makes clear how the project will remove bottlenecks or promote economic opportunities.
Ecorys (2006)	Assessment of strategic investment priorities for 2007-13 ERDF programmes acted as a stimulus for creating demand for more environmentally friendly travel patterns. The report recommended that countries should identify the most relevant bottlenecks requiring specific attention and prioritise these projects. Typical examples were a lack of (or badly connected) intermodal freight terminals, or poor, low speed connections between the rail network and ports.
OECD (2003)	Extensively cited study of the economic benefits of construction of the Oresund road bridge linking Sweden and Denmark. The benefits derived from the efficiency savings to business of the faster movement of goods and improved business travel.
AECOM (2011)	Report for the UK Department for Transport identified access points to rail or ports infrastructure as one of the key factors influencing commercial decisions on modal choice for freight transportation. It found evidence to suggest that more well connected rail freight terminals would encourage further growth in rail freight.
Sanchis-Guarner (2012)	Study assessed the impact of road construction on individual labour market outcomes using micro data for the period 2002-2008. It found a positive impact of accessibility from work location on weekly wages.
Gibbons, et al (2012)	The research considered the extent to which firms benefited from increased accessibility through investment in the road network over the period 1998-2007, seeking to control for factors such as the connections deliberately created by the scheme. The study found substantial effects on employment and numbers of plants for small-scale geographical areas but no response at plant level. This suggests that road construction affects firm entry and exit, but not the employment of exiting firms.

Implications for ERDF

- 3.52 The emerging framework for the 2014-20 programmes suggests that transport infrastructure investment is likely to feature less prominently as part of ERDF investment activity. The UK government has signalled that investment is likely to be concentrated in less prosperous areas, and that the lower levels of investment in other areas of England will limit the range of interventions that might be funded. These include improvements to the wider rail network, connections to Trans-European Transport Networks, support for transport management technologies and

localised access to employment measures.

3.53 Nevertheless, the impact evidence points to a number of messages to consider in developing future ERDF interventions:

- **The extent of impact is linked to the scale of improved access.** The evidence suggests the biggest benefits in terms of efficiency and related economic growth benefits (e.g. effects on wages) are determined when transport infrastructure investment serves high numbers of businesses and people. This points to key transport infrastructure in urban areas.
- **With scarcer ERDF investment available in 2014-20, cost-benefit analysis should be more central to ERDF investment decision making.** Several evaluations note the need for more rigorous approaches to prioritisation, including a better understanding of the economic benefits an investment would be expected to generate.
- **Recognise the role of transport investment in delivering low carbon policy objectives.** Although the potential impacts of an investment are difficult to assess in advance, studies point to positive effects on the use of more sustainable modes of transport from investments which encourage modal change (e.g. better integration of urban transport systems, better access to public transport networks).

Digital Infrastructure

Intervention Types

3.54 Investment in various forms of ICT has the potential to assist economic development and access to superfast broadband (SFB). Access to high speed internet connections has become a priority for the EU, with substantial investment using ERDF in the current 2007-13 programmes in England. The range of interventions funded to date includes:

- Co-investment with private investors and other public funders of infrastructure, subject to strict EU limits on the type of infrastructure that can be funded (e.g. local connections from business premises to the main network, but not the main network itself).
- Demand stimulation measures such as business support projects to increase awareness of the benefits of high speed internet uptake and provide information about how to access it. In some cases, support has been provided to enable SMEs to connect to high speed internet connections.

3.55 ERDF investment in broadband infrastructure during the 2007-13 programmes has seen the private sector investing substantially in the network, with ERDF and other public sector investment gap funding capital investment to extend coverage to areas where there is little prospect of connection.

Rationale for Intervention

- 3.56 The rationale for investment in high speed internet access centres on its potential impacts on economic growth, although the precise mechanisms for supporting growth are still emerging. Improvements in communications can help businesses to realise the benefits of locating in places with lower costs. This can lead to improved competitiveness and some of these benefits may emerge without further intervention beyond the improvement in broadband access itself.
- 3.57 The investment cases for such investment are grounded in evidence of market failure. For ERDF, the EU requires investors to demonstrate that public investment in the infrastructure will only be made where network developers and operators are not expected to deliver such infrastructure. Two market failure arguments in particular are applied:
- Network coordination failure. The investment costs of rolling out superfast broadband are particularly high in hard to reach areas in which there may be fewer businesses, higher infrastructure installation costs and a lack of commercial viability for the private sector. In these circumstances, public sector intervention may be necessary to stimulate action and reduce risks to a level the private sector is prepared to tolerate. The costs of installation are highest in remote and peripheral areas, and the risk is that there are diminishing returns in these areas with costs outweighing the economic benefits, and arguments about wider social and community benefits deployed to justify public investment.
 - Information asymmetries: Businesses (particularly SMEs) may not have sufficient information to fully exploit the opportunities offered by superfast broadband and understand how developments in ICT could help improve their productivity, access new markets and grow their business. The proposed intervention will ensure that this problem is addressed in tandem with the development of a superfast broadband network.
- 3.58 The costs of superfast broadband installation are significant with a requirement for large up-front investment whilst revenue streams take time to build-up. Mainstream provision in the first instance has thus tended to be in those areas with the greatest concentrations of potential business and residential users. Provision also tends to follow the line of least resistance and avoid areas where installation is relatively more expensive. However, areas that do not have access to SFB are perceived to be disadvantaged in their ability to attract business investment. Households do not enjoy the benefits of access to high speed communication. Investment in this infrastructure can act to link-together the activities of universities and research centres with the business base. Since the investment costs are significant they are often too large for any one local stakeholder to afford.

Evidence of Impact

- 3.59 This is still a relatively new area of investment for ERDF and other public investment, and there is a limited evaluation evidence base on which to draw to understand its impacts. Nevertheless, some research points to a number of benefits from SFB and other ICT investment, summarised in the table below. Many of the studies are based

on econometric assessments of the impacts of ADSL (asymmetric digital subscriber line) investment and take up, which are used to estimate the potential impact of higher speed broadband connections.

Source	Key Findings
Micus Management (2008)	Econometric based study found 0.58% per annum increase in productivity for knowledge based firms, 0.32 for manufacturing and construction and 0.14% for other services resulting from access to ADSL broadband.
Eikelenboom (2011)	Reported on evidence from 120 studies of the impact of broadband investment, and carried out econometric assessment to identify the effects of higher speed internet connections. The report found that doubling the speed of internet connections increased GDP by 0.3%
Greenstein & McDevitt (2012)	Study of broadband impacts in 30 OECD countries assessed the economic impacts of broadband roll out and take up on GDP (through additional revenue generated by broadband subscription and usage). The study concluded that substantial additional revenue was being generated in economies over and above that which would have occurred without a shift from ADSL.
Czernich et al (2009)	Study of 20 OECD countries used panel data to estimate impacts of broadband roll out and take up on GDP. The report found that a 10% increase in penetration raised annual GDP per capita growth by 0.9-1.5%.
Kolko (2010)	Study examined the impact of broadband investment on local employment growth in the United States. It found a positive relationship which was greatest for technology intensive businesses. However, the report found that while employment growth might raise local property values and tax bases, in the absence of more direct benefits for residents the economic development benefits of broadband were ambiguous.
SQW (2013)	Review of literature on broadband impacts found evidence of local economic benefits in many studies (employment growth, productivity improvements), but less certainty about impacts at higher geographic scales when displacement factored in. Broadband identified as an enabler of trade and innovation, with impact on businesses dependent on how the use of broadband was managed by the firm.
Du Rausas et al (2011)	Study combined econometric analysis with other methods to assess the size of the contribution of internet commerce to GDP and its economic impacts in terms of business growth, productivity and job creation. The study found significant positive impacts, although these varied markedly by country.

Implications for ERDF

3.60 Through the Digital Agenda, which is part of the EU 2020 Strategy, the European Commission has signalled that further improvement in the EU's digital infrastructure and access to it are priorities, and that high speed internet access should continue to be extended. ERDF is therefore expected to support this process. The evaluation evidence points to a number of issues to consider:

- **The need for demand stimulation and business support alongside infrastructure investment.** Research points to the impacts of investment

varying by business type and by the capacity of the business to use high speed internet connections effectively. This implies both a more targeted approach (e.g. to sectors which will make the best use of faster connections) and measures to promote its uptake and use.

- **The need to identify an appropriate model for public sector investment.** While there continues to be some uncertainty about the potential uptake of high speed internet connections, the investment model for ERDF and other public investment should limit the risk to the public purse and balance economic development policy objectives against the level of investment required to maximise private sector investment.
- **Recognise that the pace of change in internet access may require investment in a range of technologies.** Fibre connectivity is currently the most widely used technology for the roll out of high speed internet access. However, the need to adopt 'technology neutral' approaches to the procurement of network infrastructure is recognised, since alternative technologies including wifi and the development of 4G technology may become more effective and efficient mechanisms for high speed internet access in future.

- 3.61 The EU's 2014-20 structural funds programmes are expected to continue to be part of the mix of resources used to support further investment to extend and improve high speed internet access. The European Commission has signalled the need to reduce the public sector costs of broadband investment and improve the way funds are invested, and this is likely to shape the form and focus of future ERDF activity in this area.

Low Carbon Energy and the Environment

Range of Interventions

- 3.62 This is a broad intervention area in which there are strong links between measures which contribute to reducing carbon emissions, protection of the environment and the mitigation of environmental problems. The range of interventions to which ERDF and other public funding have contributed include:
- Measures to promote lower carbon emissions associated with transport, including investment in public transport infrastructure and services to encourage a shift away from car use.
 - Support to businesses to encourage resource efficiency (e.g. waste reduction measures) and the adoption of environmental technologies (e.g. low carbon energy).
 - Investment in R&D facilities to develop environmental technologies (e.g. biomass energy generation) and enabling businesses to access and use these technologies.
 - Investment in improvements to the quality of the environment in a local area,

such as the development of green space in urban areas.

- Measures to promote the domestic use of renewable energy and resource efficiency. In 2006 the EU amended its legislation to allow ERDF to be spent on projects that helped with energy improvement and in particular the use of renewable energy in existing housing to support social cohesion. The amendment allows Member States to spend up to 4 per cent of their total ERDF allocation on these measures.

3.63 A wide range of activities that help to prevent and manage the risks associated with natural and technological hazards but there is a restriction on; investment in coastal protection, soil conservation and infrastructures with an exclusively agricultural bias and reforestation and prevention of forest fires insofar as such infrastructures can be financed under the EU's rural development programme.

Rationale for Intervention

3.64 The rationale for public intervention in this area is clearly recognised in EU policy.

- Carbon dioxide emissions are an externality of economic activity, and this market failure creates the case for public investment both to mitigate the negative impacts of rising emissions and support action to reduce their output from production and consumption.
- In tackling what is regarded by the EU as a critical economic and social problem, the potential benefits in supporting an expanding and high value market for the development of new technologies and services has been recognised. The argument is that there are commercial benefits to be gained from developing competitive strengths in this market, and that it has the potential to contribute to GDP and employment growth.
- There are information failures present, with SMEs lacking awareness of the benefits of investing in resource efficiency measures and the relative novelty of some of the technologies meaning that the returns on investment (e.g. in the form of cost savings) are uncertain.

3.65 Considerable weight has been attached by the EU to low carbon interventions in the 2014-20 programme. Targets to reduce carbon emissions, increase the share of renewables in the EU's energy consumption and increase energy efficiency are strategic targets in EU policy, and the future ERDF programme in England will be expected to contribute towards the delivery of these targets.

3.66 The UK government has set the objective of reducing the UK's emissions of carbon dioxide by 60 per cent by 2050 and core elements to this are support for investment in renewable energy sources, the Heat Transfer Initiative (DECC, 2011) and energy efficiency in residential housing (DCLG, 2011).

Evidence of Impact

3.67 Evidence about the impacts of investment in this area is variable, reflecting the

breadth of interventions and the nature of the objectives set for them. Reductions in carbon emissions associated with specific interventions are complex to measure, although it is more straightforward to assess the impacts on costs of resource efficiency initiatives. Investment in environmental protection or improvement measures is frequently based on proxy indicators such as hedonic pricing.

- 3.68 The evaluation evidence reviewed for this report points to a number of key findings which are summarised in the table below.

Source	Key Findings
DECC (2012)	Study reviewed the evaluation evidence on the Low Carbon Communities Challenge initiative. A number of local energy saving projects have been financed under this initiative and it is very similar in design to the approach adopted recently under ERDF. The evaluation approach adopted is recognised as having limitations involving self reported outcome estimates. The evidence pointed a relatively small, but significant, annual carbon saving.
Scottish Government (2009)	Evaluation of biomass industry development scheme concluded that the scheme had contributed to the creation of 84 new jobs and a 7% increase in capacity to generate renewable energy. It estimated that significant savings in CO2 emissions would result from the project. The report pointed to difficulties in stimulating the development of a wider supply chain to supply and install biomass facilities.
Scottish Government (2008)	Evaluation of a grant scheme to develop renewable hydrogen and fuel cell technology. The job creation impacts reported were small, reflecting the challenges of delivering commercial activity in a new market with high entry costs and limited commercial application to date of the technology. The report highlighted benefits in terms of R&D and commercial innovation amongst those engaged in the project.
Ekosgen (2012)	Final evaluation of East of England Resource Efficiency East project. Self reported impact assessment which found significant cost savings to SME beneficiaries as a result of the project, but reasonably high level of deadweight (42%) implying that some firms would have responded to pressure to reduce costs through such measures without intervention.

- 3.69 There are a number of research studies that have considered the impact of environmental improvement that has been funded from a wide, and diverse, number of sources. The methodologies used to assess impact have included a number of hedonic pricing studies (e.g. GLA, 2006; Cambridge Econometrics et al., 2003; Powe et al., 1995; Willis and Garrod, 1994) and related analysis of house price differentials in relation to the presence of environmental amenities and local services (e.g. Gibbons, 2001; 2003; Gibbons and Machin, 2004). There is also evidence from stated preference studies (contingent valuation, contingent ranking, choice experiments, etc). Examples include urban green space (Bullock, 2005; Oppewal et al., 2005), regeneration of historic and cultural sites (Riganti et al., 2005), urban river water quality (Hanley et al., 2006; 2007; Bateman et al., 2006), and public realm (Alberini et al., 2004). Examples of the use of both revealed and stated preference approaches to valuing environmental amenity include Dolan and Metcalfe, 2008; Earnhart, 2001. Dolan and Metcalfe assess the value of regeneration activities in

Swansea, in terms of mostly aesthetic improvements and other factors that overlap with housing improvements (e.g. internal renovation and disabled adaptations and energy efficiency) and energy efficient boiler replacements.

- 3.70 The impact of environmental improvements is frequently considered in relation to effects on tourism for example in the additional visitor expenditure due to improvements made to canals (e.g. Ecotec, 2006; GHK, 2007). GHK (2007) have also assessed the impact of long term canal-side development in the Birmingham city centre. Jacobs (2009) investigates the value of inland waterways, covering various aspects that can be potentially influenced by regeneration activities (e.g. recreation, visual amenity). Bullock (2005) provides an example relating to green space – in particular parks in Dublin - which established factors that lead to higher valued amenities. Contingent ranking was used to estimate economic values for the public benefits of river water improvement for the River Tame in Birmingham with the use of geographical information system (GIS) to aid the estimation of a distance-decay function for willingness to pay (WTP) to improve the water quality in the river. It was found in this study that even when there is a largest improvement in river quality, the extent of the economic jurisdiction of beneficiaries (i.e. those with a positive WTP for improvements) is restricted to less than a 30km radius from the site.

Implications for ERDF

- 3.71 The use of ERDF to support resource efficiency initiatives, R&D in new energy technologies and CO2 reduction measures is still a relatively recent feature of the programmes. To this end it is difficult to draw firm conclusions about the most effective types of interventions. Several points emerge from a review of the available evidence:
- **Stimulating demand from businesses for technology and advice is critical.** Research points to the challenges of extending the benefits of R&D investment to businesses, whether this is to develop supply chains around environmental technologies or encourage the uptake of resource efficiency technologies.
 - **The benefits of investment may emerge only over the long term. Given the emphasis on innovation in this area, it will take time for the commercial benefits of some types of investment (e.g. R&D facilities) to become clear.** This needs to be reflected in investment decision making, and specifically in the assessment of potential costs and benefits as part of this process.
 - **The need to recognise reduction of carbon emissions as a key target in its own right.** While the rationale for ERDF investments centres on the economic impact they deliver, the priority attached to CO2 reduction targets means that these should be considered as an investment outcome in their own right, even where potential economic impacts such as job creation or new business formation may be uncertain.
- 3.72 The 2014-20 programmes are likely to see substantial new ERDF investment in this area. Lessons from the earlier, initial wave of investment will be important both in

shaping the types of investments that are prioritised in the programme and in providing a platform of established investments on which to build.

4. Conclusions and Recommendations

- 4.1 The evidence presented in this report shows that spatial disparities in economic performance across England are deep rooted and have resisted change over a long period of time. Such sub-national variations in performance are common to many economies and are explained by the complex interaction of market forces, locational characteristics, institutions and culture.
- 4.2 Economic growth is regarded as a means to reduce disparities and increase overall prosperity, whether the priority is increased GDP or employment. With England slowly emerging from a long period of recession, the need to secure a return to growth in difficult conditions is a policy priority. This too is an objective shared across the EU and is clearly reflected in the policies which drive the 2014-20 Structural and Investment Fund programmes. It is underpinned by the EU's 2020 Strategy which sets ambitious headline targets to increase employment and business growth, raise levels of investment in innovation, tackle far reaching social problems and address the problem of climate change.
- 4.3 While ERDF has a role to play alongside public and private sector funding to deliver economic development objectives, what it can achieve must be approached with a degree of realism. In the overall context of England's economy, the scale of funding available, and the magnitude of the issues it seeks to address, ERDF will make a difference as part of long term action and contribute to change at the margins.
- 4.4 This is not to downplay the importance of ERDF to local areas, where it represents a mechanism to invest in local economic development priorities, to extend and add value to existing activity and to lever in additional investment. Past investment has contributed significantly to the economic asset base in many areas, and the expectation is that the 2014-20 programme will further enhance these assets.
- 4.5 The complex causes of spatial disparities in performance and the equally complex range of factors that support economic growth do not provide a straightforward set of options for deciding how best to invest ERDF. Difficult choices have to be made about what (and how much) to invest in, and where to invest.
- 4.6 One perspective on the factors that determine economic performance suggests that the biggest returns are likely to be generated in areas of greatest opportunity. Specifically, it points to the key role that mobile, high skilled labour plays in fuelling growth in the highest performing areas of the country. Disparities are reinforced as people move to these areas to secure the benefits of such growth.
- 4.7 However, EU cohesion policy was established to reduce the gap between the most prosperous regions of the EU and weaker economies, and this has remained a cornerstone of ERDF and other Structural Funds. The expectation is that the 2014-20 programme will invest further in addressing some of the factors which have limited the growth of less prosperous areas. An approach based on opportunity alone may fail to reflect the growth potential of locations within less prosperous areas, while growing spatial disparities in economic performance are associated with adverse

effects on people and businesses in those areas.

- 4.8 In considering the principles for allocating ERDF, there is increased emphasis on the options for investment in major urban areas and in particular cities. Research points to the importance of large and better performing cities in delivering wider growth objectives, and an element of future ERDF funding has been earmarked for interventions specifically targeted at urban areas.
- 4.9 While the relative success of some UK cities has been recognised, research suggests that further analysis of the implications of this evidence should be undertaken, and further evidence gathered, before any decision about prioritising particular cities is made.
- 4.10 Evidence about what works in economic development policy, and specifically in terms of ERDF investment, provides a mixed picture of the effectiveness of different types of policy intervention. Many factors influence the impacts that such interventions generate, and there has so far been only a limited body of evidence based on what are regarded as more robust econometric and counterfactual evaluation methods.
- 4.11 Nevertheless, a review of the research points to a number of lessons to consider in shaping interventions in the 2014-20 programmes:
- Addressing the market failures and related factors that inhibit investment in business development, new company formation (including entrepreneurship) and the ability of companies to grow.
 - Interventions which support commercial innovation in established businesses, connecting R&D activity (public and private) to the business base and particularly to SMEs.
 - Selective investment in measures to provide finance to SMEs, with a focus on tackling gaps in the supply of finance and the cost-effectiveness of repayable finance mechanisms.
 - Investment in infrastructure including land and property, transport or digital infrastructure where evidence of market failure is clear and where it generates the maximum benefit to cost. This will be important given the lower levels of funding available for such investment.
 - Continued investment in initiatives to reduce carbon dioxide emissions and mitigate the effects of climate change. These are headline objectives in EU policy, shared by the UK government, and are anticipated to be an increasingly important component of the economy.

While there is clearly choice about the interventions that ERDF will support in England during the 2014-20 programmes, it is important to recognise that framework for investment is set by EU policy and by the regulations for the Structural and Investment Funds. This applies both to the range of investments that can be made and to the finer detail about how they are designed and implemented.

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