



Office of the
Deputy Prime Minister

Creating sustainable communities

*An exploratory assessment
of the economic case for
regeneration investment
from a national perspective*

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CHAPTER 1

Aims and objectives of the study

Introduction

- 1.1 This report explores, from a theoretical perspective, the circumstances and conditions under which regeneration funding may be justified on economic grounds. Specifically this study investigates the possibility of efficiency gains from regeneration policy, rather than equity gains. It is recognised that many regeneration projects may give rise to net additional jobs, GDP and productivity at the neighbourhood, city or regional level. However, the conditions under which such regeneration projects generate national economic gains are less well understood from both a theoretical perspective and empirically. The potential for projects to generate national economic benefits is recognised in HM Treasury's Green Book (2003) which provides guidance on good practice appraisal and evaluation for government departments and agencies before significant funds are committed to a project.

'Additionality can also be referred to as a 'supply side' or 'structural' impact, which operates by altering the productive capacity of the economy. This can occur either because of a change in the size of the workforce or a change in the productivity of the workforce.'

Government may still view regeneration investment as worthwhile even if there are no associated productivity benefits and government may fund some regeneration projects purely on equity grounds.

- 1.2 This report concentrates on identifying the theoretical arguments underpinning the potential for regeneration projects to have national impacts. In doing so, it does not address the question, which is empirical rather than conceptual, of whether there is an actual impact. More specifically it seeks answers to the following questions:
- Do regeneration projects ever lead to net additional job creation or other impacts at the national level, or is there always 100% displacement at this spatial scale?
 - Is UK productivity improved by regeneration projects?
 - Is UK productivity harmed by regeneration projects, due to investment distorting the allocation of labour and capital and moving it away from where it is most productive?

Section 2 of the report presents a brief overview of current principles and practice in regeneration appraisal, including the rationale for policy intervention (market failure). Section 3 explores the notion of 'place' as a driver of economic performance, identified

in the report as a key complement to the five drivers of productivity. Section 4 addresses the three core questions of the study from a macroeconomic perspective. Section 5 assesses the potential for national economic impacts of regeneration projects in the context of theory relating to the optimal and efficient size of cities and the city system. Section 6 explores the theories emerging from the New Economic Geography in seeking insights on the potential for national impacts of regeneration projects. The Final Section draws these different theoretical strands together to establish conditions under which positive or negative national economic impacts may arise from local area/regional regeneration projects.

CHAPTER 2

Green Book principles and practice in current regeneration project appraisal

The rationale for policy intervention in local regeneration

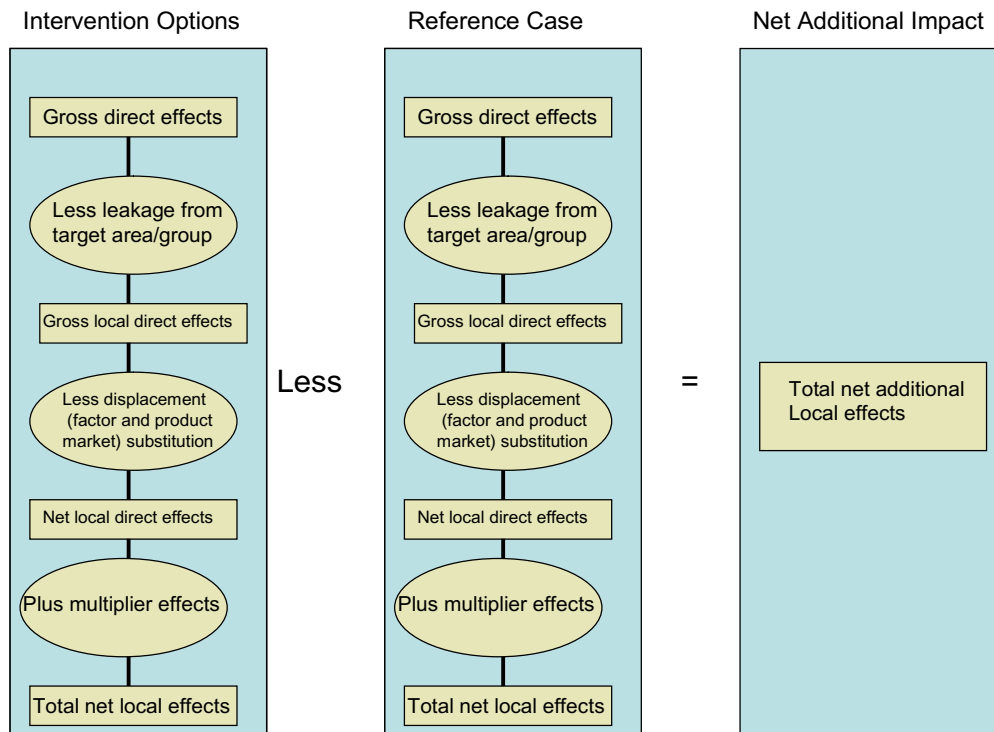
- 2.1 The regeneration of parts of the country's major cities and towns has been a long standing aim of government policy. The persistence of economic, social, physical and environmental problems has provoked a plethora of policy programmes and initiatives designed to steer resources to these deprived areas and deliver sustainable regeneration. The rationale underpinning these government efforts to address the regeneration problems confronting deprived areas and communities derives critically from the notion that market failure across a range of markets (land, property, labour, finance) is a key important factor contributing to the persistence of these problems. HM Treasury Green Book states para. 3.2 *'This underlying rationale (for intervention) is usually founded either in market failure or where there are clear government distributional objectives that need to be met. Market failure refers to where the market has not and cannot of itself be expected to deliver an efficient outcome;....)*
- 2.2 There is a voluminous and long established literature grounded in Neo-Classical Economics and in particular in theoretical welfare economics which sets out the market failure paradigm and the conditions under which markets fail to deliver an efficient allocation of scarce resources. These conditions provide the basis for government intervention. However, although helpful in determining an appropriate role for government, it should not be concluded that there is a rigid division between the role of government and the role of the market and this is reflected in the emergence of public-private partnerships as an important policy tool in addressing regeneration problems. It is also the case that market failure per se establishes no presumption that it is the task of central government rather than some other tier of government to intervene to alleviate the market failure. Nevertheless, where there are substantial inter-jurisdictional economic spill-overs and potential national benefits from regeneration policy interventions a greater role for central and regional government may be justified.

- 2.3 Market failure has been variously defined in the literature but its essential feature is the inability of a market to provide goods and services at all or in an economically optimal way. In the context of area based regeneration policies this failure is reflected in *inter alia* under-investment in the removal of derelict and contaminated land, insufficient investment in developing the skills of the local workforce, an unwillingness to meet the transaction costs of land assembly and in the immobility of labour and capital. HM Treasury Green Book focuses on the usual suspects as sources of market failure namely- public goods, externalities, asymmetric information and market power.
- 2.4 The government's response to these market failures has been to introduce a wide array of different policy initiatives focused on addressing urban regeneration in cities and towns across the country. Regeneration investment projects include land renewal, commercial, industrial, retail and housing development, improvements in transport and accessibility, environmental improvement, support for business, training and community development. To simplify the analysis, the discussion below will not differentiate the many different types of regeneration intervention but will focus primarily on the impact of regeneration policy 'packages' which combine a number of initiatives tailored to the specific regeneration needs of each target area.
- 2.5 It is recognised that regeneration takes place in both the more disadvantaged areas of the country where there is relatively high unemployment and underutilisation of resources and more 'prosperous' areas in which the local and regional economy is close to or at full employment. For the purposes of establishing some basic conditions under which national GDP per capita, productivity and employment are increased by regeneration policies in much of the analysis which follows, we will work within the framework of a two region economy, a prosperous South operating at close to full employment and a less prosperous North experiencing under-utilisation of scarce resources.
- 2.6 The analysis also distinguishes between government regeneration interventions which are targeted on factors of production such as land and property (and selected segments of the workforce) which are immobile between geographical areas and between regeneration interventions which focus more on geographically mobile labour and capital. Immobile underutilised factors by definition cannot be brought into use in geographical areas other than where they are located. However it is recognised that site improvements and refurbishments of premises may potentially benefit mobile capital and labour. In the context of land renewal or provision of premises, the analysis takes as given a regime of planning controls and constraints which are intended to limit the availability of land for different urban uses, i.e. the system ensures that land as a factor of production is in relatively short supply and this is particularly so in the South.

The framework for assessing the additionality of regeneration investment

2.7 The current appraisal and evaluation framework for guiding regeneration investments is set out in the HM Treasury Green Book (2003), ODPM's (2004) 3Rs Guidance and English Partnerships (2004) Additionality Guide. Although these manuals cover a wide range of issues for which guidance is required (valuation of costs and benefits, choice of output and outcome indicators), we focus here on the central issue of additionality. The ODPM's guidance on assessing the impacts of area based interventions defines additionality as *'An impact arising from an intervention is additional if it would not have occurred in the absence of the intervention. It is the extent to which activity which takes place at all, on a larger scale, earlier or within a specific designated area or target group as a result of the intervention.'* (Annex 10 3Rs Guidance). To this definition English Partnerships Guidance adds 'when the quality of outputs/outcomes may be different because of public sector intervention'. In assessing the additionality of a regeneration intervention a number of adjustments are necessary to the Gross Direct Effects to arrive at the Net Additional Effects and these are shown in the figure below.

Figure 2.1 Approach to assessing project level additionality – key components



Source English Partnerships, 2004

2.8 In Figure 2.1 the Reference Case defines the deadweight i.e. what level of target outputs/outcomes would be produced if the project did not go ahead; the Gross Direct Effects is the total effect of the regeneration intervention (or reference case) including positive externalities; the leakage effects are the outputs of the project

that benefit those outside the target area or group; the displacement effects are the reduced outputs elsewhere in the target area; the substitution effects are where a firm substitutes one activity for a similar one to take advantage of the regeneration intervention; economic multiplier effects arise when further economic activity is induced in the target area through supplier linkages and expenditure multipliers. In addition 3Rs Guidance suggests that for large projects crowding out (in) of other activities should also be taken into account. The assessment of regeneration interventions should also pay regard to the need for marginal analysis and the context into which the regeneration intervention was introduced.

- 2.9 It should be noted that for both the regeneration intervention and the reference case the additionality impacts are limited to the target area, namely the site/target locality. The issue of additionality at the national level is not addressed. *‘It is important to recognise that the analytical framework presented above does have a number of limitations, in particular in accounting for macro-economic adjustments, which may reduce (or increase) the additionality of an intervention at wider spatial scales. This limits its appropriateness in discussing national economic efficiency impacts, unless it is combined with detailed macro-economic modelling,’ - English Partnerships (2004).* Dynamic feedback mechanisms working through price adjustment, inter-area induced capital and labour mobility and macro-economic policy adjustments are similarly not considered in the current appraisal and evaluation of the impact of government regeneration interventions on economic efficiency. Equally, the 3Rs guide to assessing spatial impacts, itself drawing on the English Partnerships Additionality Guide, notes that crowding-out (the macro-economic effect arising from the government's budget constraint) leads to the displacement of all outputs with the exception of those arising through supply side improvements. Consequently, the identification of a national impact requires that there be not only a visible supply-side effect, but also that it be greater than alternative uses of the same call on the public finances.

Conditions for the generation of national economic benefits

- 2.10 National economic (efficiency) gains arise where national GDP per capita is greater than it would have been had the public policy regeneration intervention not taken place. Any change in national GDP per capita arising from the regeneration intervention is the product of two principal components - the change in GDP per unit input of labour (productivity) and the change in per unit input of labour per capita (employment rate).

$$\% \text{ change in GDP per capita} = \% \text{ change in GDP per employee} + \% \text{ change in employment rate}$$

- 2.11 Improved economic performance can be achieved by raising productivity, so that the ability of the economy to generate more output from a given supply of inputs is enhanced. But it can also be attained by activating otherwise unemployed

resources. This suggests that in assessing the impact of regeneration policies, the focus of attention should be both on capacity building and on capacity utilisation.

2.12 Across the cities and regions of the UK there are wide variations in GDP/capita and its two component parts, HM Treasury (2000, 2001). If area based regeneration policies could lift the productivity and employment rate levels of relatively poorly performing cities and regions of the UK towards those of the better performing areas of the country, rather than merely securing a spatial redistribution of economic activity, overall national economic performance could be enhanced.

2.13 In fact, the employment rate concept can be taken further by considering not just the utilisation of labour as a factor of production, but also of other factors of production. In particular, 3Rs initiatives most often affect land and property in a way that either activates a site or location that has, for whatever reason, become redundant/unemployed, or raises the productivity of use of a site that is under-performing. It follows that in considering how a supply-side effect might arise, it is worth disaggregating the different components of productivity and activation. Conceptually, this is akin to breaking-down total factor productivity into its component parts. It is also necessary to consider the complementarities between factors of production function.

2.14 There has been extensive research into the factors that lie behind spatial differences in economic performance. In reviewing this research HM Treasury (2000, 2001) point to five key factors which underpin spatial differences in productivity:

- Skills
- Investment
- Innovation
- Enterprise
- Competition

2.15 Each of the above factors contributes to spatial economic performance differentials, however HM Treasury (2001) identify skill levels as of particular importance. Efficient matching of the skill requirements of firms with the capabilities and skills of the workforce requires an appropriate degree of labour and firm mobility both within cities and regions as well as between them. Human capital, in particular, is being seen by many as an increasingly crucial component of competitive advantage, often more significant than physical capital or technology (see, for example, Gratton, 2000). Poor mobility of either firms or labour may lower a city or region's productivity and employment rate. In this respect there is a potentially important role for regeneration policies in facilitating the supply of suitable employment and housing sites and improving their accessibility as well as in supporting the acquisition of skills of the workforce in all regions and cities of the UK.

CHAPTER 3

'Place' as a shaping factor of productivity and its national impacts

- 3.1 In addition to the five drivers of productivity identified above there is a considerable theoretical and empirical literature which emphasises the productivity gains and losses that derive from 'place-based' factors i.e. factors specific to regions and cities and even local areas. Given the place specific focus of regeneration policies, an important question in assessing the potential for such policies to increase national productivity and growth, is whether they impact positively on place-based sources of productivity.
- 3.2 A recent report on regional growth in the UK by Frontier Economics (2004 for ODPM, HM Treasury) identifies a number of place-based factors influencing regional disparities in the five main drivers of productivity and growth. For example, although regional disparities in education and skills are largely explained by differences in 'individual' characteristics', place-based factors such as peer group/aspirational effects, neighbourhood and intergenerational effects are seen as being potentially important sources of regional disparities. Improvements in the quality of place can play a role in improving local and regional economic performance and the public good characteristics of such investment provides a sound rationale for such investment. Such investments in the quality of place include community investment in an urban area, well designed green spaces, river frontages and local housing estate renewal can catalyse large scale urban regeneration.
- 3.3 'Place' has a number of other dimensions that bear on competitiveness and the scope for regeneration and related, spatially-targeted policies to enhance productivity in a 'territory', be it a locality, city or region. There are a number of critical elements to be analysed. A first is resource utilisation. If any economy has idle factors of production, it is plainly failing to attain its potential. Second, the institutional or governance context matters, insofar as localities need to be 'we-run' to offer a business environment capable of realising the economic potential of the area. If the area is poorly administered or lacks the facilities to support business, it will under-perform.
- 3.4 Although productivity starts with the firm, there can be important influences on productivity outside the direct control of the firm, but which exert a significant influence on the attractions of the locality as a place of business by affecting the ease with which business can be done. On the one hand, congestion, the need for security (whether directly supplied or through insurance), a polluted environment or similar drawbacks can raise the cost of doing business. If 'place' policies help to diminish such dis-economies, there may be gains not only for the local area, but for the national economy, since it will not be a zero-sum game. Much of the literature on spatial differences in productivity is concerned with the analysis of agglomeration economies and dis-economies and will be discussed in Sections 5 and 6 below.
- 3.5 Other attributes of the locality that contribute positively to the local economy's growth trajectory, are the capacity of the local economy to supply factors

of production or, more generally or to marshal assets that are conducive to business efficiency. The key question is then whether, or to what extent, they do so without compromising activity elsewhere, i.e. **are positive-sum**. Social capital, though amorphous and still surprisingly ill-defined, is one such asset and is, moreover, one that should be less likely to engender conflicts.

3.6 Many 3Rs initiatives are about responses to the fact that land and property markets can, and often do, fail to provide optimal outcomes. Well-known and visible examples of this market failure would include spatial externalities, vacant and derelict land and volatile property market cycles. As Gibb et al. (2002) put it: 'a market failure framework appears to be a useful way to analyse intervention and policy responses in the property market. It is complementary to the judicious use of the user-investment multi-sectoral model of the property sector'. Thus, property and land can be analysed as one of a set of 'hard assets', required by localities in order to attract and retain investment and to facilitate better economic performance. Gibb et al. (2002) argue that the role of property within the urban economy is often inadequately linked to other facets of competitiveness and that its propensity to trigger vicious or virtuous cycles of economic development, in particular, is not sufficiently explored. Questions of urban form, design and the environment also bear significantly on how well a city is able to adapt to economic change. Vacant and derelict land, according to Gibb et al (2002) is another key issue. It signals a disequilibrium in the dynamics of the property or land market, often aggravated by spatial externalities and risk aversion on the part of investors and developers. The phenomenon partly reflects informational problems, but is affected by the existence of negative externalities that inhibit the effective development of markets. Here again, regeneration can act as a catalyst to overcome such problems.

3.7 Another aspect of place is how it interacts with competition as a driver of productivity. In industrial economics, it is recognised that achieving a healthy degree of rivalry has a positive effect on company performance, a notion that is already encapsulated in competition as a driver. Equally, there are circumstances in which co-operation makes sense. A parallel could well be drawn with competition between locations, not just in the limited sense of government awarding funds from regeneration programmes to the best applicants, but in much broader ways: greater competition between localities may stimulate a collective upgrading, but requires that there is an approximation to a level playing-field in 'place' aspects of competition. Thus, a range of supply-side factors related specifically to 'place' shape economic performance, both positively and negatively. The key question then is whether what facilitates advances in one locality is damaging to another or, instead, whether the gains are complementary. Henneberry (1999), in an interesting analysis of speculative development points to a form of market failure in the property investment market: he shows that for institutional reasons, there is too much investment in London and the South East despite the opportunity for higher returns in other (perhaps less dynamic, or at least perceived to be so) parts of the UK, a finding he attributes to the 'parochialism' of investors and property agents.

Endogenous growth

- 3.8 The development of theories of endogenous growth suggests another tack for understanding the contribution of ‘place’ as a driver of productivity. Building on the early work of Romer and Lucas, for recent surveys, see Aghion and Howitt, (1998); Easterly and Levine, (2002); and Romer, (1994) there has been a proliferation of models that, nevertheless have in common the observation that growth is not just about adding to the supply of factors of production, but requires, instead, some form of trigger to achieve take-off. What distinguishes endogenous growth theory is that it attempts to provide an explanation of the causes of technological progress rather than treating it as a given. A related and relevant strand of theory (and, indeed, of much empirical work) is the study of the determinants of regional convergence. Regions with relatively low levels of technological knowledge will, under certain conditions, experience faster growth than regions employing more advanced technology as technological progress diffuses across space. The salience of the new growth models is that they focus on key factors that enable an economy to break out of a low growth straitjacket.
- 3.9 Most of the work on endogenous growth relates to nations, but a case can be made that the reasoning applies across the spectrum of spatial entities and thus that it would be reasonable to infer that otherwise constrained regional or local economies might be able to accelerate their growth endogenously without displacing activity from other regions or localities. Glaeser et al (1995) have argued that the analysis of endogenous economic growth models using cities and regions as the spatial unit has advantages by comparison with cross country analysis. While this approach has not hitherto featured much in the calculus of additionality it is probably an area that merits attention in relation to the three areas this study seeks to elaborate.
- 3.10 Factors variously cited in the literature include human capital, infrastructure (see the literature spawned by Aschauer, (1989)), technological advances, innovation and the quality of institutions. There is certainly ample evidence that private sector R&D is heavily concentrated in just a few regions, suggesting that the potential for others to grow is constrained, Simmie et al, (2002). However in considering the links between ‘place’ and endogenous growth, many other factors come to mind. Frontier Economics (2004), for example, lists a series of ‘softer’ attributes of localities that matter, such as ‘liveability’, the quality of public goods and services and so on. Shioji, using a dynamic model and adopting a convergence rather than a production function approach, finds that infrastructure did contribute to long-run growth (over the period 1960-88) in the US (4%) and Japan (19%). Shioji’s study also suggests that public capital shortages mean that there is likely to be scope in many countries for boosting growth. One interesting dimension is explored by Kalaitzidakis and Kalyvitis (2004) who look specifically at maintenance of public capital, rather than new projects and find that gains can be achieved by redirecting funds to the former.
- 3.11 The quality of institutions of various sorts, ranging from government bodies and the quality of public services to more amorphous influences under the label of social capital, is widely cited in the development literature as a factor behind differences in growth rates. Institutional quality raises growth dramatically – by 0.3% per annum according to Sachs and Warner (1997) and 0.5%, as estimated by Barro (1997). Lower government consumption is also beneficial, but – perhaps surprisingly – financial depth is found to be ‘highly insignificant’ in a multiple regression, although Bleaney and Nishiyama note that it may contribute to the significance of

other variables with which it is correlated. Human capital, institutions, terms of trade and non-specialisation in primary goods are all favourable to growth.

- 3.12 As Aron (2000) observes – referring mainly to developing countries – ‘institutional quality periodically can deteriorate sharply as a result of political instability, terms of trade or climate shocks, policy reversals, or even fiscal austerity programs’. She therefore argues that in certain circumstances, institutional quality can be a factor affecting growth. Moreover, causality can be reversed in the sense that institutional quality may be adversely affected by low growth. The implication of her analysis in the EU context, following the insights of North (1990) that inadequate institutions may diminish the efficiency of investment, is that efforts to promote the Lisbon agenda may be undermined by inadequate or inappropriate institutions. However, it is a characteristic bedeviled by data problems. Change in institutions tends only to happen slowly, and is more often the result of political or regulatory developments than of public spending programmes. Consequently, in the EU context – characterized on the whole by economies with stable institutions - institutional reform may not be an especially fertile ground for change leading to more rapid growth. But the position may be different for the new members where the transition is incomplete.
- 3.13 Many recent growth models have also pointed to the effects of spillovers from a country to its neighbours of technology, human capital or other factors that promote growth e.g. Ciccone, (1997); de Long and Summers, (1990). Fingleton (2004) demonstrates the importance of regional spillovers for Europe’s regions and in particular that interregional spillovers raise the steady state growth of productivity and output such that boosting productivity in the peripheral regions has a positive productivity effect on all regions.
- 3.14 The constraints on, and opportunities for, growth will vary over time and will often be complementary. For example, complementarities between human capital and knowledge-based technologies clearly matter. Lloyd-Ellis and Roberts (2002) develop a model in which technological knowledge is generated and accumulated by firms, while it is households that invest in human capital, but they show that ‘the investment incentives of firms and households are inextricably linked’. New technologies require new skills to be implemented, providing incentives to individuals to acquire these skills; in parallel, the availability of a skills base creates greater incentives for introduction of new technologies. Hence, there can also be a co-ordination problem to confront, with its resolution again affording the possibility that the game will be positive-sum in achieving local gains that are also national gains.
- 3.15 Aron (2000), in her survey, stresses the importance of complementarities between growth, investment, and institutions, echoing the earlier observation about R&D and human capital. The mechanism is pretty clear, even if the empirics are difficult: Aron(2000) states that ‘better-performing institutions may improve growth by increasing the volume of investment—for example, by eliminating bureaucratic red tape and rent-seeking costs—and (more weakly) by improving the efficiency of investment, say, by enforcing well-defined property rights. Similarly, the promotion of social capital strengthening informal institutions may positively influence growth both directly and indirectly’. Yet it is difficult to identify the buttons to press; however Posner (1998) suggests that moderate public outlays can help to push through legal reforms that could enhance growth.
- 3.16 As Islam (2003) notes, ‘It has been generally thought that convergence was an implication of the neo-classical growth theory (NCGT), while the new growth theories (NGT) did not have this implication.’ Convergence in income per head can be explained by capital deepening and technological diffusion. The implication for

'place' related policies is that the scope for net national gains may be substantial. Work by Aghion et al. (2003) shows a significant impact of higher education on both TFP and labour productivity when a country is some way from the productivity frontier.

CHAPTER 4

The macroeconomic approach

Introduction

- 4.1 Spatial economic policies, including land use planning policies, urban regeneration policies and regional policies have economy wide economic impacts that transcend site/local/regional economy impacts. These impacts have been extensively analysed in the literature and are well summarised in standard texts such as Armstrong and Taylor (2003), Fujita et al (1999), and Evans (2004). These impacts arise primarily through the movement of population (economically active and inactive), the movement of capital, the transfer of knowledge and trade between the different cities and regions of the country. Regeneration programmes, either directly or indirectly may give rise to one or more of these inter-regional interactions. For example, regeneration policies are a potentially important influence on the location of industry. Increased number, scale and quality of sites in a particular location will raise the 'investability', Begg (2002) of a region or city, attracting investment and encouraging the retention of existing firms and their re-investment in the region. Equally regeneration programmes incorporating a housing refurbishment programme or provision of land for new housing will influence the mobility of households and the workforce (Muellbauer and Murphy 1991; McCormick, 1991). Regeneration policy may also contribute to the technological capacity and capabilities of a region through the provision of what Begg (1995) has called 'soft' infrastructure - technology transfer centres, enhanced regional R&D capacity in research institutions and companies. By influencing the location of labour, capital and research and technological capability, regeneration investments and measures have potentially important economic impacts outside the target areas of the policy. They may also have national economic impacts when analysed with respect to their implications for the aims and objectives of macro-economic policy.
- 4.2 The importance of sound macroeconomic policies for economic development has long been stressed. Consequently, the macroeconomic context is bound to be a critical determinant of the trajectories of national and regional convergence. By the same token, as the EU's 3rd Cohesion report makes clear in the European context, cohesion policy can play an important part in raising overall output. It follows that cohesion policy also feeds into macroeconomic policy in a manner that is sometimes not given the recognition it deserves.
- 4.3 One theoretical strand of research which recognises these spatial inter-dependencies and their potential for spatial policies to secure national economic gains is what might be termed the Keynesian approach. This approach has its origins in

early research by Kaldor (1970), Moore and Rhodes (1973) and Jackman et al (1985). More recently Taylor and Wren (1997) (amongst others) have pointed to the potential role of spatially differentiated economic policies in raising national output and employment. The Keynesian approach focuses on the short to medium term implications of regeneration policy in circumstances where there is market failure such that scarce resources remain unemployed at a spatial level. Microeconomic based approaches that emphasise agglomeration forces and focus on long term growth implications are discussed in Sections 5 and 6.

- 4.4 An alternative perspective on the relationship between policies with primarily spatial economic objectives (such as 3Rs interventions) and macroeconomic performance is provided by Carlino and DeFina (1999) who show that different US states exhibit different sensitivities to monetary policy. First, to the extent that long-term investment projects are affected by interest rates, the amount of investment by the private sector will be higher if interest rates are lower. Second, insofar as purchases of manufactured goods are made on credit, the demand for such goods will also be sensitive to the interest rate. Such analyses are usually conducted to establish how monetary policy is transmitted to the real economy. But it can be argued that the whole issue can also be viewed from the other end of the telescope by asking how trends in spatial economic development affect judgements made on monetary policy.
- 4.5 In further work, Carlino and DeFina (2003) note that although ‘the tendency of output and employment to co-move positively across broad industry categories is a well-documented feature of national business cycles’ much less is known about spatial patterns. They find that at disaggregated levels there can be quite wide disparities in the impacts of idiosyncratic shocks. Yang and Turner (2004) offer a conceptual and empirical analysis of the relationships between regional property markets and monetary policy. On the demand side, they suggest that ‘homeowner borrowing patterns and house prices are critical in terms of regional effects of monetary policy’. They also note that the supply of housing may also be affected differentially by the interest rate if the construction industry is relatively more specialised in some regions than in others. Since regeneration projects will, typically, affect (either qualitatively or quantitatively) the supply of housing and the attractiveness of the locality to investors in property (whether households or developers) a further link from regeneration to monetary policy can be postulated. de Lucio and Izquierdo (2002) provide evidence on differential geographical effects of monetary policy, respectively across the Spanish regions. Mihov (2001) reports empirical results on the presence of regional heterogeneity in output responses to monetary policy shocks for France, Germany and Italy. Meade and Sheets (2002) find that there is some responsiveness of monetary policy decision-making to regional circumstances.
- 4.6 Fratantoni M. and Schuh, S. (2003) further emphasise that ‘although monetary policy cannot target regional economic performance, regional heterogeneity may matter for the efficacy of monetary policy’. They argue that the relative performance of regions has a bearing on the speed with which monetary policy acts, as well as how sensitive the structure of the local economy is to interest rate changes. They also suggest that ‘the aggregate effects of monetary policy depend on the distribution of regional sensitivities to monetary policy and on the initial distribution of regional economic conditions at the time of monetary tightening’. Because the spatial patterns vary over time (see, also, Owyang and Wall, 2004, who show that the sensitivity of regions varies according to the policy period) they maintain that even

‘small changes in the configuration of heterogeneity can produce economically significant changes in aggregate responses’.

- 4.7 The implication of all these links from monetary policy to regional performance is that policy measures which alter the trajectory of a regional economy, whether in terms of overall performance, sectoral mix or key supply-side characteristics such as the housing market may affect regional heterogeneity and thus the effects of monetary policy on the performance of the national economy. Consequently regeneration projects big enough in their regional macroeconomic scale to affect such variables (major urban re-generation projects, for example) could be expected to influence the conduct of monetary policy and thus have an impact on national economic performance. For smaller projects, the effect may be minimal, though still conceptually plausible. There is a paucity of research capable of predicting a priori how such effects will be revealed and most of the relevant research has, moreover, been done within the confines of constituent members of the Federal Reserve system. But it is an area that warrants further development.
- 4.8 Our starting point in exploring this interaction between spatial policies and macroeconomic policy is to recognise the existence of market failures resulting in persistent underutilisation of land, capital and labour resources in different regions of the country, although this is not to say that all such regional imbalances may be attributed to market failure, Rice and Venables (2004). The extent of these imbalances varies across different geographical areas. The stylised facts would point to a distinction between the traditionally disadvantaged regions (the ‘North’) experiencing persistent excess supply of certain factor inputs and the more prosperous regions (the ‘South’) experiencing ‘full employment’ or excess demand for factor inputs. This greatly oversimplifies the actual position but facilitates the analysis of some key interactions between geographical areas that determine whether regeneration policies give rise to net national gains. It is well known that within actual cities and regions there also exist persistent differences in the utilisation of scarce resources which regeneration policies seek to address. There are moreover underutilised resources such as vacant land and structural unemployment in parts of the ‘South’. Nevertheless the two-region model provides us with a helpful analytical starting point.
- 4.9 Under these circumstances national macroeconomic policies designed to maximise short to medium term GDP, subject of course to the (MPCs) target inflation rate being achieved, cannot be used to raise aggregate demand and bring into use the scarce underutilised resources located in the different parts of the country. Any attempt so to do would lead to inflationary pressures and such pressures would initially be concentrated in those areas of the country close to or at full employment in the use of scarce resources. In an environment of monetary restraint (inflation targeting), expansionary national economic policies in the form of public investment and, possibly, fiscal transfers that are aiming at reducing regional imbalances in the country are likely to create adverse economic impacts nationally and thus exacerbate the economic imbalances that they are trying to correct. Expansionary policies will create inflationary pressures (over-heating) in the full-employment region (the ‘South’) faster than they will boost demand (reduce unemployment) in the more backward region (the ‘North’) and thus lead to a decline in the competitiveness of the national economy. Market failure, it will be recalled, limits the extent to which factor mobility and factor price adjustments occur to remove geographical imbalances. Land use planning and housing policy are among a number of other influences which also constrain the efficiency of the market in removing spatial disparities.

Regeneration policies in the 'North'

- 4.10 In the circumstances set out above there is a role for spatial policies, including regeneration policies. Consider first the regeneration of a brownfield site/land in the 'North' through regeneration measures aimed at removing dereliction and upgrading public service provision on the site/locality. Regeneration projects and programmes aimed at replacing/upgrading obsolescent premises and removing site dereliction will generate potential improvements in the productivity of the target sites and may also increase the supply of land available for development. Such improvements in the potential productivity of target regeneration sites and additions to the effective supply of land for development in the 'North' can potentially raise national GDP per capita as long as such improvements do not result in a reduction in site improvements and a corresponding reduction in site productivity and site availability in other areas of the UK. Whether this is the case will depend on the decisions of developers, investors and other agents operating in the real estate markets. Where there is an excess demand for sites suitable for development, development of target regeneration sites may not substitute for the development of other sites. In other circumstances, for example where there exists greater uncertainty about rents and occupancy in the locality, substitution may well occur thereby reducing the potential gains to GDP.
- 4.11 However this is by no means the end of the story. The demand for land/premises is derived demand for the output of goods and services produced by the occupiers of the premises along with space per employee and capital floor space considerations. Increases in the availability and quality of sites will increase the productivity of the occupiers of premises built on these sites. These productivity increases will be reflected in the rents that occupiers are willing to pay but a proportion of the productivity increase will permit occupiers to reduce prices and/or increase profits compared to a situation where they occupied inferior premises. Increases in the effective supply of suitable premises will reduce any excess demand for premises and contribute to higher site GDP. In the case of occupiers in the tradable goods and services sector, these changes are likely to result in increased competitiveness, increased market share and output. The extent to which this increase in GDP gives rise to additional job creation by the occupier, depends partly on the extent of capital labour substitution permitted by the new premises and partly on the increase in output associated with the increase in market share.
- 4.12 The issue of whether the increase in economic activity and GDP in the 'North' merely displaces economic activity and GDP in the 'South' (or other localities in the 'North') must be considered next. Where, as argued above, firms newly located on the regenerated site/locality produce tradable goods and services, there must be presumption that some of the increases in economic activity will be at the expense of firms operating in other localities in the 'North' and in the 'South' i.e. there will be diversion or displacement from these other areas. This displacement can occur through a number of possible adjustment mechanisms. For example, it may occur as a result of firms moving from other areas to the site/locality in question i.e. induced capital mobility, or through local firms in the 'North' moving on to the site and taking market share away from firms located in the 'South' i.e. product market displacement. The extent of displacement will determine the net additional output and job creation secured by the regeneration measures.

- 4.13 In analysing the potential scale of displacement a first consideration is the location of firms that are displaced either through induced mobility or through erosion of market share. A second consideration is the impact on wage rates in the regeneration locality where occupiers expand their output and employment and the impact on wage rates in the area from which displacement occurs. A third consideration is whether any impact on wage rates impacts on the national target rate of inflation. Insofar as it does impact on inflation, it would (sooner or later) provoke a macroeconomic policy adjustment to return the rate of inflation to its target rate.
- 4.14 A first (and plausible) assumption with respect to the third of the above considerations is that any macroeconomic adjustments required as a result of changes in the rate of inflation, depend primarily on the non-accelerating inflation rate of unemployment (NAIRU) in the regions in which full employment prevails i.e. the 'South'. In other words the overall national rate of inflation is determined primarily by the pressure of demand for labour in the fully employed regions ('South'). Displacement of labour demand from the 'South' will tend to lower the rate of inflation and increase the rate of unemployment in the South (moving it away from the NAIRU). In the 'North' where regeneration measures have raised demand, output and employment, the impact on wages will depend on the supply elasticity of labour. .
- 4.15 Where there is displacement from the 'South' macroeconomic policy will automatically adjust to ensure that the target rate of inflation and the NAIRU are secured. The important point here is that the pressure of demand in the 'South' is maintained where it would otherwise be in the absence of the regeneration policy and for this reason the level of GDP and employment in the 'South' is maintained. In the 'North' GDP and employment are higher as a result of the displacement and as a result of the indirect effects associated with local supplier linkages, local income expenditure multiplier effects and the macroeconomic adjustment (which impacts on the 'North' as well as the 'South'). Overall there is a net national gain to GDP and employment as a result of the regeneration measures impacting on economic activity in the North. It is of course possible that that the productivity in the 'North' may be less than that of the same industries in the 'South'. But the important point is that any output produced by this additional employment is a net addition to national output providing productivity in the 'South' is unaffected.
- 4.16 The analysis above leaves out an important complicating factor of a dynamic kind, namely the possibility of migration between the 'North' and the 'South'. Net outward labour migration from the 'North' might be expected to fall as job opportunities and real wages increase relatively in the 'North'. This has the effect of reducing the output and employment gains from the regeneration policy because some of the workforce would have found jobs in the 'South' had they moved there in the absence of the regeneration policy.
- 4.17 Related to the issue of migration is the question of infrastructure requirements given changes in the location of population and indeed economic activity more generally. Spatial disparities in economic growth can impose economic costs (negative externalities) on more rapidly growing areas ('South') through excess demand for social infrastructure and public services. By contrast in the 'North' where population and industry may be in relative decline, social infrastructure is often under-utilised. In the absence of spatial regeneration programmes in the 'North' there is likely to be a requirement to expand infrastructure in the 'South', which in turn may merely fuel increases in the demand for further infrastructure improvements and not alleviate the imbalance between demand and supply. Insofar as regeneration policies in the North either directly or indirectly reduce inward

migration to the 'South', the productivity of the national stock of social infrastructure could be increased, negative externalities reduced and increased output secured from resources no longer absorbed in unnecessary infrastructure provision.

- 4.18 The issue is further complicated by the potential implications for national productivity that arise owing to the impact of these changes on the efficiency of cities and agglomeration effects (the subject of Sections 5 and 6).

Regeneration policies in the 'South'

- 4.19 The analysis above makes a simple distinction between a fully employed 'South' and the 'North' in which there exist persistent underutilised resources. However, within the 'South' structural unemployment exists and there are opportunities to increase the utilisation of vacant land and premises and regeneration policies are in the inner urban areas of the larger cities, but also in smaller towns and cities where economic performance is deemed to be lagging or where the housing and built environment are requiring extensive refurbishment and upgrading. To compare the possible implications of such regeneration interventions for national GDP/capita, productivity and job creation, we consider first the impact of a site renewal/upgrading regeneration project designed to increase the productivity of the site/local area and the 'activity rate' of land with potential for industrial/commercial use.
- 4.20 Regeneration of sites and construction of new premises for commercial and industrial use in the 'South' will raise the overall supply of floorspace in the 'South'. Some firms will be encouraged to relocate to the site because the new premises are expected to increase their productivity, lower their unit output costs and raise their profitability compared with a situation where they continue to occupy their current premises. Overall productivity in the 'South' will be higher as a result of the regeneration measures. National productivity will also be higher.
- 4.21 The question of whether national output and employment is increased depends on whether the increase in productivity of firms facilitates an expansion of output and employment in the 'South'. Firms enjoying higher productivity in their new location will be relatively more competitive vis a vis other firms in their sector. If they take market share from other firms in the 'South', overall output in the 'South' will be unchanged. However, increased competitiveness may reduce the market share of firms in the 'North', i.e. net-exports of the 'South' increase. Given that the 'South' is assumed to be at full employment, any increase in net-exports will raise the rate of inflation and may necessitate offsetting deflationary macroeconomic policy to re-establish the target rate of inflation, which it will be recalled is set by the pressure of demand in the 'South'. Any output/employment gains in the 'South' will be offset by losses in the 'North'. Moreover, deflationary measures to remove inflationary pressures in the 'South' will also deflate the 'North' ultimately reducing national output and employment. If the new premises make possible capital labour substitution that might otherwise not have been possible in the former premises, the required macro-economic adjustment will be lower if labour released is redeployed to other firms.

- 4.22 The above discussion demonstrates that full employment of labour in the ‘South’ effectively constrains the growth of output and employment there in the short to medium term (which in turn may limit the national impact of regeneration policies undertaken in the ‘South’). It is clear that regeneration measures must relax not only the constraint that land use planning policies place on the supply of land/premises and associated public infrastructure but also they must address the labour supply constraint if they are to be effective in raising national output and employment. There are of course, various adjustment mechanisms that might facilitate this relaxation. The growth of the population of working age groups in the ‘South’ through net inward migration from other regions and overseas, increased activity rates of the population in the working age groups and improvements in the skills and capability of the workforce. The multifaceted nature of the larger scale regeneration programmes embracing education, training and provision of new additional housing, reflects the need to facilitate these adjustments.
- 4.23 As indicated above, regeneration policies that result in additions to the stock of housing in the ‘South’ through the construction of new dwellings, conversion of buildings and the refurbishment of the existing housing stock, facilitate the growth of population in the ‘South’ and the supply of labour. (In the ‘North’ improvements to the housing stock also encourage retention of population, particularly the more skilled and educated segments of the population, which in turn may attract inward investment that might otherwise have located in the ‘South’). Much of the literature on the role of housing in supporting regional economic performance focuses on cities rather than regions, (see Meen and Andrew (2004) for a recent analysis) and the urban level of analysis is discussed in Section 5, however the analysis provides useful insights for the two-region model.
- 4.24 An increase in the supply of housing in the ‘South’ as a result of regeneration policies will ease prices in the housing market and increase demand. This will encourage increased net inward migration of the population of working age groups and an increase in the labour supply in the region. The labour supply constraint in the ‘South’ is relaxed and increases in demand can result, either through wage adjustments in the labour market or through expansionary macroeconomic policies. Note that demand for labour in the ‘South’ may also be stimulated by regeneration policies as outlined earlier, thereby complementing regeneration measures in the ‘South’ designed to increase the supply of labour. Whether national GDP is higher depends on whether the additional workforce is more productive in the ‘South’ than in the ‘North’ i.e. whether ‘place’ specific productivity and labour utilisation are higher. If the additional labour in the ‘South’ would otherwise have been underutilised or less productively occupied in the ‘North’ then national GDP and employment will be higher. Higher output and employment in the ‘South’ will also spillover to the ‘North’ (through imports from supplier linkages and expenditure multiplier effects). However, if the net inward migration is from the ‘North’ (rather than from overseas) the population outflow will generate a loss of jobs in that region in non-tradable industries (including the public sector) and a corresponding gain in the ‘South’.
- 4.25 One final issue in the context of the Keynesian approach relates to the tax cost of regeneration policies. If regeneration policies lead to increased national output, employment and income, then given tax prevailing rates and transfers they may be self-financing to the extent that tax receipts increase and public outlays for social benefits fall. This point was initially made by Kaldor (1970) and Moore and Rhodes (1973) in the context of spatially differentiated employment subsidies aimed at reducing persistent regional unemployment disparities.

Summary

4.26 Macroeconomic approaches consider more explicitly the interaction of targeted (local) and macroeconomic (national) policies and allow for permanent deviations from equilibrium

- Cities or regions experience long term differences in the extent of capacity utilisation and productivity
- Due to such differences, national policies aiming at welfare/efficiency gains are often ineffective, as expansionary macroeconomic policy designed to increase capacity utilisation will over-heat the fully employed parts of the economy resulting in departures from target inflation and a reversal of macroeconomic expansionary policy intervention
- This ‘national policy failure’ makes targeted (spatial) policy intervention necessary to correct for existing market failures or other imbalances in the inter-urban system
- Targeted spatial policies however can have nation-wide impacts through their impact on inter-regional trade, factor and knowledge flows. Such impacts may require macroeconomic policy adjustments in combination with spatial policies if both spatial and national policy targets are to be secured
- Regeneration policies which displace economic activity from fully employed areas can, in combination with macroeconomic policy, secure national output and employment gains
- In contrast, regeneration policies focused on under utilised labour and land resources or on the upgrading of housing and physical infrastructure in the full-employment areas may increase national output but the impacts are constrained by the potential inflationary effects of increasing demand in the ‘South’. Nevertheless, simultaneously tackling both infrastructure bottlenecks and supply constraints can overcome such overheating problems and thus secure efficiency gains both locally and nationally.

CHAPTER 5

Optimal city size

Introduction

- 5.1 The question as to whether regeneration policies can improve national economic performance may be addressed by drawing on a substantial body of urban economic theory stretching back to the early 20th Century concerned with the optimal size of cities and the size distribution of the city system. At the heart of this literature is the analysis of the balance between agglomeration forces encouraging concentration of economic activity and the forces of dispersal linked to congestion costs, Henderson (1974), Duranton and Puga (2000). The literature on the optimal size distribution of cities also recognises the interdependence between the role of cities, as reflected in the types of goods and services produced and the sizes of different cities that make up the city system, Dobkins and Ioannides (2000). From the perspective of urban regeneration policy and its role in improving national efficiency, a key issue is whether the urban system as a whole tends towards efficiency in the size, number and function of different cities. Until recently, the urban economics literature did not address directly issues of policy, i.e., the role of local planners and city developers for the formation of cities and the determination of the industrial organisation of urban economies. Although more recently the literature has increasingly directed its focus on such issues, an explicit account of regeneration policies and generally policy intervention at spatial scales smaller than cities (e.g., neighbourhoods) is still totally missing.

What holds a city together? City formation and growth

- 5.2 A common contention in the literature is that (urban) agglomeration enhances productivity, at least up to a point, Sveikauskas, (1975). The first elements of an economic explanation for this phenomenon can be traced back to Adam Smith and his analysis of the benefits of specialisation (division of labour) and thus of exchange (trade). However, the first explicit analysis of agglomeration with reference to an urban context was offered by Marshall (1890), who introduced the notion of agglomeration economies, based on supply-chain linkages (emergence of subsidiary

trades), knowledge spillovers due to proximity (occurrence of technological spillovers), and labour pooling (existence of thick markets for specialized labour). For Marshall it was clear that specialisation as a result of an internal division of labour is one of the main drivers for an improvement in the efficiency and quality of the productive processes, and for the firm's growth (internal economies). However, these improvements could also be secured by geographical concentration of firms and external economies derived from integration among agents. The industrial concentrations would be sustained while these external economies are strong enough to promote competitiveness.

5.3 Reflecting its centrality in the urban economics literature, the issue of agglomeration has been further elaborated and a detailed list of mechanisms that favour concentration of economic activity and enhance the productivity of cities has been developed. Abdell-Rahman (2000), in addressing the issue of the factors that lead to the formation of cities grouped agglomeration forces into two main categories depending on whether they operated on the demand or supply side of the economy. On the supply side the main mechanisms can be summarised as follows:

- **Economies of scale and scope** internal to the firm
 - economies of scale: due to fixed costs of production, large-scale production exerts some productivity advantages and thus favours urban concentration
 - internal economies of scope: due to investment sunk costs, diversified production (of more than one goods) exerts some productivity advantages and thus also favours concentration of different types of economic activity
- **Localisation economies** which are economies of scale at the level of industries and lead to specialised cities. These arise in a variety of ways;
 - from information externalities as a result of interactions between economic agents. Duranton and Puga (2001, 2003) for example, point to the potential importance of different sharing, mechanisms including the sharing of indivisible facilities, risk, knowledge, markets and supply chains. They also discuss mechanisms based on the generation, diffusion and accumulation of knowledge. With any of these mechanisms, learning is not a solitary activity but instead involves interactions with others and many of which are 'face-to-face'. Following Jacobs (1969), these authors have emphasized not only the advantage of cities in the creation of ideas but also their advantages in the acquisition of skills and 'everyday' incremental knowledge.
 - from access to a wide variety of differentiated intermediate goods/services based on the greater specialization that cities can sustain, The larger a sector in a city the greater the range of non-tradeable differentiated services it can support and lowers the unit costs of production of final goods, Duranton and Puga (2000)
 - from labour pooling: which not only improves the quality of matching, reduces search costs and training costs but also increases the productivity of each individual worker. Such externalities can be related to a variety of mechanisms, including human capital accumulation, skill transfers through labour turnover, and direct knowledge spillovers
 - from the greater employment opportunities offered to specialised workers which facilitates matching.
- **Urbanisation economies** are scale economies at the level of the city. They derive from

- a concentration of different sectors in the same location and cross-industry complementarities in production, distribution and consumption
 - cross-product technological externalities
 - the sharing of specialised intermediate inputs
 - economies of scope in production
- dynamic agglomeration economies: these were first discussed extensively by Glaeser et al (1992), and are a reformulation of the traditional agglomeration economies at a dynamic context which attempts to explain the growth of cities:
 - MAR (Marshall-Arrow-Romer) externalities, which relate to knowledge transfers due to the concentration of firms within an industry
 - Jacobs externalities, which relate to similar transfers across industries

5.4 On the **demand side** the main forces supporting agglomeration relate to

- the provision of local public goods: the average cost of providing industrial parks, knowledge networks, public infrastructure, etc. decline with increases in the population of a city, at least up to a specific city size (taking into account commuting costs and congestion diseconomies)
- product variety: here at least two mechanisms can be identified:
 - a wider variety of goods gives rise to increasing utility of individuals and the larger the city the greater the variety of goods and services provided
 - additionally, product variety increases the scope for complementarities in the production of different firms (in different sectors) and the economies that can accrue from sharing similar or related supply and distribution networks

5.5 In short, one of the main reason that cities are formed (and grow) is because of productivity advantages of agglomeration- decentralised production is less efficient than production taking place in concentrations of economic activity. This identification of such externalities as a major mechanism supporting the formation of cities deviates from the literature of the middle of the last century (e.g., the contributions by Losch, Christaller, Smith, and Hotelling), where to the extent that it was present, economic concentration was mainly (if not solely) a result of constraints imposed by transport costs.

What determines the types of cities?

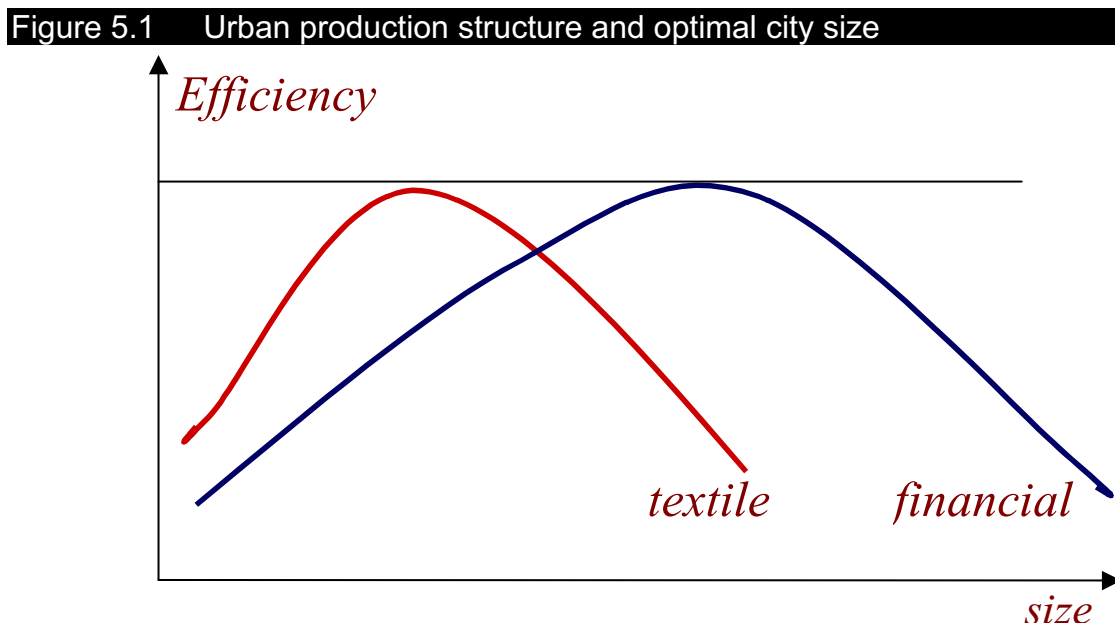
5.6 Regeneration policies either directly or indirectly, frequently seek to support changes in the industrial composition of their jurisdictions and an important issue is that of the balance between the advantages and dis-advantages that flow from specialisation and/or diversification of cities (empirical research although somewhat patchy and inconclusive, finds that diversity tends to favour urban growth and innovation). As indicated above, specialisation emerges as an equilibrium condition when localisation economies dominate, while with urbanisation economies diversification occurs.

- 5.7 Where localisation economies dominate, a system of cities emerges endogenously, with each city specialising and cities trading their output freely (and costlessly) across the urban system. A non-hierarchical system of cities prevails in which city sizes differ because of differences in the importance (or the extent) of agglomeration economies for the production of the output that each city produces, Henderson, (1974),. In this context, city-size differences within a system of cities can be stable although it does not necessarily follow that such a city-size distribution will be optimal.
- 5.8 In contrast, when urbanisation economies dominate, in the absence of any diseconomies, equilibrium leads to a single perfectly diversified city. In this case, the prevailing system of cities is hierarchical, with the larger cities being more diversified and smaller-scale cities tending to be more specialised, Abdel-Rahman, (1990); although, under specific conditions, the opposite – and counterintuitive – pattern can also be obtained – see for example Adbel-Rahman, (1996). Again, the optimality of such a system of cities is not guaranteed automatically, irrespective of whether it represents a stable equilibrium.
- 5.9 Duranton and Puga (2000) reviewing the theoretical and empirical literature relating to the specialisation and diversification of cities, conclude that overall there is a need for both larger specialised cities to co-exist with smaller specialised cities. The larger diversified city has advantages of greater innovative capacity whereas smaller cities may gain from sectors requiring a more specialised environment and business support infrastructure. The latter carries with it the risk of more exposure to risk and less innovation and policy may seek to limit through a degree of diversification. Moreover, as Richardson (1972) pointed out, if cities differ from one another according to the degree and nature of their specialisation, it is to be expected that the optimal/efficient size of cities will also differ.

The optimal / efficient size of cities

- 5.10 The presence of positive economies of agglomeration (externalities), in the absence of any constraints, would imply that optimality requires perfect concentration of economic activity in one city and unlimited gains from further agglomeration / expansion. This result does not obtain in reality due to the presence of a number of costs and congestion diseconomies that are related to the organisation of economic activity in cities. The various models in the literature highlight different sets of such factors that constrain the expansion of cities.
- 5.11 A common constraint identified in the literature is the presence of commuting costs. As cities expand to take advantage of the benefits of concentration, distance from the Central Business District (the spot where economic activity is assumed to be concentrated) for the average worker increases as does the time spent on commuting (and not on productive activity). Cities can expand up to the point where the marginal commuting costs of adding an extra worker to the city's population equal the marginal benefits accruing from enhancing agglomeration within the city. Beyond this point, marginal costs exceed marginal benefits and productivity declines (and thus so does urban efficiency).

- 5.12 Other agglomeration dis-economies arise from interactions between the concentrations of economic activity and the physical and social environment including environmental pollution, noise, depletion of green spaces, possible negative effects on the community through suburbanisation, new forms of social fragmentation and social friction in the labour market, Capello and Camagni (2000).
- 5.13 In the model by Helsley and Strange (1990), firms locate in a city taking into account only their private profits, since they do not internalise any social costs accruing to the city from their location decision. In this model social costs increase as each additional firm locating in the city reduces the thickness of the urban labour market and thus limits the benefits from worker-firm matching for all firms in the city. It can be reasonably assumed that the (positive) matching effect of concentration is greater at lower levels of urban agglomeration, while the (negative) competition effect prevails later on, thus resulting in a concave relationship between productivity and city-size.
- 5.14 The second example is based on the observation that denser labour markets (i.e., larger cities) are characterised by greater wage inequalities Anderson, Burgess and Lane, (2004), as the improved matching brought about by agglomeration ensures that (the earnings of) low-skill workers are further distanced from (those of) high-skill ones (a similar result in a system of cities is derived by Abdel-Rahman and Wang, (1995). Above a threshold, inequalities can be related to reduced aggregate productivity.
- 5.15 The interaction of costs, economies and diseconomies from agglomeration results in an equilibrium city size which, in the absence of market failures, can be characterised as optimal, in the sense that the marginal costs and benefits from agglomeration are equalised. The notion, however, of an optimal city size is rather restrictive and fails to acknowledge the endogeneity of the parameters that determine optimality. Thus, more recently attention has shifted to the 'efficient city size', reflecting two basic realisations. First, internally, the optimal city size depends on factors like the structure of commuting costs e.g. Abdel-Rahman, (2000), the structure of (final and intermediate) product demand, and the elasticity of substitution between differentiated products, Abdel-Rahman, (1988). Second, in a system of cities, optimal city size depends on the nature of transport (trade) costs e.g., Anas and Xiong, (2003), and the types of specialisation and diversification prevailing in the system of cities e.g., Abdel-Rahman and Fujita, (1993). Figure 5.1 illustrates how the efficient city size varies according to its specialisation.

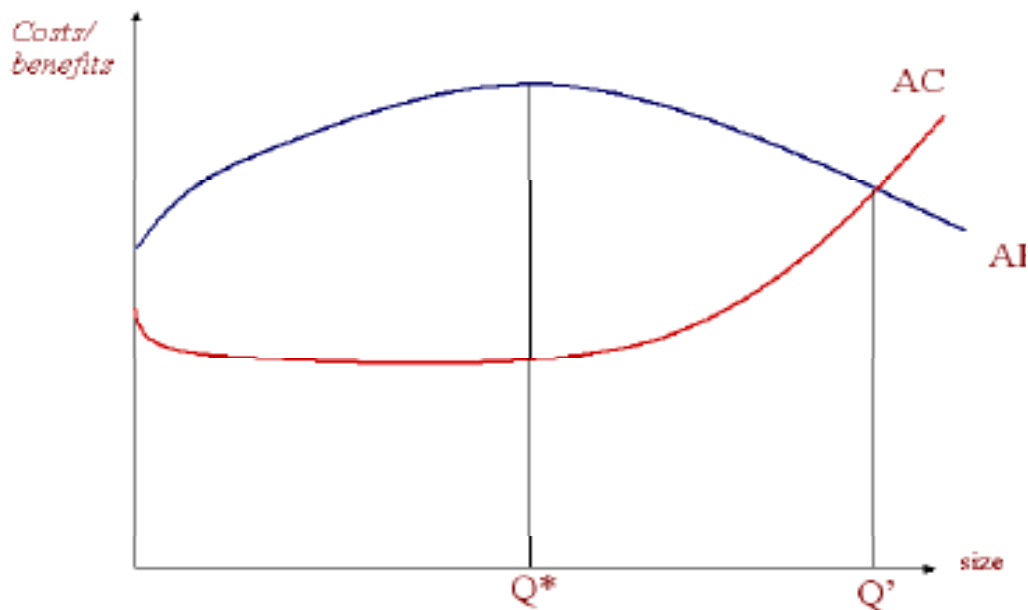


- 5.16 These considerations lead to a functional view of city sizes, where optimal city size is not solely determined by the maximisation of net (economic) agglomeration externalities, but is also conditioned on the functions of the city internally (e.g., higher functions – services) and the role of the city within a (national and international) system of cities (e.g., hub, financial centre, etc). For example, Capello and Camagni (2000), highlight the importance of a city's integration into the wider urban system and inter-urban network externalities. They suggest that the range of efficient city sizes depends on the order of functions served by each city within a network of cities. This rationale is not incompatible with a number of theoretical models in the urban economics literature, which relate the efficient size of cities to their functional role in a system of cities e.g., Abdel-Rahman and Wang, (1995); Henderson, (1997); Duranton and Puga, (2001). That the efficiency of a city and that of the wider city system reflects both the role of the city and its integration into the city system is of obvious relevance to the question of displacement. In the 'network city paradigm' urban size is not tied only to urban function. What also matters is the spatial organisation within which the city operates and its cooperative and competitive relationship with other cities regardless of the distance barrier, Camagni (1993). In particular one must recognise economies that arise from vertical and horizontal integration and network 'externalities, Capello and Camagni (2000).
- 5.17 One of the implications of the above considerations, that efficient city size is a function of the (inter)national position and the functions of the city as well as of the structural parameters of the mechanisms that generate economies and diseconomies of agglomeration, is that policy can influence city size and urban productivity by enhancing / changing these (policy) 'variables'. The next section examines the particular instances of market failure in an urban economy and the role of policy intervention for enhancing productivity in a system of cities.

Market failure and the efficient organisation of economic activity

5.18 The possible presence of market failures implies that an optimal city-size is not automatically guaranteed and thus policy intervention can be welfare-improving. In some models the equilibrium city size is efficient (optimal) in the sense that where firms maximise their profits (and workers their utility) the city achieves its maximum level of efficiency (maximum output). For an example of such a model see Chipman, (1970). In most of the studies, however, the equilibrium achieved is not optimal/efficient. This is for two possible reasons. First, (positive or negative) externalities cannot be internalised by the firms/workers that produce them and thus cities tend to have too many or too few workers or firms (depending on the model assumptions and which of a number of effects dominates). In Figure 5.2 we provide an illustration of a case leading to too large cities. There the AB line measures the individual average benefits and the AC line measures individual average costs. The optimal city size is depicted by Q^* where marginal costs equal marginal benefits and therefore the difference between average benefits and average costs is at its maximum. However, in this case one could argue that the city would keep growing until Q' because a marginal migrant would perceive positive net benefits at all sizes below Q' (where average benefits are higher than average costs), ignoring the negative externalities caused by an additional increase in the city size McCann (2001). Second, equilibrium city size may lead to an inter-urban equilibrium of too few (and thus too large) cities, since each city cannot fully internalise the benefits its production generates for the national economy, Henderson and Abdel-Rahman, (1991); Hochman, (1997).

Figure 5.2 Determination of the optimal city size



5.19 The identification of possible market failures in equilibrium calls for a form of policy intervention, as optimality (in terms of city size but also in terms of efficiency or productivity) cannot be achieved endogenously. Nevertheless, the

various theoretical models in the literature diverge in their prescriptions for the role of policy intervention. For one group of models policy intervention (in the form of direct or indirect subsidies) by a city planner is sufficient to correct for market failure and thus achieve the optimal level of agglomeration. In this vein, Abdel-Rahman (2000) examines externalities related to the provision of public infrastructure; Abdel-Rahman and Fujita (1990) model Marshallian externalities accruing from product variety and monopolistic competition; and Abdel-Rahman and Anas (2004) show the sources of market failure in a model with external labour productivity effects (human capital spillovers or labour pooling / matching). In such models the city planner / land developer can finance his subsidies entirely by appropriating the rents for land that is used by the residents of the city and thus optimality / efficiency can be achieved without redistribution / intervention from a national government. In the literature this is known as the Henry George theorem.

- 5.20 Another group of models derive conditions under which the costs/benefits of agglomeration exceed the potential income of the city planner (i.e., the Henry George theorem fails) and thus the city planner cannot achieve the optimal city size since he is lacking control over disincentives, e.g., taxation. In such cases, intervention by a local or national government is required to achieve optimality in the city economy. For example, Hesley and Strange (1990) present a model where agglomerations derive from labour market matching, which increases with city-size. The local government can influence the number of firms (and thus the efficiency of the urban economy) by subsidising or taxing either firms or workers as a means to attract / or repel them from the city and thus achieve the optimal level of agglomeration. The role of a central planner (national government) is highlighted in the models of Henderson and Abdel-Rahman (1991), who predict welfare-improving effects of a centrally-administered subsidy to firms, and Annas and Xiong (2003), who suggest that a central planner can influence the size and function of cities thus improving the overall efficiency of the urban system.

Concluding notes on the role of policy intervention

- 5.21 The literature of urban economics offers a range of theoretical models that largely support the contention that urban productivity increases with the concentration of economic activity. The source of this productivity advantage is related to the various forms of economies of agglomeration, which can be internal or external to the firm (scale economies), the sector (localisation economies), or the city (urbanisation economies). Agglomeration economies derive from a number of mechanisms, including the provision of public goods and the public good character of some of the inputs in the production process; human interaction, knowledge spillovers and accumulation / diffusion of human capital; and the improved matching between workers and firms. These benefits of agglomeration tend to be exhausted beyond a city size, while concentration costs (commuting and congestion costs) become dominant, thus resulting into a limit to urban growth and consequently to an optimal city size. Optimal city sizes are however conditioned on

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Summary

5.25 City-based approaches emphasise the role of agglomeration economies for the formation of cities and the existence of productivity gains from agglomeration

- Agglomeration economies are created by the sharing of inputs that have a public good character, the generation and transfer of knowledge, the cost-savings generated by improved matching and a wider availability of skills, and the benefits accruing from complementarities in consumption, production and distribution
- The extent of agglomeration is limited by the concavity of agglomeration economies (emergence of diseconomies) and the emergence of congestion costs (mainly commuting costs)
- The interaction of such positive and negative externalities tend to produce an optimal city size, which is different for different functions of the city and for different specialisations
- However, the attainment of an optimal/efficient equilibrium is constrained by the very nature of these externalities, in that – since the costs/benefits of externalities cannot be internalised by the actors that produce them – the equilibrium produced by the maximising behaviour of economic agents is different from the one that would correspond to the social optimum
- The implication of this ‘market failure’ is that policy can enhance welfare in a city by subsidising/taxing agents so as to change their maximisation problem and the corresponding behaviour
- Similarly, the attainment of an optimal/efficient equilibrium across the inter-urban system is constrained by the fact that cities do not internalise the externalities they produce for the system as a whole, with the implication that in equilibrium cities are too few –and too large
- Again, government intervention in the form of inter-city taxes and subsidies can correct for this type of ‘market failure’
- Finally, the elaboration of the mechanics of agglomeration economies and diseconomies provides for an additional role for government intervention by highlighting the areas where policy should focus in order to enhance the benefits accruing from agglomeration economies and reduce the costs of congestion

CHAPTER 6

New economic geography

Introduction

6.1 In this section we look at the potential scope and role for local regeneration policies in the context of the New Economic Geography (NEG)¹. NEG models extend the analysis provided by traditional urban economics, including the literature on optimal city size discussed above, in a number of ways that help to throw light on the three central questions of this report. First, NEG explores the trade-off between transport costs and increasing returns to scale, providing a framework for understanding the formation of different urban systems and the relationship between the cities that make up the city system. Second, the interplay between the forces of concentration and dispersion is explicitly taken into account in the analysis, thereby providing a framework for analysing how policy initiatives might influence the spatial configurations of economic activity. Third, NEG models have been developed to incorporate the relationship between growth and agglomeration which again provides insights into the potential effects of regeneration policies on the spatial distribution of economic activity. Finally, the latest models emphasize the role of innovation and knowledge spillovers in explaining and determining alternative policy outcomes with respect to spatial disparities and national growth rates. We continue with an overview of the main characteristics of the so-called core-periphery model, and then extend the analysis to incorporate growth and local learning spillovers. We then focus on the policy implications emerging from the NEG literature.

The Core-Periphery Model

6.2 The workhorse of the so-called New Economic Geography was first proposed by Krugman (1991) and has been labelled as the Core-Periphery Model. Although recognising the importance of the three sources of externalities originally proposed by Marshall, Krugman in developing the Core-Periphery Model focuses on increasing returns, pecuniary externalities and transport costs .

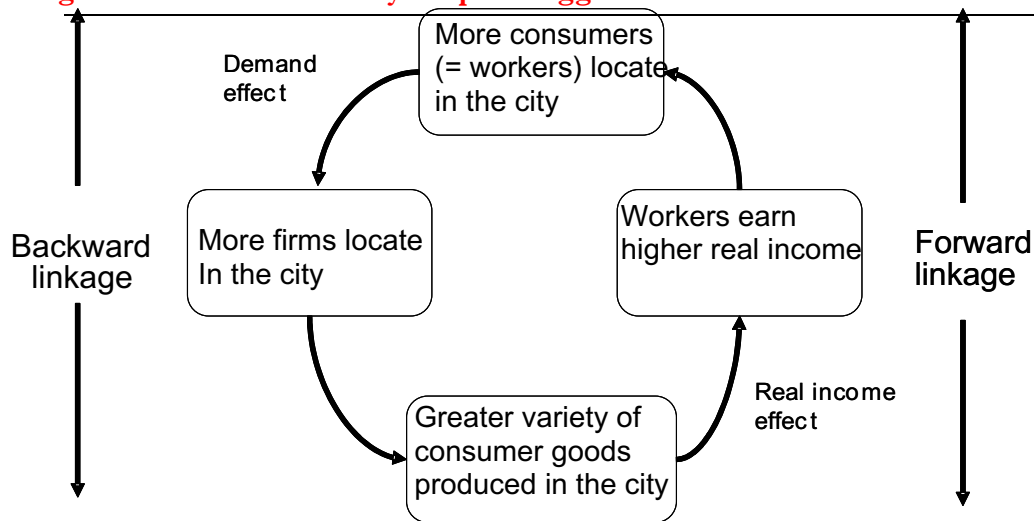
¹ The term NEG will be used to refer to broad family of economic geography models developed since the prototype model of Krugman(1991 and 1992).

- 6.3 The mechanics of the model are driven by three effects: market access, cost of living, and market crowding. As summarised by Baldwin et al (2004), the ‘market access effect’ describes the tendency of monopolistic firms to locate their production in the big market and export to small markets (an exogenous change in the location of demand leads to a more than proportional relocation of industry to the enlarged region); the ‘cost of living effect’ concerns the impact of firms’ location on the local cost of living (goods tend to be cheaper in the region with more industrial firms since consumers in this region will import a narrower range of products and thus avoid more of the trade costs); the ‘market crowding effect’ reflects the fact that imperfectly competitive firms have a tendency to locate in regions with relatively few competitors. The first two effects encourage spatial concentration while the third discourages it. Combining the market-access effect and the cost-of-living effect with interregional migration creates the potential for ‘circular causality’ – also known as ‘cumulative causation’, or ‘backward and forward linkages’, Baldwin et al (2004). The natural question is therefore what determines the relative strength of these forces.
- 6.4 In the core-periphery model, transport costs (or more generally trade costs) is the key variable in balancing centripetal and centrifugal forces. As trade costs decline both dispersion and agglomeration forces diminish (competition from firms in the other region becomes approximately as important as competition from locally based firms and there will be very little difference in prices between the two regions whatever the spatial allocation of production is). However, the formal mechanics of the model produce a complex relation between these forces and trade costs. The dispersion force is stronger than the agglomeration forces when trade costs are very high, but a reduction in trade costs weakens the dispersion force more rapidly than it weakens the agglomeration forces.
- 6.5 As a result at some level of trade costs (‘break point’) the agglomeration forces overpower the dispersion force and self-reinforcing migration ends up shifting all industry to one region (catastrophic agglomeration). On the other hand, when trade costs are very low and the economy features catastrophic agglomeration, increases in trade costs up to a threshold level (sustain point) will not change the geography. Beyond this threshold level, increases in trade costs will generate dispersion forces stronger than agglomeration forces and thus will motivate migration from the core to the periphery and generate a symmetric distribution of industry. Because the relationship between transport costs and agglomeration forces and the relationship between transport costs and dispersion forces are of different intensity, break and sustain points don’t coincide. As a result, for transport costs lower than the sustain point the model includes multiple possible stable equilibria.
- 6.6 The mechanics of the core-periphery model produce a distinctive structure with some additional key features. First, agglomeration forces are self-reinforcing. A circular or cumulative causality can be generated in cycles attached to changes in demand or costs. Second, the model embeds an endogenous asymmetry. A progressive lowering of trade costs between two initially symmetric regions eventually produces regional asymmetries. Third, for the range of trade costs associated with multiple equilibria (lower than the sustain point) the model features locational hysteresis. In other words in such situations history matters and path-dependency might occur. Baldwin et al (2004) note that such a feature has important implications for policy analysis clarifying its impact: ‘If a temporary shock, say a temporary production subsidy in one region, moved the economy from one stable equilibrium to another, then the removal of the shock would not lead to a reversal of the effects of the shock’.

6.7 From the perspective of the efficiency of regeneration policies it is pertinent to focus attention on the role of labour migration in the core-periphery model. In Krugman (1991) for example, increases in labour demand and wages and better access to a wider range of goods in the expanding area encourage inward migration of labour from the other region which in turn attracts more firms. This cumulative causation mechanism ultimately leads to a differentiation of the two regions, one of which becomes an 'industrialised core' the other 'peripheral'. With low labour mobility this cumulative causation process is constrained with potentially damaging consequences for overall national efficiency. In these circumstances regeneration policies may be used to remove the constraints on migration of labour and firms.

6.8 The Core-periphery model has been celebrated for providing several insights about the geography of economic activities through behavioural and formalised models. However, it has important limitations as well. First, there is no room for examining the role of macroeconomic policies for regional and urban configurations (see above). Second, the results are very much driven by some specific technical features of the model (functional forms and parameter values), which rely on numerical simulations due to limited analytical tractability, Baldwin et al (2004). Third, the approach leaves out technological externalities and non-market interactions, which by many authors are the most interesting elements underpinning the reality of urban areas and also very relevant for policy initiatives, as stated by Glaeser (1999) and Krugman (1991) shows that a brilliant theorist can explain cities without non-market interactions.... The flow of ideas and values that occurs through face-to-face interaction may be the most interesting feature of cities'.

Figure 3. Circular causality in spatial agglomeration of firms and workers



Source: Fujita, M. and Thisse, J-F, in *Economies of Cities*, 2000, Eds. Huriot, J-M, & Thisse, J-F.

Agglomeration and Growth

- 6.9 As mentioned above, by introducing externalities associated with knowledge accumulation, it is possible to merge spatial models with growth models, Baldwin and Martin (2003) and Baldwin et al (2004). Moreover, these models allow us to analyse the impact of a range of policy initiatives relevant for this review. In this section we first list a number of insights provided by these models as summarised by Baldwin and Martin (2003) and then focus on a particular model of local spillovers proposed by Baldwin et al (2004) which support the discussion of the final two policy sections.
- 6.10 We start with an important policy implication. When focused on trade or transport costs for goods, geography and growth models point to the existence of a possible spatial equity-efficiency trade-off. However, the matter is more subtle and perhaps more ambiguous than the standard win-lose situation resulting from the agglomeration process in static geography models. This kind of dynamic model of growth and geography suggest that the emergence of regional imbalances, due to continual lowering of trade costs, is accompanied by faster growth in all regions and therefore generates a tension between static losses (relocation of economic activity) and dynamic gains (faster growth) in the periphery. However, economic integration has a much richer meaning in geography and growth models. These models show that there are crucial differences in the impacts of policies reducing the costs of moving capital or goods across borders (physical inputs mobility) and policies reducing costs of moving ideas across borders (learning spillovers). In particular, innovation policies can mitigate or extenuate the de-stabilising aspects of freer trade.
- 6.11 Second, in some models, growth affects geography by creating a growth-linked circular causality; forces that foster the location of industry in a region also foster investment. Moreover, the agglomeration process in these models operates by creating growth poles and growth sinks – ‘firms want to be in the growing region, people want to invest in that region since it is growing and this investment in turn makes the region grow faster’, Baldwin and Martin (2003).
- 6.12 With respect to knowledge spillovers Baldwin et al (2004) propose two different models: one with global spillovers and another with local spillovers. In the global spillovers model, growth can impact geography as discussed above but geography is not relevant for growth because the transmission of knowledge in innovation is unaffected by distance. The north and the south learn equally from an innovation made in either region. This eliminates the importance of proximity and face-to-face interactions for the transmission of knowledge. This model is interesting but of limited usage for our purposes here. Therefore we concentrate in the local spillovers model that assumes that some frictional barrier reduces the diffusion of public knowledge to distant innovators and therefore re-establishes the role of proximity in knowledge diffusion.
- 6.13 In the local spillovers model endogenous growth and knowledge accumulation is an agglomeration force (the region with a head start in innovating finds that it accumulates innovation experience faster than the other region; this lowers the replacement cost of capital faster, which in turn attracts more resources to innovation in the fast-accumulating region. However, knowledge spillovers constitute a dispersion force and as spillovers become less localised the growth-linked agglomeration force becomes weaker. The combination of these two forces generates a new tension related to the integration of poor and rich regions. In other words in the local spillovers model integration can be stabilizing or destabilizing

whereas in the core-periphery model integration is always destabilizing (economic integration eventually ends up creating extreme divergence between initially symmetric regions, i.e., integration always fosters agglomeration). As Baldwin et al (2004) summarise ‘a purely trade cost reducing integration policy encourages agglomeration and eventually results in extreme agglomeration. By contrast, a policy that lowers the cost of transporting both goods and public knowledge may avoid extreme agglomeration’.

- 6.14 Another important feature of the local spillovers model is that economic geography can affect the growth rate. Assuming a constant intensity of learning spillovers, the cost of innovation decreases substantially (innovation costs decrease with the size of the local economy) when the economy moves from a symmetric to a core-periphery pattern. Therefore, by triggering agglomeration, trade integration raises the economy to a higher growth path (‘growth take-off’). The higher growth path applies to the whole economy not only to the core region due to the low cost innovation that spills over the periphery.

Policy implications

- 6.15 The first set of policy implications has to do with threshold effects, discontinuities and hysteresis. If the economy features a core-periphery pattern with the industry concentrated in one place, agglomeration rents produce inertia that makes small policy interventions ineffective. However, when the policy is strong enough to more than compensate for agglomeration rents, firms and factors find it unattractive to remain concentrated and start to relocate. In turn, the initial relocation of economic activity reduces the agglomeration even further, generating a circular cycle that eventually produces a massive geographical shift of industry. Such ‘catastrophic’ changes are the outcome of the inherent non-linearities of the NEG models. As a result the impact of policy initiatives is also non-linear. This has a strong implication, in that past experience and previous policy outcomes will serve as poor guides for future policy design. Identifying thresholds (break and sustain points) must be carried out recognising endemic non-linearities and assessing the present characteristics of the economic geography rather than relying on estimates based on historical data.
- 6.16 A second important message derived from the class of NEG models reviewed here is that policy makers must pay attention to the degree of trade or transport costs when designing initiatives that apparently have little connection with economic openness. The existence of complex interactions between agglomeration and dispersion forces associated with different levels of trade (or transport) openness implies that any policy impacting local economies, such as various tax, subsidy, infrastructure, trade, and R&D policies, must take these interactions into account rather than assume that they operate as a stand-alone intervention.
- 6.17 Finally, policy makers must recognise that depending on the degree of openness of the economy (in terms of transport costs of goods, people and ideas), the economic geography might present multiple spatial equilibria. Therefore an important task for policy design is to find ways for interventions to select which equilibrium will be established by each type of intervention.

- 6.18 We now discuss the impact of several infrastructure policies implied by the local spillovers model as presented by Baldwin et al (2004). The local spillovers model has two regions north and south (here the affluent region) and includes inter-regional and intra-regional trade costs. These costs are interpreted as directly related to the quality of infrastructures. In addition, local innovations are the source of growth. 'Because learning spillovers are partially localized, the average productivity of the north's and the south's innovation sectors depends on the spatial allocation of industry', Baldwin et al (2004).
- 6.19 An important message of the analysis is that the presence of localized positive technology spillovers implies that, on the one side, a trade-off exists between spatial efficiency and equity when infrastructure policies reduce transport costs (either between or inside regions). On the other, however, public policies that facilitate the interregional diffusion of technology spillovers have different implications and do not face this trade-off. In addition the authors extend the discussion to include the effects of congestion costs. They show that, in the presence of congestion costs, policies that improve infrastructure in the poor region can improve growth nationally and reduce inequality. Again, however, policies that facilitate the inter-regional diffusion of technology spillovers are better. As usual an additional result is the existence of multiple equilibria when capital mobility is assumed: a "good" equilibrium with high growth and low spatial concentration and a "bad" equilibrium with low growth and high spatial concentration (Baldwin et al 2004, chap 17). In what follows we summarize the impact of different policy initiatives.
- 6.20 A first group of policies is the one aiming to improve the quality of infrastructure. We first summarise the results assuming that there are no congestion costs. A typical policy is the one that improves local infrastructure in the poor region (this can take the form of transport infrastructure, provision of office space or housing). The first impact is a reduction in transaction costs within the poor region. The reduction in transaction costs in turn causes an increase in effective demand. Again, given increasing returns to scale, this provides incentives for firms to relocate to the poor region bringing about an increase in the cost of innovation and thus reducing the growth rate of innovation.
- 6.21 An additional effect, less conducive to growth and innovation, is a reduction in the degree of competition as the more symmetric geography produces higher monopoly profits to the benefit of capital owners in both regions. As capital owners are more numerous in the south, inter-regional inequality also increases. Higher monopolistic profits also contribute to another form of inequality, namely the relative income gap between capital owners and wage earners (the relative value of capital) increases in both regions. Baldwin et al emphasize the importance of this point for policy targeting: 'In policy discussions, it is often assumed that reducing regional inequalities through regional policies that induce firms to relocate in the poor regions reduces inequalities in a larger sense. However, it is important to identify those inequalities that are targeted. Here reducing regional inequalities leads to an increase in another type of inequality, this time among economic agents. Hence, not only do regional policies face a trade-off between equity and efficiency, they also face a trade-off between reducing spatial inequalities and reducing inter-individual inequalities.' (p.432)
- 6.22 Another possibility would be investments directed toward the reduction of transaction costs between the regions, i.e., improvements in the inter-regional infrastructure. As long as the south has a larger market size or better domestic infrastructures this improvement will contribute to the attractiveness of the south. As one could expect the result is the opposite of the one produced by investments in

intra-regional infrastructures (in the north). Restated this policy would be likely to produce the typical New Economic Geography result where lower transport costs increase regional agglomeration. In addition, in the presence of local learning spillovers the higher concentration of economic activity would also increase the innovation rates and consequently growth in the whole economy.

- 6.23 Still assuming that there are no congestion costs, we can examine the impact of policies favouring technology spillovers. Here we are thinking of initiatives such as improvements in telecommunication infrastructures or policies directly targeting the formation of human capital, thus facilitating trade in ideas rather than trade in goods. In this case the equilibrium growth rate increases as the cost of innovation decreases. Moreover, new firms enter the market, with the effect of reducing the monopolistic power of existing firms and the income of capital owners. This reduces the income differential between north and south as well as between workers and capital owners inside each region, and leads to firms' relocation to the north. The relocation of firms to the north in turn puts pressure on innovation costs as mentioned above. Baldwin et al (2004) show however 'that the exogenous decrease in the cost of innovation more than compensates the endogenous decrease in spatial concentration so that the net effect is an increase in the growth rate' (p.433).
- 6.24 As mentioned above this policy result is a very important outcome of the local spillovers model. The idea is that any policy that reduces the cost of innovation could attain both the objectives of higher growth and more equity, avoiding the trade-off between static losses and dynamic gains. The authors emphasize that with more innovation and more learning spillovers not only economic activities relocate to the north but also new firms and new activities are generated 'without any of the local bias that regional policies usually have' (p. 434).
- 6.25 We now focus on policies in the presence of congestion costs. The basic idea is that despite the presence of internal increasing returns, the agglomeration process, if pushed too far, can also be detrimental to growth. There are two effects in the model that simultaneously generate the possible equilibria. First, growth increases with spatial economic concentration at low levels of concentration but then decreases at high levels of concentration, describing a quadratic relation. Second, an increase in growth decreases monopolistic profits (market-crowding or "competition" effect) and the income of capital owners who are more numerous in the south. The authors explore four typical situations, which depend on the value of parameters representing levels of inter-regional transaction costs. Nevertheless, the basic result is that in the presence of congestion costs, better infrastructure that lowers transaction costs between regions may put the economy in an equilibrium with low growth, high spatial concentration and high regional income inequality.
- 6.26 The fact that lowering inter-regional transaction costs, and therefore facilitating agglomeration, in the presence of congestion effects leads to sub-optimal spatial concentration, even in the presence of increasing returns sectors, has an important policy implication. It can suggest that policies that aim to help poor regions to attract economic activities and more generally lead to a decrease of the spatial concentration of economic activities in a few core regions can be beneficial in aggregate terms. It also puts forward for consideration that it is important to identify the market failures (here localized technological spillovers and congestion costs) and to act directly at the source of those market failures rather than further lowering transport costs on goods, which can magnify the effects of these market failures. This implies again that public policies that foster the diffusion of technology spillovers and diminish congestion costs are first best.

6.27 A final comment on policy implications must be added to recall the particular effects of this class of models, namely the presence of thresholds and non-linearities. Therefore we need to qualify the likely effects of all policy initiatives considered above. In the presence of agglomeration effects, infrastructure projects will have non-linear effects as any other exogenous shock impacting the variables in these models. That means that an improvement of infrastructures may have no effect until a threshold is reached.

Summary

6.28 New Economic Geography approaches emphasise more the role of transport (trade) costs, while also considering the impact of increasing returns and externalities/spillovers

- The interaction of trade costs and agglomeration economies produces a complex set of possible outcomes (multiple equilibria) with variable degrees of concentration and inter-urban inequalities
- In one genre of models ('core-periphery'), government intervention that lowers transaction costs (e.g., by improving inter-urban infrastructure) leads to productivity/efficiency gains but increases inequality, due to its positive impact on agglomeration
- In another genre ('dynamic local spillovers'), the effects of government integration can go either way: fostering agglomeration with provision of physical infrastructure or fostering dispersion with enhancing knowledge spillovers; in both cases however government enhances the efficiency of the economy
- Given the nature of the models, in the absence of agglomeration diseconomies, provision of infrastructure in areas of low agglomeration is counter-productive as it displaces economic activity from the more productive areas; however, in the presence of congestion costs policy intervention in lagging areas can enhance the efficiency of the whole system while simultaneously reducing inter-urban inequalities
- In all cases, the effects of policy intervention are not linear: due to the asymmetric nature of agglomeration economies and diseconomies (the difference between the 'break' and 'sustain' points) the geography of economic activity exhibits strong patterns of persistence and hysteresis and thus policy intervention may be ineffective until a threshold of infrastructure provision, sufficient for disturbing the inter-urban equilibrium, is reached.

CHAPTER 7

Synthesis

Summary / overview

- 7.1 The aim of this study was to review a number of theoretical approaches related to the spatial organisation of economic activity, with a view to addressing the impact, at a national scale, of locally-focused regeneration policies. As stated in paragraph 1.2 of the introduction, the research has sought to answer three key questions about whether, even if it is not their primary purpose, regeneration projects can lead to net national job creation or productivity enhancements. Thus, the focus has been on whether and under what conditions such policies can lead to net national welfare gains, net of any displacement and crowding-out effects. It is taken for granted that (unless the policy fails to achieve its primary aim) there will be redistributive impacts.
- 7.2 Regeneration projects will, inevitably, be implemented in diverse circumstances that will have varying national consequences. In most cases, it is a plausible initial assumption that the rationale for the project is to address local market failure and/or equitable objectives and that any national impact of the policy is not a primary aim. However, this does not mean that national effects can be excluded. The question, then, is what the nature of the national effect is and what will affect its magnitude.
- 7.3 For some projects, the national effect may well be negative, if only because the activity supported by the regeneration project displaces more productive economic activity in another location. It could do so directly, by inducing economic activity to relocate to the supported area, even though the underlying supply-side conditions are more competitive in the original location. Spatial policies which 'distort' the market in this way have long been criticised, although there are often good mitigating reasons – such as breaking a cycle of decline - that have been extensively discussed in the literature for going ahead with the policy, quite apart from equity considerations. Negative national outcomes can also arise indirectly insofar as the cost of the regeneration project places a burden on the public purse: either taxes have to be higher or some other public spending has to be foregone. This crowding out effect may be negative if it switches resources from more to less productive activities.
- 7.4 For other regeneration projects, the circumstances may be such that the economic activity it induces adds to national output. This would manifestly be the case where any displacement is less than 100% or where there is some payback for the public finances, and in both these cases, the prospect of national gains ought to be unambiguous. National gains may, however, also arise where, even though displacement is total, the relocated activity achieves higher rather than lower

productivity. In chapters 5 and 6 of this report, the discussions of agglomeration and optimal city size point to configurations of the geography of production that *ceteris paribus* will facilitate higher output from a given set of inputs. Clearly, if regeneration projects shift the national economy towards such configurations, they will tend to lead to national gains.

- 7.5 The whole gamut of 3Rs projects is bound to contain a distribution ranging from those with pronounced negative national effects to those that offer substantial national gains, but with the likelihood that most of the projects will be clustered around a mean. Without conducting detailed empirical work it is impossible to predict what the shape of the distribution will be, although intuitively one might expect that there will be relatively few projects with significant negative effects, whereas a bigger spread of positive effects is plausible, not least because some projects will displace activity from abroad and nearly all the gains that accrue to the country will be net additional. The critical question, though, is what the mean of the distribution is. If there are statistically telling numbers of projects which engender less than 100% displacement, the mean value should be positive and the inference to draw would be that an ‘average’ regeneration project should lead to national gains. The conceptual analysis suggests that a positive mean is, indeed, to be expected.
- 7.6 Much of the analysis in the preceding chapters of this report has highlighted conditions under which 3Rs projects will lead to gains, first, at the level of the locality in which they take place. But the reasoning also points to conditions under which national gains can be envisaged. From a policy perspective, there will always be projects that remain valid purely for equity reasons, but attention can also focus on those which have national gain potential by highlighting the parameters (for example, offering the prospect of realising agglomeration economies) that make it more likely that such national gains will be achieved. The policy issue could then become how, in selecting regeneration projects, to reinforce the potential for national gains while also supporting equity objectives.
- 7.7 It should be clear that a full evaluation of the real effects of a regeneration policy can only be conducted when the whole set of parameters affecting local and national equilibria is known (or can be reasonably estimated). Consequently, clear-cut predictions cannot necessarily be made *a priori* about the effectiveness and desirability of such policies in each particular case. The conclusions drawn from this study are thus tentative and relate to the potential net gains from regeneration initiatives. Further, because the focus is on how regeneration deals with market failure, we do not question the efficiency of policy intervention and thus assume that there is no government failure. If, in reality, such government failures are frequent or sizeable, the potential national gains from intervention would be diminished or, conceivably, even negated if the government failure exceeded the market failure it was intended to correct. Thus, identifying a potential net national gain from policy intervention should by no means be taken to suggest that government intervention will always be beneficial and free of distortions.
- 7.8 We believe that the answers this study provides to the policy question it addresses is somewhat intuitive: policy interventions that have net positive local effects may also have positive national effects, provided that the policy is designed and implemented efficiently and that is appropriately targeted.
- 7.9 With these caveats in mind, we first made the case that ‘place’ is an important element in any assessment of competitiveness and productivity, with the corollary that it is important to consider how policy measures can boost productive potential. As the extensive work on endogenous growth has shown at the national level, there are attributes of economies that foster or deter growth. We argue that this notion

applies equally at the more disaggregated levels at which regeneration policies are, typically, implemented and that the impact of policy intervention on land and property, especially, can alter the growth potential of a local economy without necessarily detracting from the productivity of other localities.

- 7.10 We then reviewed three main strands of theory, relating to
- (i) the macroeconomic literature on regional / spatial policies and development;
 - (ii) urban economics and optimal city sizes; and
 - (iii) new economic geography.
- 7.11 Macroeconomic approaches emphasise the limitations to regional and local development imposed by macroeconomic / nation-wide policies and objectives, highlighting the role of area-based policies in tackling problems of under-development in areas of particular characteristics (including locational characteristics). Implicitly or explicitly, such approaches assume the presence of disequilibrium, in the sense that the market fails to distribute activity efficiently across space. As a consequence, factors of production may not be fully employed, resulting in a lower aggregate level of output than could be attained if all available resources were activated.
- 7.12 It is important to stress that the concept of under-employment applies not just to labour, but also to land and other factors of production. We argue that the concept of an employment rate, familiar from labour market analysis, can also be used to analyse land, property and other markets. The notion of hysteresis – that detachment from the labour market undermines the productive potential of an individual as skills erode - can also be adapted for analysing property markets. Area-based (regeneration) policies have a dual role of correcting for market failures in the spatial allocation of economic activity and enhancing overall employment rates, as well as productivity.
- 7.13 The two other approaches are largely based on variations of microeconomic neoclassical models and thus assume that equilibrium is obtained both locally and nationally. In these models the role of agglomeration economies in creating cumulative advantage, is offset by diseconomies of transport and transaction costs which are emphasised as potential sources of market failure that lead to sub-optimal local and spatial equilibria. While the concepts are similar in the two approaches, it is important to note that in the discussion of the optimal city size, the discourse is primarily about the individual city and whether, or how, regeneration can improve its position. In new economic geography, by contrast, the issue analysed is how economic activity is shared between localities, so that it is explicitly concerned with shifts in the geography of economic activity.
- 7.14 The literature on optimal city sizes focuses on agglomeration forces and identifies particular instances where the externalities (social costs and benefits) produced due to concentration of economic activity are not fully internalised by the market, thus providing a role for government intervention to increase economic efficiency. Although in most of the cases intervention by local actors (city planner or local government) is sufficient to bring the urban economy to a higher (efficient) equilibrium, conditions are identified under which nation-wide coordination of area-based interventions is necessary in order for an efficient (optimal) equilibrium to be achieved across a system of cities (national economy).
- 7.15 The models developed in the new economic geography literature accept the central role of agglomeration economies, but emphasise further the importance of trade / transport costs for the determination of a spatial equilibrium, thus allowing for permanent (but optimal) differences in productivity and incomes across cities.

The main tentative prescriptions of these models are that concentration / agglomeration should be encouraged (discouraged) when congestion costs are relatively low (high), as this increases the productivity of the most efficient parts of the economy. However, a particular area where policy would improve efficiency by always favouring agglomeration is the area of knowledge and innovation, as this diffuses costlessly over space and it enhances efficiency across the national economy.

7.16 As mentioned earlier, most of the microeconomic theoretical models reviewed in this study do not address directly the impact of regeneration policies at any level (local, city, regional, national). In the following sections we present a number of ‘thought experiments’ – conceptual exercises that try to tease out the critical influences and effects - to help identify the social, economic, and policy parameters that are of relevance for the evaluation of regeneration policies according to models considered here. Throughout, we try to identify when an effect is expected to be positive or negative for the national economy.

Housing policies

(i) Increasing the housing stock

7.17 The rationale for regeneration policies that target new homes is the observation / assumption that constraints in housing supply create bottlenecks in the supply of labour and, by generating house-price inflation, have an adverse effect, especially on the availability of workers with key skills. Much of the theoretical literature in urban economics has only limited direct relevance to such problems, mainly because its standard assumptions include perfect factor mobility and constant intensity of land-use. Interpreting the literature more freely, however, the following suggestions can be made:

- increasing housing supply in a city of optimal/efficient size is more likely to generate distortions, at least at the city level (if not also at the national level)
- however, if agglomeration economies are not fully exploited at the city level (i.e., cities are too small in equilibrium), then regeneration policies of this sort will help increase the efficiency of both the urban economy and the inter-urban system
- these positive effects will be limited by the amount of congestion which will be generated by a higher concentration of resident population and thus will work better when designed in conjunction with other, most notably transport, policies.

(ii) Improving the quality of the private sector housing stock

7.18 The effects of improvements in the quality of private sector housing are more difficult to gauge conceptually. Quality improvements may alter the socio-economic composition of the resident population, leading to a skills upgrading of the city's workforce (assuming that quality improvements are translated into higher prices and, as a result, poorer households are bid-out by more wealthy ones). This can have beneficial effects on the productivity of the urban economy. However, if lower skilled workers move into social housing as a result of the house price increases this will have a negative impact on both the public sector costs and on overall output (assuming that private sector housing leads to some efficiency gains). It is also possible, however, that it will lead to distortions in the occupational composition of labour supply and could thus restrict economic expansion (if cross-occupations complementarities are important – i.e., if product-variety or inter-industry linkages are the main sources of agglomeration economies). It may also have negative repercussions for other localities, especially if the improved housing quality attracts highly-skilled workers from other cities, reducing the efficiency of neighbouring urban economies.

7.19 If lower skilled workers are displaced to other locations as a consequence of house price increases in the locality where housing quality and house prices increase, this may have negative impacts via external diseconomies associated with increased commuting and increasing concentrations of lower skilled workers in social housing in the locality of destination. Increased commuting may arise if displaced workers have to increase their journey to work time/distance in order to retain their job following a change of residence. This will reduce the welfare of the commuting cohort if the increased commuting costs are not offset by lower housing costs. Insofar as increased commuting costs reduces the competitive position of displaced workers in the labour market in which housing quality improves (possibly because it reduces information of local job opportunities), their jobs or jobs they might otherwise have successfully bid for may, sooner or later, be taken by unemployed/inactive lower skilled workers in this area. This will reduce unemployment and potentially raise activity rates, although wage costs for lower skilled workers may also be bid up as excess supply in the local labour market is reduced. If the productivity of displaced workers and those that potentially take their jobs is equal there will be no loss to overall GDP associated with this labour market change. If however the productivity of the former exceeds that of the latter, then necessarily productivity losses will occur and must be set against productivity gains associated with increased concentrations of more skilled workers living in the area. GDP and productivity may also be impacted in those areas where displaced lower skilled workers choose to relocate. If their productivity exceeds that of existing workers they may eventually secure their jobs and they may also secure jobs which may otherwise have gone to less productive unemployed or inactive lower skilled workers.

7.20 Overall, the greatest potential for national gain will arise in one of two ways. The first is whether the regeneration project restores or creates housing that would otherwise have been under- (or un-)used or left at a standard that deterred rather than attracted residents. Second, national gains can be envisaged if the consequence of housing changes is to increase the efficiency of matching of individuals to jobs in the labour market. This would be a means of lowering the NAIRU.

Environmental and transport policies

(i) Improving the quality of the built environment

7.21 The effects of quality improvements in the built environment (including schooling and health-care facilities – local amenities) are analytically broadly the same as those arising from improved housing quality. The main market mechanism in operation is, again, the **bidding-out** of less-skilled workers and thus a bias in the occupational composition of the workforce / labour supply. However, quality improvements of this sort can also lead to pure efficiency gains (e.g. fewer hours of work lost due to sickness induced by an unhealthy environment) and thus have a positive impact on the city's productivity, possibly also shifting upwards and to the right of the city's efficiency curve (see Figure 5.1).

(ii) Improving transport facilities locally

7.22 Improvements in the transport infrastructure can have significant positive effects. Such improvements can lower the cost of commuting and thus increase the optimal/efficient size of a city. This will push the 'efficiency curve' upwards and to the right, thus resulting in simultaneous increases in the size and the productivity of a city. (This assumes that land-use restrictions in the outskirts of the city do not constrain entirely urban sprawl and also that the elasticity of immigration to transport improvements is less than unity.) However, it is possible that congestion costs act so as to keep a large city within a manageable size and thus result in a close-to-optimal distribution of city-sizes across the national economy. In such a case, improvements in transport facilities might – almost counter-intuitively - distort an existing inter-urban equilibrium, with a negative effect on the optimality of the national allocation of resources. This is most likely to be the case if cities across the national economy are reasonably diversified (urbanisation economies prevail) and trade costs between cities (including inter-city transport costs) are sufficiently large.

(iii) Improving transport facilities nationally

7.23 Improvements in the inter-city transport infrastructure can lead to important changes in the distribution and concentration of economic activity, although threshold effects are clearly important here. Lowering transport costs and facilitating inter-city trade and factor mobility will enhance efficiency nationally (lowering transaction costs) but can lead to a skewed distribution of activity in large cities and

thus lower the extent to which agglomeration economies are exploited in smaller urban concentrations. This will have a more adverse impact the greater are the negative externalities of concentration (i.e., when cities are too large / too few in equilibrium – see paragraph 5.6.1).

Industrial location policies

7.24 Regeneration policies can be expected to affect different sectors of the economy in different way, even though their purpose may not necessarily be to target a specific sector.

(i) Policies that encourage service-sector activities (e.g., office floor-space)

7.25 Certain policies will encourage the concentration of service sector activities and, to the extent that there is a deliberate attempt to steer economic development in this way, the policy recipe has to consider three factors:

- the extent of agglomeration and the role of localisation v localisation economies;
- the functional role / specialisation of the city nationally and internationally; and
- the relative specialisations and concentrations in similar / neighbouring cities. In particular, such regeneration policies
 - should target areas where bottlenecks are identifiable in the provision of such services (financial and other business services) due to land-use restrictions and where the expansion of the service sector is less likely to generate bottlenecks in the provision of complementary (e.g., personal) services
 - should be applied in areas which serve a wider (national or international) market, so that the benefits accruing from further localisation can exceed the costs associated with further urbanisation
 - should consider the wider implications within a system of cities, by judging how the activities which are going to be supported are best delivered: through concentrated production, through inter-city linkages, or through localised production

(ii) Policies targeting manufacturing employment (e.g., industrial parks)

7.26 Similar considerations apply in this case. Here, however, the possible implications of concentration for the structure of transport costs and congestion

diseconomies must also be considered. A sector-specific evaluation of the conditions regarding agglomeration economies (both localisation and urbanisation externalities) will help identify the sectors that are mostly in need of support (for concentration or diversification) and thus the locations (cities) where interventions should take place. For example, if it is considered that car manufacturing can benefit nationally from further agglomeration based on urbanisation economies, then policies should probably target areas close to traditional locations of such production activity, but also those where complementary activities and relevant skills are located.

(iii) Policies to encourage firm relocation (inward investment)

7.27 Concerning foreign inward investment, a policy that seeks to maximise national gains should favour high-productivity sectors that can generate complementarities for locally produced goods and services and wider knowledge and productivity spillovers. Insofar as inward investors seek dynamic characteristics in potential locations, policy should seek to provide initiatives that generate / maximise Jacobs externalities (dynamic urbanisation economies), so as to create the least displacement with the maximum spillover effects. For the relocation of domestic firms, policy should identify the areas of economic activity where transport costs and specific market failures (non-internalisation of social costs and benefits) constrain the efficient distribution and size of production at a nation-wide scale; and provide initiatives in the cities best-equipped to exploit economies of agglomeration. Simply encouraging further concentration, especially where the market already achieves an efficient equilibrium, risks creating distortions locally and nationally that diminish, rather than raise national welfare.

Innovation and knowledge transfer policies

(i) Education policies (schooling and training)

7.28 The accumulation and diffusion of knowledge is recognised to be an important determinant of productivity growth at both the local and national scales. National policies that target schooling and skills upgrading (retraining) have almost unambiguous positive effects. However, the concentration of such policies in specific areas can distort the inter-city equilibrium, with detrimental welfare effects if the

latter is considered efficient. Thus, such policies need to ensure that they will not result in an over-concentration of resources in a city, which would have similar effects to those identified in section 7.2 above. If the education and training provision in an area (within a city or labour market) is considered poor (against national standards), policy intervention would be not only socially desirable, but should also engender national gains, though with the caveat that the skills/education needs of the wider labour market / city economy need to be carefully evaluated. If the urban equilibrium is considered efficient, then policy intervention in the under-performing city-area must be combined with other interventions that will help increase the optimal size for the city and reduce the congestion diseconomies generated at this scale.

(ii) Policies to encourage technological innovations

- 7.29 Technological innovations can be transmitted through space rapidly and at negligible cost, so that their potential distortionary effects are minimal. The production of innovations tends to be favoured by concentration or clustering, as well as by horizontal linkages between production units (firms) and research centres (universities). The potential contribution of regeneration projects in enhancing innovation can come from enhancing such linkages and facilitating their geographical clustering.
- 7.30 The diffusion of innovation (e.g., adoption of new technologies) is not constrained by space and does not require significant clustering, while it has the effect of shifting the efficiency curve (of a city or the national economy) upwards and to the right. Thus, while favouring clustering, policy should seek to strengthen spillover mechanisms, notably by improving the inter-city network connecting the innovation clusters with other urban areas and reducing the costs of such knowledge transfers. Otherwise clustering can distort the inter-city equilibrium and the economies / positive externalities produced can be exhausted rather fast.

(iii) Policies targeting knowledge transfers (including human capital mobility)

- 7.31 The above considerations highlight the positive role that is played by accelerating knowledge transfers across space and the possible contribution of regeneration policies to this process. Other factor may come into play when considering the human element of knowledge transfers. Policies that facilitate labour mobility, especially of high-skilled workers, can have significant effects in enhancing the overall productivity of cities. High-skilled labour is very mobile (at least in relative terms) and more responsive to changes in economic opportunities (returns or locational costs). Further, it creates significant advantages by raising the productivity of the labour market where it is located. However, high-skill labour mobility can be restrained by a number of factors, including the availability of good housing and the conditions of the urban infrastructure as discussed in section 7.2. I.

- 7.32 If analysis suggests that the urban and inter-city equilibria are sub-optimal due to such bottlenecks - for example, because the reward structure for skills would facilitate human capital mobility in the absence of infrastructure failures - then intervention in this area could facilitate knowledge transfers and thus improve the productivity of the whole system of cities (national economy). This would, however, require physical and financial capital also to be mobile and implies that the exploitation of agglomeration economies is not significantly constrained in equilibrium in the large cities (i.e., the scope for exploiting agglomeration economies is larger in smaller cities). Again, this prescription is dependent on the assumptions and conditions regarding the functional role and specialisation of the urban economies within the national system of cities.

Policy implications

- 7.33 In this section we attempt to draw together the issues discussed throughout this report and to provide a broad conceptual answer to the question of whether regeneration projects can be expected to have positive national effects by raising national employment, productivity or both.
- 7.34 For some likely effects, the conclusions can be quite robust. Projects which facilitate an increase in the rate of effective utilisation of factors of production should boost national output and employment and will generally have relatively little displacement effect. By contrast, projects which mainly cause economic actors (firms or the public sector) to switch from one location to another will be much more prone to high levels of displacement.
- 7.35 However, even where there is a high degree of displacement, a critical influence will be whether the regeneration project results in a step-change in the productivity of production. If, for example, regeneration brings a location with more attractive characteristics into the frame, it would be expected to lower unit costs and have national competitiveness benefits.
- 7.36 It again has to be stressed that whether the net effects will be welfare-improving at the national scale depends on the empirical values of a number of parameters that affect the spatial distribution of economic activity and the determination of local and spatial equilibria. One set of such parameters relates to the degree to which agglomeration externalities (positive or negative) are internalised. When the social costs / benefits of economic concentration exceed the respective private costs and benefits, a careful policy intervention programme has the potential to enhance the efficiency of the local economy and shift the urban and inter-urban equilibria upwards. If such market failures are not present, there appears to be little scope for regeneration initiatives on efficiency grounds.
- 7.37 A second group of factors concerns the sectoral specialisations of the city and the sectoral sensitivity of the policy interventions that are being considered. Hence, the effectiveness of a regeneration policy will depend on how it impinges on the sectoral composition of economic activity and the changes it produces there – in relation to the relative strength of agglomeration economies and diseconomies occurring in the particular sector and in the urban economic system in its entirety.

- 7.38 Following from the above point, if regeneration is seen as part of a wider economic development strategy (and we recognise that it may not always be) it will be important to relate any policy effort to the endogenous strengths and weaknesses of the supply and demand of under-utilised resources in the locality. For example, a regeneration initiative targeting businesses in a particular sector has to take account of bottlenecks and failures restraining the supply of relevant labour and skills, both within the city in question and across the system of cities.
- 7.39 The net impact of regeneration policies will depend on the structure of urban (congestion) costs, relating mainly to commuting and agglomeration diseconomies. Policies that aim to reduce one type of such costs have to be applied carefully, so that they do not lead to cost increases in other areas (e.g., lower commuting costs may bring about thinner labour markets). In short, there will always be a need to consider the wider spatial implications of changes in components of the local cost structure for the distribution of economic activity in the system of cities.
- 7.40 This point highlights an additional set of relevant policy parameters, specifically the inter-urban organisation of economic activity. Regeneration policies will have greater national effects if they target areas that allow for greater exploitation of agglomeration economies, yet have the least distortionary effect on the inter-urban equilibrium. This would entail analysis of the functional role of each city in the regional, national and international system. Plainly, decisions on particular projects will be taken, and continue to be justified, on other criteria, but if national effects are to feature in any decision process, these considerations will be relevant.
- 7.41 Overall, the policy lesson that can be derived from this theoretical review is that if maximising national impact is important, regeneration policies should be applied in geographical areas where market failures are most acute and in ways that ensure that the resulting geographical shifts in the distribution of economic activity improve national competitiveness. The likely balance of effects can only be evaluated empirically on a case-by-case basis, but the scope for national gains may, in some instances, be substantial.

APPENDIX A

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