Place-Based Policies: Principles and Developing Country Applications

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Contents

Abstract

Many development policies, such as placement of infrastructure or local economic development schemes, are "place-based." Such policies are generally intended to stimulate private sector investment and economic growth in the

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treated place, and as such they are difficult to appraise and evaluate. This chapter sets the rationale for place-based policies and a framework for analyzing their effects and assessing their social value. It then reviews the literature on place-based policies in the contexts of special economic zones, transport policy, lagging regions, and local economic development policies.

Keywords

Place-based policies · Spatial · Economic corridors · Lagging regions

JEL Classification

O10, O18, R10, R11, R13

1   Introduction

Place-based policies are an integral part of development policy, driven by both equity and efficiency concerns. Equity, because the process of economic development is spatially uneven. Inevitably, some places will develop before others, this creating the likelihood of a Kuznets curve, with spatial inequalities increasing before diminishing during the course of development (World Bank 2009). Many of the public investments that are needed for development – transport and other infrastructure investments – are "lumpy" so have to be concentrated in particular places; some places will be served with roads, telecommunications, power, and other public services, before others. These regional disparities are likely to show up, perhaps dangerously, in regional and national politics.

Efficiency, because a spatial development process involves market failures. There are numerous externalities, some positive arising in cluster formation, others negative arising from congestion in cities and from poverty in lagging regions. Fundamentally, private investment tends to cluster, as each investment decision is shaped by investments made by other private sector decision-takers, the location decisions of workers, customers, and supplier firms. The market mechanism does not do a good job coordinating these spatial decisions, creating the possibility that some places can become trapped in a low-level equilibrium. These market failures create an efficiency argument for policy intervention but also mean that the effects of policy are difficult to predict.

Place-based policies (PBPs) include infrastructure investments, special economic zones, treatment of lagging regions, and local economic development policies. From the economic standpoint (the focus of this chapter), place-based policies have several distinctive features. The first is the spatial context; in Sect. 2 of the chapter, we outline the particular inefficiencies that arise in this spatial context. The second is that PBP are likely to be motivated by achieving "indirect," as well as direct effects. For example, a transport improvement will have the direct effect of saving time and vehicle operating costs and may also have the indirect effect of inducing private sector investment, job creation, and higher productivity. Indirect effects depend on responses of the private sector, which are hard to predict and hard to value. These

issues are addressed in Sect. 3, before turning to specific examples of policy – special economic zones, transport infrastructure, lagging regions, and local economic development policy – in Sect. 4.

2   Place-Based Policies: The Spatial Context

Several features of the spatial context are critical for understanding the role and effect of PBP. These are the role of proximity and connectivity in creating clusters of economic activity, the existence of complementarities between actions taken by different economic agents and the failure of the market mechanism to coordinate these decisions, and the process of economic adjustment to place-specific regional shocks. We discuss each of these in turn.

2.1   Proximity, Connectivity, and Clusters

Proximity is valuable. Being close together enables firms and households to save costs of transport, commuting, and communication. There is evidence that provision of infrastructure is much cheaper, per person, in dense urban areas than dispersed rural ones (Foster and Briceno-Garmendia 2010). Proximity also creates the potential for agglomeration economies that are generated by close and intense economic interaction. These arise through several different mechanisms. Thick labor markets enable better matching of workers to firms' skill requirements. Better communication between firms and their customers and suppliers enables knowledge spillovers, better product design, and timely production. A larger local market enables development of a larger network or more specialized suppliers. Fundamentally, larger and denser markets allow for scale, scope, and specialization. A good example is given by specialist workers or suppliers. The larger the market, the more likely it is to be worthwhile for an individual to specialize and hone skills in producing a particular good or service. The presence of highly specialized skills will raise overall productivity. The specialist will be paid for the product or service supplied but, depending on market conditions, is unlikely to capture the full benefit created. Since the benefit is split between the supplier and her customers, there is a positive externality which creates a positive feedback – more firms will be attracted to the place to receive the benefit, growing the market, further increasing the returns to specialization, and so on. This is the classic process of cluster formation.

The magnitude of agglomeration effects has been the subject of much research. A consensus view, based on studies in developed economies, suggests an elasticity of productivity with respect to output in the range 0.03–0.09; this implies that each doubling of "economic mass" raises productivity by approximately 5% (see Combes and Gobillon's (2015) survey article). This is a large effect, suggesting that productivity in a city of 5 million is 20–30% higher than it is in a city of 200,000. Chauvin et al. (2017) find larger effects in a study of several large developing economies.

Economic proximity can be achieved by either density or connectivity. Density (high population per unit land area) brings with it costs of congestion (a negative externality) and other costs of close urban living; land becomes the scarce factor, and housing consumption (floor-space per household) is reduced. Improved connectivity enables economic interaction over a greater geographical distance and is achieved by transport improvements within and between cities, as discussed in Sect. 4.2.

2.2   Complementarities and Coordination

Location choices – be they by firms or by households – are typically major decisions, with large sunk costs and, if structures are built, creating long-lived assets; expectations of future returns are therefore critical. Agglomeration economies and other complementarities mean that the returns to investing in a place depend positively on who else is (or is expected to be) there. It follows that there is a first-mover problem: no one wants to move to a new place while uncertain about its future development. This creates inertia and path dependency, because firms are unwilling to move out of existing clusters; it is difficult to initiate new clusters of activity, and existing centers may therefore become excessively large.

Coordinated movement by a group of firms or a "large developer" can solve this problem, but generally there is coordination failure. Thus, a planner can construct a model of a perfectly functioning new town, but there has to be a path of public and private sector investment decisions that lead from the initial situation of empty fields to the completed, and occupied, town. If such a path is not in place, then development will fail. These arguments are particularly acute in a developing country. This is partly because the economic environment is one of rapid change in all respects, including spatial and also because the cost of making a poor location decision may be higher. In a developed economy, even if a firm does not have a supplier of some specialist component in the same city, there is probably a supplier within 24 h delivery time. In a developing country this is not true, so the need for coordination – and the cost of coordination failure – is greater.

2.3   Adjustment Mechanisms

Coordination failure makes it difficult to establish alternative economic centers, but why doesn't the price mechanism make the alternative place so cheap that firms will move there? The answer is that, within a country, the performance of a region depends largely on its absolute advantage, not its comparative advantage. If a country's export sector has a negative shock, the adjustment mechanism is a real depreciation, i.e., a reduction in its wage and unit costs relative to its trading partners, and this reduction continues until other sectors become competitive. But if a region within a country suffers a negative shock, there may be little flexibility of relative wages between regions as labor markets are relatively more integrated. Integration is in part institutional and partly due to intra-country mobility of labor and capital that

tends to equalize real wages across regions. Of course, there are some immobile factors, such as land and houses. Their prices will fall in the adversely affected region, but since these factors only represent a small fraction of business costs, they have little leverage in bringing areas to the point of competitiveness. Since the mechanism of real depreciation is largely absent, it follows that regional inequalities are likely to be persistent and that the market response is not to move new employment into the area, but to (eventually) move labor out.

2.4   Spatial Equilibrium

The features described above create an outcome where economic activity may be unevenly and inefficiently distributed across space. Clustering is associated with externalities (positive and negative) so the market outcome is inefficient. Coordination failure means that it is hard to start activity in a new place, this leading to excess primacy, i.e., the tendency for the largest cities in a country to be excessively large compared to those further down the urban hierarchy. We know from the data that this is a common feature of developing countries, compared to high-income countries now and also when they were at comparable stages of development (Kim 2008). Adjustment to shocks is slow and imperfect, so some regions will lag and regional income differentials may open up. A further possibility is that there may be multiple equilibria, meaning that the same economic fundamentals might support quite different patterns of regional activity. A region may be trapped in a low-level equilibrium or poverty trap, in which case it may require a large shock (or "big-push") to move to a different, and possibly, superior equilibrium. Since each of these cases involves market failure and inefficiency, there is a case for PBP; however, the design, implementation, and evaluation of such policy are difficult.

3   Place-Based Policies: Quantity Effects and Valuation

How does PBP change outcomes, and what is the social value of any such changes? Outcomes ("quantity effects") occur close to the intervention but also further afield. Their value depends on the presence of market failures of various sorts.

3.1   Quantity Effects

What economic variables might be changed by PBP? There are direct quantity effects (e.g., increasing the supply of electricity in a place), but, as noted above, PBP is often intended to bring indirect effects, i.e., changes in private sector investment and employment. What determines these private sector location decisions, both in the neighborhood of a place treated by PBP and more widely in the economy?

Location and investment decisions may be hard for policy to change. The private sector will decide to invest in a place only if multiple conditions are met, conditions such as the natural characteristics of the place, the policy environment, and the "business ecosystem." There is a long checklist of such conditions. Natural geography matters (e.g., proximity to ports). There are numerous dimensions of the policy environment, including the provision of infrastructure (utilities, transport), place-specific tax and regulation, and public services. Above all, there is the presence of a "business ecosystem," meaning the network of organizations – suppliers, distributors, competitors, customers, and workers – that contribute to the performance of firms and the value of investment decisions. Does the place have a stock of firms and other productive activities, in particular its suppliers and customers? Is there a supply of workers with appropriate skills at competitive wages and able to commute to the establishment? What is the availability of other factors, such as land and capital? And how big is the market area to which the place is connected?

There is a high degree of complementarity between elements of the list, meaning that if just one element is missing or inadequate, investment is unlikely to occur. This weakest link problem creates threshold effects and discontinuous responses of private investment to policy levers. For example, adding more utilities in a place may have no effect if other conditions are not present. Or, if other conditions are met, more utilities may push the place across a threshold and trigger a large private investment response. These strong complementarities therefore make it inherently difficult to predict the quantity changes that any one policy instrument might bring about.

Displacement and general equilibrium effects arise as PBP may succeed in expanding employment in one area, but this might simply be a relocation of activity from elsewhere in the country. Such displacement effects can occur through several distinct routes. The most direct is competition for a particular project – such as a single factory that will operate in just one of many possible places. More generally, product market displacement occurs, particularly if demand is inelastic, as an increase in supply in one place leads to a reduction in supply elsewhere. This effect is most pronounced for non-tradable goods, where demand comes just from a local or national market.

Displacement may also occur through factor markets; if there is a fixed supply of capital or full employment of a given labor force, then expansion of one activity must be accommodated by contraction of another. This may look similar to product market displacement, but its effects are quite different. It operates by raising demand for factors, this tending to increase their price and cause the exit of the lowest productivity firms. Wages, productivity, and real income therefore increase.

Note also that displacements may be positive as well as negative. Consider, for instance, a new highway linking a large and a small city. This highway will make the cheaper land of the small city more easily accessible. In turn, this can lead firms in the large city to relocate to the small city. It is also possible to imagine that firms in the large city can now serve the small city at a lower cost. This could lead to the opposite effect and the concentration of more activity in the larger city. If consumers

in both cities keep consuming the same amount, any change in the location of economic activity is pure displacement.

Effective design and implementation of PBP requires that policy is coordinated across space, function, and time. A spatially integrated policy process is needed because of the risk of displacement between areas and because developing cities often grow into neighboring local jurisdictions. Policy needs to be integrated functionally, i.e., covering planning, land and building regulations, infrastructure and utility, and public service provision. And policy needs a long view, able to make credible commitments to future city development. This requires coordination and consistency between different levels of government – local, regional, and national. Competence, financial resource, and credibility require an authorizing environment more integrated than that which is typically present when formulating and implementing PBP.

A further issue is whether policy should lead or lag development. Much PBP lags development, responding to bottlenecks such as congestion. Economic activity has then revealed where investment is needed, and this reduces uncertainty about the effects of policy. But lagging policy has disadvantages, putting the economy through a period when constraints are costly and incurring the costs of retrofitting infrastructure in crowded places. Alternatively, PBP may lead development in a place, potentially acting as a coordination mechanism. As examples, an infrastructure project may be a credible commitment that a place is selected for development, and construction of transport lines creates a focal point for development in a growing city. This can shape expectations and act as a catalyst to trigger private sector investment. Some PBPs are intended to achieve these effects, but such policies are inevitably more speculative than those responding to existing levels of activity.

3.2 Valuation: Market Failure

Given some knowledge about the quantity changes (direct and indirect) created by a policy intervention, what is the social value of the intervention? Valuation of the direct effects is the stuff of standard cost-benefit analysis. Outputs may be valued at market prices (as they would be in a commercial decision), or, if outputs are non-marketed, values have to be inferred (e.g., for transport investments, by estimates of the value of time).

What about indirect effects, the relocation of labor and capital between places and sectors of the economy arising as policy changes private sector investment decisions? The benchmark case is that the value of these changes is zero. If the economy is efficient, then the marginal value of labor is the same in all its uses, and so too is the marginal value of capital. Moving them between uses is therefore of zero value – additional output in the new use is worth just the same as lost output in the alternative. This argument is the rationale for only looking at the direct effects of policy, as in standard cost-benefit analysis; if the economy is efficient, then other indirect effects net out to have zero value.

It follows that indirect effects are of net positive value only if they tend to correct inefficiencies, i.e., operate to raise productivity or to draw resources from lower to higher value use. This will be the case if there are market failures, such that the price-system (or some other mechanism) has not lined up marginal values of resources used in different activities and places.

We have already discussed some of the market failures that arise because of agglomeration (a positive externality) and congestion (negative). Particularly important are coordination failure and the first-mover problem, causing firms and workers to continue to pile into existing clusters as no one wants to be the first to move out to an uncertain future in a new area. The equilibrium may be inefficient, with some places being inefficiently large, others too small. If policy can kick-start the development of a new area, then it may create agglomeration benefits, and also take pressure off an existing center by reducing congestion.

In the developing country context, these potential inefficiencies interact with many other market failures. In the labor market, there are wide gaps between the productivity of workers in formal sector employment and in the informal sector or in agriculture; Gollin et al. (2014) find that the productivity of labor in non-agriculture is between two and three times higher than it is in agriculture. Human (and social) capital acquisition is limited, often much more so in lagging than in fast-growing regions. And in the land market, investment in buildings may be inhibited by lack of clarity in property rights or inappropriate building regulations. This is exacerbated by capital market failures and, in many developing countries, the absence of a mortgage market.

3.3   Policy Targeting

PBP should be based on a systematic evaluation of both of these stages – establishing the likely quantity effects of a policy – and then asking whether these effects are of net positive social value. From the efficiency standpoint, this generally means addressing and quantifying the market failure that the policy is intended to address. The theory of policy targeting tells us that the fundamental determinants of market failure should be diagnosed and then addressed by policy targeted as precisely as possible on these determinants. Thus, if unclear land rights hamper building, then the first-best policy is to clarify these rights, and so on. PBP is likely to be second (or *n*-th)-best policy; policy makers should be aware that better policies, more closely targeted on the market failure, may exist. The presence of multiple market imperfections complicates targeting, as a particular PBP may change many quantities and interact with many market failures, perhaps not being the first-best response for any of them. Despite these complexities, policy should be based on a rigorous diagnosis of the market failures it is supposed to address and appraised by realistic assessment of the quantity changes it is likely to create and the social value of such changes.

4 Place-Based Policies: Zones, Corridors, and Regions

We now turn to specific place-based policies, focusing on PBPs that are designed principally to achieve "indirect effects": special economic zones (SEZs), corridors and long-distance transport improvements, lagging regions, and local economic development policies. Discussion of each is framed in terms of their effect on quantities and the social value of any such induced quantity changes.

4.1 Special Economic Zones

We define special economic zones broadly to encompass free-trade zones, export-processing zones, or any district targeted with favorable fiscal or institutional treatment. The principle objective of SEZs is to attract investment and create jobs. Ideally, this is investment in internationally footloose activities that would not have otherwise come to the country and hence jobs that are additional not just displaced. Successful SEZs will link to the rest of the economy and stimulate growth more widely, with the ultimate objective of convergence between well-performing zones and the rest of the country. Further benefits might flow from supply of foreign exchange (in the investment itself and through the sale of output) and from the fact that SEZs can be a way for governments to experiment and find out what policies work.

SEZs employ a range of policies in a well-defined geographical area or areas. They are of distinct types, involving infrastructure provision (especially power and transport); provision of land; distinct regulatory regimes, often involving laxer labor regulations and restrictions on trade union activity; and tax incentives, including duty free processing zones and holidays from corporate income taxes. Management of SEZs often works closely with private sector investors to facilitate investment and ease bottlenecks.

The economic case for pursuing these policies in tightly defined geographical areas rests on two arguments. One is "first-best" and based on the economic efficiency gains derived from spatial concentration in the provision of infrastructure and development of clusters, as discussed above. The other is "second-best," based on the presence of institutional and financial constraints that create economic inefficiencies. These could, in principle, be removed economy-wide. But in practice this is infeasible, partly because of their fiscal cost (tax and customs regulation, infrastructure) and partly because of the political obstacles that would be encountered (e.g., in acquiring land and implementing regulatory reform).

Quantity effects – attracting investment: As outlined in Sect. 3.1, success in attracting investment requires that a wide range of conditions be met, covering geography, policy, and the business ecosystem. There is a weakest link problem, and many SEZs have failed because key elements of the package are absent.

First, SEZs need to be located in places consistent with their objectives and long-run economic viability. If they are export oriented (or import dependent), they need to have good access to port infrastructure. In countries where even well-located

regions have difficulty attracting investment, SEZs in backward or remote regions are unlikely to succeed. The economic size of the SEZ (to reap scale and agglomeration economies) and of the area where it is located (to provide a local labor market and depth of local firms) are important factors. Their importance is confirmed in Farole's (2011) study of African SEZs. However, finding a "good location" is necessary but not sufficient for success. The success of an SEZ will also be determined by its comparative advantage, so unrealistic sectoral selection will lead to failure.

There is considerable evidence that tax incentives alone are insufficient for success. Assessing the marginal impact of one policy is difficult given the complementarities between them and the country context (policies in place outside the SEZ). Nevertheless, Farole (2011) looks at data across 77 countries and finds that infrastructure and trade facilitation have a significant positive impact, while tax and other financial incentives are much less important.

Effective implementation of policy matters. This requires action that is coordinated across functions (tax, land, infrastructure) so needs the organization running the SEZ to be empowered to deliver these functions. There must also be credible commitment to policy for many years ahead. Taken together, these considerations mean that commitment is needed from the highest level of government, while at the same time the SEZ authority needs to be responsive to the concerns of firms in the zone.

Linkages and growth*:* A successful SEZ will have an internal dynamic of spillovers between firms, agglomeration, and productivity growth. This will have a horizontal element, with a large number of firms in the same sector building up thick labor markets and other agglomeration economies, and a vertical element, with co-location of input suppliers and the growth of forward and backward linkages. This process encounters the first-mover coordination problem discussed above – it is hard to start a cluster. Involvement of one or several large firms is one route to kick-start this, as with the multinational electronics companies (including AMD, Fairchild semiconductor, Intel) initially attracted to Penang, Malaysia, or Philips-van-Heusen's project in Hawassa, Ethiopia. Attracting such companies requires that government works closely with the companies and commits to deliver international standards.

Links from the SEZ to the local economy include development of skills in the local labor market; expanding the technological capabilities of local firms; increasing use of local firms as suppliers and as customers; and entrepreneurial spinoffs from firms in the zone. Successful SEZs have seen an increasing fraction of activity in the SEZ being undertaken by local firms, this sometimes occurring as part of a maturing and upgrading process. In Mauritius the SEZ upgraded from low-value textiles to higher value and more skill-intensive products (off-shoring low-value production to the SEZ in Madagascar). In Malaysia the Penang SEZ focused from the start on electronics but upgraded from basic assembly to more advance and skill-intensive goods. Both these sectoral transitions were accompanied by a transition toward locally owned firms.

The role of government in this process is important and needs to be based on recognition that there are mutual benefits – for firms in the SEZ and for the local economy – from developing these spillovers. Thus, rigid domestic content requirements are likely to be viewed as a cost to firms in the SEZ and may transfer little learning to firms outside. But working to bring local firms up to the level where they are chosen suppliers is of mutual benefit. The knowledge transfer is also of value to government itself, as SEZs can provide a vehicle for learning about what makes an effective business environment. China explicitly used SEZs as vehicles for policy experimentation.

The value of SEZs: The costs and benefits of an SEZ depend on the quantity responses elicited and on displacement – the extent to which investments and jobs created are additional to those that would have occurred absent the policy. The value of jobs created depends on the state of the local labor market and the alternative sources of employment, as we saw in Sect. 3. Linkages to the local economy should be included to drive the net number of jobs in the economy relative to a situation without the SEZ policy.

Benefits accrue directly through (net) job creation in the SEZ and also through potential impacts on the wider economy. One mechanism is sheer scale: in Bangladesh and Mauritius, the scale of job creation (in the SEZ, in suppliers, and via spending from wages) surely raised incomes not just of those employed in the SEZ but through tightening the labor market throughout the country, raising wages and ultimately improving the country's terms of trade. Other mechanisms operate through raising skills and capabilities of workers and firms both inside and outside the zone and through the consequent dynamics of productivity growth and increasing competitiveness in international markets. The gains are potentially substantial, but as suggested above, achieving them requires meeting substantially all of a large set of conditions.

Finally, the costs of the policy depend on the set of instruments used. Tax breaks appear expensive but have to be compared with revenue that would have been earned absent the SEZ; compared to this counterfactual, they are costly only if they divert taxpaying firms into the zone rather than create new investment in the zone. Infrastructure investment is riskier, since costs are incurred at early stages of development, while benefits depend on the success of the SEZ. Regulatory innovation and soft policy is a low-cost policy from which the government learns, even in the event of failure.

4.2 Corridors and Long-Distance Transport Infrastructure

The development of medium- or long-distance transport improvements typically has the objectives of reducing costs for users of the route and stimulating economic activity at places along the route. Analysis of whether these objectives are likely to be achieved by a particular project is hard. No one would doubt that a completely isolated place will be poor or that most rich places are well connected. But it does not follow from these observations that all well-connected places are rich or that

improving connectivity necessarily brings development. Furthermore, changes in economic geography brought about by transport improvements might mean that some places gain, others lose.

Transport and quantity changes – theory: What are the effects of reducing the costs of flows of services, goods, and people in and out of an area? Several arguments suggest that a transport improvement is a double-edged sword which can make a place either more or less attractive as a location for production and employment.

One obvious tension arises as transport both improves access to export markets and opens the local market to import competition; export sectors will benefit, but import competing sectors will suffer. Another comes from the interplay between market access and production costs. A number of models find that reducing transport costs from a high level to an intermediate level is a source of divergence (one of the connected points may expand at the expense of others), while reducing transport costs further gives the opposite result, leading to convergence (see Fujita et al. 1999 and Combes et al. 2005). The ambiguity hinges on there being some lumpiness or increasing returns in investment decisions. In this case, when transport costs are very high, each place will have some production to supply its local market. When costs come down, places can be supplied from a single center, and firms will choose the place which has the best market access (i.e., is best able to reach consumers across the area). But when transport costs become very low, these market access arguments become unimportant, and production cost differences become the most important consideration. Reducing transport costs to this point may therefore cause firms to move out of a congested center to more peripheral regions.

The more acute these arguments become, the greater is the mobility of people and firms. As firms move so the "business ecosystem" becomes undermined; and since market size matters for firm location, a region that is losing population will become ever less attractive for firms. There may be threshold effects, so change may be sudden. Falling trade costs may enable new clusters develop and old ones unravel, a phenomenon seen clearly in the impact of international trade and globalization on many established centers of manufacturing production (Fujita et al. 1999).

Transport and quantity changes – empirics: Despite the central importance of the issue and much attention devoted to it in empirical work, our empirical knowledge is still extremely scarce, and perhaps the precious little that we know is of limited applicability to new projects.

The first reason for this is the ambiguity discussed in the preceding subsection. Even simple models suggest that effects can vary greatly according to details of the context, in view of which it is not surprising that an empirical consensus has not emerged. Real-world contexts are inevitably much more complex than theory modeling, not least since the theory is often based on just two locations. This simplification is often needed to generate results and is sometimes justified when thinking, for instance, about broad patterns of economic integration between a center and a periphery. Unfortunately, this two-location simplification is far from innocuous in our context. In a two-location model, employment growth in one location can only come at the expense of the other. In reality, we need to think about locations treated

by a transportation project and locations not directly treated but which may nonetheless be affected as firms and workers may relocate to the treated location.

We should expect highly heterogeneous outcomes when lowering shipping costs across places. Instead, most of the research has attempted to estimate average effects. The standard approach taken by research is a regression of a change in outcome such as local employment or productivity on a change in infrastructure (or sometimes an initial level of infrastructure, a valid approach when adjustments are slow).

Even using this standard approach, further difficulties are encountered. One is simultaneity. Rational infrastructure planning requires placing infrastructure in areas where it has most impact. This obviously leads to a spurious correlation between the outcome of interest and the placement of infrastructure. Alternatively, political realities probably imply that public works take place in locations hit by negative shocks. To get around this problem, the literature has developed a number of empirical strategies, such as relying on the examination of "in-between" locations along corridors that were incidentally served, engineering/cost predictions, or old infrastructure/plans developed under very different circumstances to generate some quasi-random variation for the corridors that were developed (see Redding and Turner (2015) for a thorough discussion of these issues).

Another fundamental problem is distinguishing between displacement and net growth; if a treated place does better than an untreated one, it could be because of pure displacement, with no net benefit. To be able to distinguish, the researcher needs three groups of units: a treatment group receiving direct access to the infrastructure, an indirectly treated group that may have suffered from displacement, and a control group of truly unaffected locations. Treated areas are relatively easy to define; for a new train line, there may be cities with new stations. Indirectly treated areas are harder to define; there may be cities that did not receive a new train station and are neighbors of treated cities, acknowledging that there are many shades of neighbors. The true difficulty is finding the valid control group. Assuming displacement effects decline with the distance to the treatment – which seems like a reasonable assumption although still an assumption – one would like a control group made of really remote cities. At the same time, these remote cities are likely to be different from the treated cities. Imagine, for instance, a road improvement scheme in the island of Java in Indonesia that affects half the cities. Given the small size of the island, the other half is likely to be subject to displacements. For a control group, one will probably need to examine cities in the island of Sumatra, but whether such cities form an appropriate control group is unclear. They are likely to be subject to different dynamics. It is also perhaps hard to rule out the absence of displacements from Sumatran cities.

Notwithstanding these difficulties, there is now a large empirical literature on corridors – one too large to be reviewed comprehensively. The interested reader should refer to the reviews by Redding and Turner (2015) and Berg et al. (2017), the latter focused on developing countries. The literature points to four main findings so far. First, corridors tend to attract economic activity, and at least some of this is driven by displacement from locations more remote relative to the infrastructure. Second, transport infrastructure also tends to promote the decentralization of

economic activity within a corridor area away from the main centers. This dispersion of activity is nonetheless far from uniform along corridors. Third, corridors appear to promote various efficiency gains through higher productivity and less factor misallocation. Fourth, corridors affect several margins including the aggregate amount of economic activity in a location, its distribution across sectors, its distributions across skills and functions (production vs. management, for instance), and participation in external markets (labor markets in other locations or agricultural markets when moving away from subsistence farming). Given the methodological problems noted above, these findings should be viewed as tentative. They also reflect broad trends in the data but should not be expected to hold every time given the heterogeneity associated with relocations.

Valuing transport improvements: Transport improvements bring direct benefits of cost reduction and time savings. If they also trigger private sector investments and other "indirect quantity" effects, what is the additional social value?

Relocation of economic activity toward relatively poor areas brings distributional benefits and possibly associated political gain. These are important, but we should also ask whether there are aggregate gains to the country as a whole, and the answer depends on the interaction between the quantity changes and market imperfections. Several such arguments are noteworthy. One is based on the benefits of proximity and connectivity, including agglomeration externalities. Transport improvement has the effect of making places closer together in economic, if not geographic terms. Thus, if there are positive agglomeration externalities, transport improvement will tend to raise productivity in the area, and this is a source of net real income gain. A second argument turns on the potential of transport improvement to causes major relocation of activity and stimulates the development of new centers. We discuss this in the next subsection, in the context of "big-push" policies.

4.3   Lagging Regions and Big-Push Policies

Some regions lead development and others lag; indeed, it would be remarkable if all regions were to develop at the same rate. In the absence of policy, what happens to regions that are lagging? They often catch up as activity spreads out of an economic core – or spreads inland from the coast – as is documented in World Bank (2009). But in some cases, they fail to converge in this way. Many countries have regions with chronic problems, such as Brazil's Nordeste, China's Xinjiang region, or India's state of Bihar, to name just a few.

What are the economic issues that prevent catch-up from being the usual outcome? As discussed in Sect. 2, factor mobility and intra-country institutional factors limit the magnitude of interregional factor price differentials, implying that the principal mechanisms of comparative advantage do not operate. Adjustment then takes the form of labor moving out of lagging areas in which case, since there is no market failure directly associated with this mechanism, it is efficient to let the region contract. The other economic issue preventing catch-up is the propensity of economic activity to cluster and the difficulties of starting new centers. As we saw in

Sect. 2, the productivity gains from clustering are a positive externality giving rise to coordination failure and the first-mover problem and therefore suggesting a case for policy to decentralize activity from a congested city to a secondary or satellite-city.

Given this, what is the case for policy intervention? It typically rests on one or more of the following arguments. First, the negative impact on people left behind. This can be acute in areas of absolute decline where out-migration of the young (and possibly more skilled) leads to demographic imbalance and severe social deprivation. More generally, persistent inequalities raise issues of spatial equity and consequent distributional conflicts and other political ailments. Second, the argument is made in terms of excess (or over-rapid) expansion of booming areas, leading to congestion and pressure on housing and other assets. Third, some particular market failures may be holding a region back. Although these market failures may occur everywhere, there may be particularly harmful in lagging regions. A stronger version of this argument is that lagging regions may be stuck in a poverty trap.

Policies for lagging regions: Interventions are often part of ambitious multi-instrument programs that include (a) transport investments to improve connections within lagging regions and between lagging and more prosperous regions; (b) fiscal incentives and various direct service provisions; and (c) a package of measures that aim to foster skills, enterprise development, and innovation in specific parts of a country (local economic development policies). We focus our attention in this section on the use of multiple and potentially complementary instruments in ambitious regional development programs that attempt to make a large difference to economic outcomes reasonably fast, often referred to as "big-push" policies. The following subsection will discuss local economic development policies.

Before going further, we make several important notes of caution. The first is that knowledge about what works is weak. Second, prospects depend on many characteristics of the region that are not amenable to control by economic policy measures. Third, for treatment to be effective, it needs to be geographically selective. It follows that relative decline of some areas will, in many countries, be an inevitable part of national economic development.

Complementary policies and the big push: The usual justification for large comprehensive packages lies in either strong complementarities between policy instruments or the existence of local poverty traps (and often both). For instance, providing a transport link to a peripheral region in a developing country may not generate positive effects if local producers are unable to benefit from better access to new markets. This transport improvement thus needs to be supplemented by capacity building for local firms. More generally, in economies plagued by numerous market failures and inefficiencies, fixing a single problem does not offer a guarantee of improvements. This is the classic second-best argument of Lipsey and Lancaster (1956). To take a simple example, tolling a major road to avoid congestion may push traffic to secondary roads and increase the number of accidents. The social loss caused by more accidents may dominate the congestion gain, resulting in a net social loss.

The main challenge with policy packages that hope to build on complementarities between instruments is that they require an extremely detailed understanding of what

the frictions and market failures are and how they interact. In some cases, these complementarities seem obvious. For instance, both electricity and market access are necessary for an export-processing zone to be successful. Other interactions are much less well understood, including those that take place between hard infrastructure such as transport improvements and softer interventions such as local economic development (LED) policies. While being deep in the second-best offers no guarantee that remedying one market failure will generate an improvement, neither does it guarantee that fixing two market failures will do better.

Turning to multiple equilibria, we note that being able to move from a low to a high equilibrium sounds extremely attractive since a temporary intervention may be able to make permanent change. Even more attractive, this move could potentially be achieved at relatively low cost even when the high equilibrium is much more desirable than the low equilibrium. This is the logic that some policy makers appear to have in mind when they combine some local capability developments, support for higher education, and relocation incentives to technology firms in the hope of creating a "transformative" high-tech cluster. A key question with multiple equilibria is how to move from one equilibrium to the other. In the absence of friction, a shock is needed to take the economy away from the basin of attraction of the low equilibrium into the basin of attraction of the high equilibrium. With transitional frictions such as the cost of rural-urban migration or the inability of an industrial sector to absorb new workers fast, the situation is more complicated. The frictions may be large enough to trap the economy in the low equilibrium. When frictions are less, expectations become fundamental (Krugman 1991; Matsuyama 1991). This opens a role for the government to coordinate expectations, overcoming the first-mover problem and facilitating private sector investment.

Evidence on big-push policies and multiple equilibria – quantity and valuation effects: Examples of big-push interventions from the developing world abound. For instance, the Upper Egypt Local Development Program targets two provinces with a variety of interventions involving infrastructure development, the construction of special economic zones, and a variety of support programs for both private and public sectors. Argentina has recently launched its Plan Belgrano for its ten (lagging) northern provinces with a mix of infrastructure, private sector development measures, housing construction, and increased childcare provision. While ambitious in its purpose, the investments proposed by the Plan Belgrano represent only about 0.25% of the country's GDP annually for a period of 10 years.

This type of wide-ranging intervention is extremely hard to assess empirically. A first possibility is to try to assess every single instrument individually, but this would be daunting. This would also be contradictory since the rationale for these instruments relies precisely on the complementarities between them. A second possibility is to take a more aggregate approach and only examine final outcomes such as overall employment or GDP per capita in the treated regions relative to the untreated. The problem is then that these aggregated outcomes may have been affected by other aggregate changes in the economy unrelated to the policies at hand. Displacement will also affect "untreated" regions. Regardless of the approach taken, the difficulties of the evaluation are further compounded by the wide geographical dispersion of the

investments, the modest amounts being invested, and the ongoing nature of many of these policies with few abrupt changes. This is arguably why there is little research on these projects and why most of extant research is struggling to provide solid conclusions (Neumark and Simpson 2015).

The main exception is the wide-ranging evaluation of the Tennessee Valley Authority (TVA) program by Kline and Moretti (2013b). Like the interventions described above, the TVA had several components, mainly energy generation (through the construction of numerous dams), transport (through the development of roads and canals), and education (through the construction of new schools). For evaluation purposes, the TVA has the advantage of being well circumscribed in time (starting in 1933 but with the bulk of the investments made in the 1940s and 1950s) and geographically (163 counties across four states in the Appalachia region). While small relative to the scale of the US economy, the transfers were substantial for the treated counties, up to 10% of local incomes at the beginning of the 1950s.

Kline and Moretti (2013b) find that, relative to their control group, TVA counties enjoyed higher growth in manufacturing employment of 5–6% per decade and lower growth in agricultural employment. Much of the growth in manufacturing occurred during the treatment period, while the decline in agricultural employment occurred after 1960 and the end of transfers. While median family incomes in TVA counties increased by about 2.5% per decade relative to control counties, manufacturing wages did not increase. This suggests that the main effect of the program in the treated counties was to industrialize them by shifting labor away from agriculture into manufacturing where wages were higher.

An important caveat when doing an aggregate evaluation of this type is that displacement effects cannot be tracked directly. Just as with corridor projects, one would need to observe "control" counties had the TVA program not taken place, which is of course impossible. With this problem in mind, Kline and Moretti (2013b) impose some theoretical structure to interpret their findings and indirectly estimate displacement effects. A key challenge for future research will be to assess the sensitivity of this type of analysis to the details of the model at hand. Importantly, Kline and Moretti (2013b) show that the effects on manufacturing employment of the TVA program can still be observed in 2000, about 40 years after federal transfers stopped. This suggests a change of equilibrium where a permanently higher manufacturing specialization can be sustained through agglomeration effects.

In conclusion, the empirical evidence invites caution with respect to big-push type of initiatives. First, existing equilibria often appear extremely resilient so that quantity changes are hard to generate through a change of equilibrium. Second, the absence of "non-linearities" in agglomeration effects is consistent with quantity changes being of low, perhaps zero, values.

4.4   Local Economic Development Policies

The usual justification for local economic development interventions and support for innovation is that some regions have insufficient "capacities" because of lack of

investment. The objective of the policy is then to foster capacity development either directly through the provision of skills and advice to firms or indirectly through fiscal and monetary incentives. The key justification for investment subsidies or direct investment by the government lies in the existence of a wedge between private and social returns to investments. For instance, workers may underinvest in skills and education because of human capital externalities. In developing countries, credit constraints may further impair investments in education and skills. A lack of information may also be invoked. For innovation, the justification is even more commonly accepted given the public good nature of new knowledge.

A clear limitation to this type of policy is that underinvestment in skills and various forms of capital may be a symptom of a deeper problem, rather than the problem itself. Economic agents choose to invest little when private returns are low, but these returns may be low for many different reasons. In some cases (such as human capital externalities), private returns may be low, while social returns are high. In other situations (such as when jobs are allocated along group membership), both private and social returns are low. In these cases, subsidizing investment in skills is wasteful as the fundamental problem is elsewhere. The general point is that the appropriate subsidy requires diagnosing what the market failure is and thereby knowing the wedge between private and social returns.

Diagnosis of market failures may be hard, as they often arise in related markets. An example is enterprise development and entrepreneurship decisions. Consider a simplified situation where an efficient allocation of talent requires that the most talented people become entrepreneurs. However, entrepreneurship is highly risky, and there is no insurance market for entrepreneurial risk. This leads to too few entrepreneurs and misallocation where highly talented but also highly risk-averse individuals may choose to remain in occupations where their contribution to social welfare is low. In developing countries, other frictions leading to potentially severe misallocation loom large. Credit constraints are one of them, and so too area cultural and religious traditions that reserve occupations to some particular groups and bar others.

While a strong case can be made for subsidies to skill acquisition, enterprise development, and innovation, complications arise when thinking about such policies at the subnational level. First, why should those policies be conducted locally and/or for only a part of a country? The market failures we just described are general. While it can be argued that specific contexts may call for specific responses, this does not justify a specific focus on lagging regions.

It could be that underinvestment in capacity is worse in lagging regions, but this needs to be justified and explained; we may expect social returns to investment in skills to be larger than the private returns everywhere in a country. It is unclear why this wedge between private and social returns should be larger where the private returns are the lowest. There are situations where this may be the case. For example, similar matching frictions on the labor market will disproportionately affect regions where productivity is lower, and this may justify labor market policies specifically targeted to less productive regions (Kline and Moretti 2013a). Credit constraints may affect entrepreneurs and enterprise development disproportionately in poorer

regions, but there are also situations where the opposite may hold, and more subsidies may be needed in richer regions. For instance, subsidies to innovation will arguably be much more effective when distributed to firms that are at the technological frontier than when given to firms that are well-within that frontier. The broader question behind this discussion is to what extent different policies are needed in different subnational contexts relative to national policies for which one size should fit all.

Human capital and enterprise development in lagging regions: Research is strongly suggestive that more human capital has large local productivity effects that can be tracked through higher wages and higher population growth. Most of this work has been done in developed economies, but research in developing countries is suggestive of similar effects possibly with larger magnitudes for China, India, and much of Latin America (Duranton 2016; Chauvin et al. 2017; Ferreyra 2017). For LED policies, these findings are good news since relatively small changes in the composition of human capital are potentially at the source of large changes in wages and employment.

This is only half of the story however. The other half regards the ability of LED policies to change the skill-composition of the workforce, and here the news is much less positive. There is a large literature looking at human capital policies at the country level which is beyond our scope. There is also a large literature that evaluates a wide variety of training programs, primarily in developed countries but also sometimes in developing countries. While there are a variety of results, overall the returns to training and other localized human capital interventions are found to be low and even negative some of the time (Card et al. 2010).

A particular concern when focusing on human capital policies conducted locally is the possibility for educated or trained workers to migrate away. While outward mobility is likely to attenuate greatly the quantity effects of local human capital policies locally, there is clearly social value in raising the human capital of workers and their ability to produce, wherever they may go. Put differently, with local human capital interventions, place-based objectives, and (people-based) returns may be at odds. This said, while we do not negate the issue, we note that much of the development literature often highlights how small internal migration flows are in many developing countries (e.g., Munshi and Rosenzweig 2016).

Turning to entrepreneurship and enterprise development, there is again research that is strongly suggestive of positive effects of local entrepreneurs on local growth. Again, much of that evidence comes from developed countries and less is known from developing countries. Support for a positive role of entrepreneurship on subsequent local growth is provided by Ghani et al. (2013) for India and Duranton and Martin (2018) for Colombia. Just as with human capital, a case can be made that more entrepreneurship may help lagging regions. The issue is then whether entrepreneurship and firm development can actually be fostered in developing countries, especially in their lagging regions. Evidence on the subject is sparse, although McKenzie and Woodruff's (2014) careful review of private sector support in developing countries is not particularly encouraging. The effects of the enterprise development schemes that have been assessed are often insignificant because they are

based on samples that are too small. While there are cases of interventions that appear to have made a difference for the treated firms such as the intense involvement of management consultants with a small number of Indian textile firms reported by Bloom et al. (2013), it is difficult to be optimistic in the vast majority of the cases reviewed by McKenzie and Woodruff (2014). After some initial changes in their operations, treated firms often revert to their old ways. Even in cases where firms operate substantially and permanently better after some training, it is unclear whether the economic gains for the treated firms are worth the cost of the intervention as it is hard to track operating profit of firms. Just as with other place-based policies, displacement is also a serious concern. A large growth in revenue of the treated firms may be associated with only minimal productivity gains allowing those firms to expand at the expense of others in highly competitive markets. A training program may even generate negative benefits if the wrong firms are treated.

Beyond these considerations, it is also often unclear which market failure is being solved when providing firms with some free training that they would otherwise not purchase. Self-employed workers may of course be credit-constrained, but then the better response should be to tackle credit constraints in the first place. While we appreciate that developing economies operate deep into the second-best, it is nonetheless fundamental to assess the main market failure at play. Besides credit constraints, another possible reason for firms not purchasing training may be a lack of information about the benefits from training. If this is the case, informing firms about the benefits from training may be immensely cheaper than providing this training for free, and it may lead to the provision of more relevant training subject to a market test.

From this we conclude that while changes in human capital, entrepreneurship, and firm management in an area can have sizeable effects on final outcomes of interest such as productivity and employment, the literature is not encouraging when it comes to the ability of policies to foster these changes. In a way, our conclusions regarding human capital and enterprise development are opposite to the conclusions we drew regarding corridors. Corridors often generate large quantity responses, but their social value is unclear. Human capital and enterprise interventions may be of a high social value, but changing quantities appears extremely hard.

5   Concluding Comments

Policy makers, particularly those in developing countries, have to make place-based decisions about infrastructure and service provision and are faced by challenges of uneven development and lagging regions. These decisions should be informed by economic appraisal based on rigorous research, but research in this area is challenging. Analytically, it is clear that there are many market failures and a potential for use of policy. But the effects of policy are sometimes ambiguous in theory and always depend on details of the local situation. Even if the quantitative effects can be established, their valuation requires understanding the nature and extent of inefficiencies and market failures in the local and national economy. Study of place-based

policy is a booming area of empirical research, but this is even more challenging, as it is hard to establish counterfactuals and identify the causal effects of policy.

These conclusions should not, however, be taken as implying that we can say nothing. Too often in this area, policies have gone unchallenged and large sums of money have been wasted. A rigorous framework is needed in which the range of likely effects can be explored and arguments for benefit can be challenged. Empirical work is gradually building a stock of knowledge, about what does not work, as well as what does.

6   Cross-References

► Clusters, Local Districts, and Innovative Milieux
► Demand-Driven Theories and Models of Regional Growth
► EU Regional Policy – What Can Be Learnt
► Geographical Economics and Policy
► Infrastructure and Regional Economic Growth
► Regional Growth and Convergence Empirics
► Special Economic Zones and the Political Economy of Place-Based Policies
► The Case for Regional Policy: Design and Evaluation

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