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## Place-based policies - How to do them and why

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# DISCUSSION PAPER

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# Place-Based Policies – How to Do Them and Why

**Jens Suedekum**

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August 2021

## **Abstract**

Place-based policies had a bad reputation for decades, if they received any attention at all. This has recently changed, for two reasons. First, many countries have experienced political backlashes from rising spatial economic disparities. Populist movements received the highest support in economically backward regions, which had been hit by severe local shocks. By trying to foster spatial economic cohesion, regional policies have become an attempt to insure against those political trends and to save liberal democracies altogether. Second, recent theoretical and empirical research has challenged the leading paradigm of spatial equilibrium analysis, according to which place-based policies are an inefficient interference into the market-based resource allocation. In this paper, I review those arguments and how their balance has changed over time. I argue that the demand for place-based policies is likely to increase in the future, as new digital technologies might reinforce urban-rural divides. But even if the general case for place-based policies now seems to be more widely accepted, the question remains what exactly should be done and which type of programs generate the highest return. Digging through the vast evaluation literature, I try to derive some robust lessons how to conduct place-based policies in practise.

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## 1. Introduction

Since 1850, living standard in Western Europe, as measured by the real gross domestic product (GDP) per capita, have increased by a factor of twenty. Such growth can come from factor accumulation or from rising productivity, and the latter channel has de facto been significantly more important. Had productivity stayed constant, and had growth only been spurred by adding more capital and labour to an unchanged production process, then living standards would have only doubled over the same time period. Europe today would be roughly at the income level of the year 1900. This shows the fundamental importance of productivity growth as the single most important driver for rising living standards and wealth. It is nicely summarized by Paul Krugman's famous 1994 quote: "*Productivity isn't everything, but in the long run it is almost everything.*"

The future pace of productivity growth is crucial for the world economy. Unfortunately, however, the rate of productivity growth has been markedly declining over the past decades, especially in advanced economies, from an annual growth rate of around 3 percent in the 1960s to well below 1 percent today. This productivity slowdown poses a major challenge for OECD countries, especially in the wake of the demographic outlook, where the gap of a smaller active working population must be filled in order to support the growing share of pensioners. Some parts of the recorded productivity slowdown may be a statistical artefact, since the measurement of productivity is more difficult for services (especially for digital ones) than for manufacturing. But the consensus in the literature seems to be that those measurement problems can at best account for 20-30 percent of the recorded slowdown (see Haldane 2017). The rest is real.

The reasons for this productivity slowdown, and especially projections about its future path, are disputed within the economics profession. This debate has a dialectic structure with thesis, antithesis, and eventually a potential synthesis. The *thesis* is that most advanced economies are subject to a long-run trend of **secular stagnation**, where a combination of population ageing, high savings, low investment dynamics and ever more costly and difficult breakthrough innovations will cause the staggering productivity growth performance to continue for the foreseeable future.<sup>1</sup>

The *antithesis*, by contrast, is considerably more optimistic and predicts a **golden age** of strong productivity growth that is just around the corner.<sup>2</sup> It predicts new digital technologies (from robots to 3D printing, big data analytics and artificial intelligence) to diffuse more widely soon. This is projected to lead to considerable gains in labour productivity, thus reversing the long-run trend shown in the figure above. Those new digital technologies may, on the one hand, displace many routine jobs (Acemoglu and Restrepo 2018). Yet, they also create new opportunities and jobs (Dauth et al. 2021). And when the

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<sup>1</sup> Prominent scholars advocating this thesis include, for example, von Weizsäcker (2015), Gordon (2012, 2014) and Summers (2013). Also see Bloom et al. (2017) for evidence on innovations becoming more costly and more difficult to achieve over time.

<sup>2</sup> See Brynjolfsson and McAfee (2014) or Ford (2015).

resulting rents from improved technological possibilities are shared widely in society, this allows for an overall welfare gain, as production and incomes can grow with lower input of working time.

Thesis and antithesis – secular stagnation versus golden age – seem to contradict each other in a fundamental way. But the discussion in the scientific literature suggests that, actually, both phenomena happen at the same time, just in different parts of the economy: the majority of firms, industries, and regions faces secular stagnation, but for others the golden age has already started and is likely to continue. In other words, we are facing rising productivity dispersion.

## **2. Rising dispersion and market concentration in superstar firms**

This process is most visible at the level of individual firms. Firms differ strongly in their productivity and in their quality more broadly. Even within narrowly defined industries, there exists a huge degree of heterogeneity at any point in time.<sup>3</sup> The distribution of firm-level productivities is typically skewed: the vast majority is relatively unproductive, but at the top of the distribution there are a few “superstar firms”.<sup>4</sup> Those superstars not only have the highest level of productivity within their particular industry. Often, they also have the highest sales, market shares, price-cost margins (markups) and overall profits. Recent research has revealed that, in many industries, those superstars have departed even further from the bulk of normal competitors over time. Often those divergent trends – higher productivity growth in leading firms that were already most productive to begin with – were accompanied by a reallocation of market shares and industry profits towards those leading firms, with notable implications for competition, market power, and the income distribution.

In the United States (US), market concentration has increased in more than 75% of all industries during the last 20 years (Grullon et al., 2019), while average markups have risen mainly because highly profitable firms were able to grasp additional market shares (De Loecker et al. 2020). Those trends are particularly strong in the US, but they have been uncovered, though somewhat muted, also in other countries. For example, Andrews et al. (2016) find that global frontier firms – the top 5% most productive firms within an industry and year – have significantly gained market shares relative to laggards across all OECD members. Stiebale et al. (2020) emphasize that new digital technologies are a key driver for this superstar pattern. They find that European manufacturing branches more exposed to the rise of industrial robots exhibit more intra-industry productivity and profit divergence. Robots seem to trigger the emergence of superstar firms.

This increasing dispersion of productivity and profits across firms has broader implications for society. On the one hand, a tougher firm selection can raise consumer welfare, because more productive firms typically offer better and cheaper products as they pass on their cost advantages at least partly to

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<sup>3</sup> See Hopenhayn (1992), Melitz (2003) or Bernard et al. (2011).

<sup>4</sup> See Axtell (2001) for evidence about the USA or Combes et al. (2012) for France.

consumers. More productive firms typically also pay higher wages, which pushes up the earnings of employees in those firms. At the same time, this can lead to a widening dispersion in household incomes (Card et al. 2013) when wages in other, non-superstar firms tend to stagnate or even decline in the process of rising market concentration. This becomes more likely when the dominance of superstar firms becomes so prevalent that it discourages the investment efforts of laggard firms, who see no realistic chance to challenge incumbent market leaders and who consequently refrain from investments in process and product innovations even at ultra-low interest rates (Liu, Mian and Sufi, 2019).

Another potentially problematic aspect is the impact of the technology-driven concentration of market power on the functional income distribution: capital and firm owners tend to benefit the most from the recent trends. The reason is that superstar firms tend to pay better in absolute terms, but at the same time are able to keep a larger share of revenue as profits (Autor et al. 2020). This tends to decrease the labour share of income, and to increase the income share of capital and profits. And since the ownership of those assets is typically highly concentrated and not widely diffused in society, this in turn reinforces earnings and wealth inequality also in the personal income distribution.

### 3. The spatial dimension: superstar firms located in superstar cities

Another key aspect for those recent trends is their **spatial dimension**. Superstar firms are not randomly distributed across space, but they are predominantly concentrated in large metropolitan areas. The bulk of normal firms, which fall behind in their productivity performance, are by contrast often located in remote and economically backward regions. Rising productivity dispersion across firms, thus, can go hand in hand with rising regional inequalities: superstar cities hosting superstar firms forge ahead in terms of their productivity. Economically remote and backward locations, which mainly host normal firms, fall further behind.<sup>5</sup>

Those dynamics are best summarized by a quote from Enrico Moretti, leading scholar in urban and labour economics, who describes the economic geography of the United States as follows:<sup>6</sup>

*“A handful of cities with the right industry mix and a solid human capital base attract every more good firms and pay high wages. The cities at the other end of the spectrum are stuck with dead jobs and low wages.”* (Enrico Moretti)

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<sup>5</sup> Various other papers in this series, e.g. Egger (2021), extensively discuss the detailed measurement issues of productivity. For our purpose, it is important to highlight that some non-urban areas which are highly specialized in resource-extensive industries (such as commodities) usually exhibit very high measured productivity, in term raising concerns also about environmental and sustainability issues. This is not the issue on which we concentrate in this paper, however, but we mostly focus on productivity differences arising in manufacturing and service industries.

<sup>6</sup> Enrico Moretti (2013), *The New Geography of Jobs*, Berkeley University Press.

This assessment for the United States is also broadly consistent with the recent taxonomy of European regions by Iammarino et al. (2019) who classify EU regions (NUTS-2) into four different groups depending on their GDP per head relative to the EU average. They find that the regions with very high income (called VH regions) have been significantly more successful since 2001 along various dimensions. For instance, they exhibited higher employment growth, lower unemployment, more patent applications, more innovative activities, and also higher productivity growth.

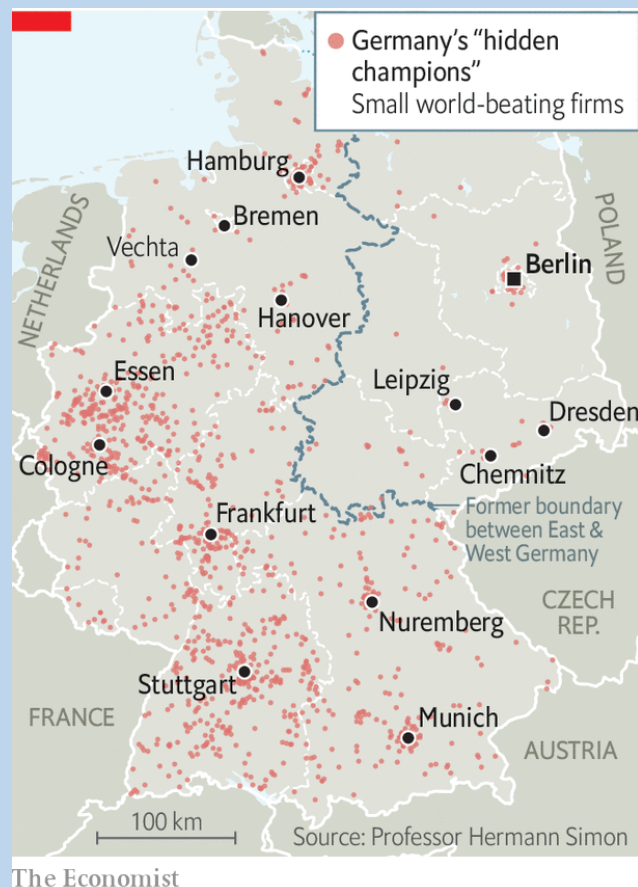
Those increasing regional economic divides have created significant political backlashes. Many populist movements in various countries had their strongest support in “places that don’t matter” (Rodriguez-Pose 2019), or in declining areas subject to massive industrial change (Autor et al. 2020; Fetzer et al. 2020). Examples include the 2016 presidential election in the United States and the Brexit referendum, which have revealed vastly different results in thriving metropolitan areas than in economically lagging and remote places. Regional inequalities are, therefore, not solely of economic significance but have major political implications – and this is certainly one reason why the discussion about spatial economic cohesion and place-based policies currently loom so high on the policy agenda.

Moretti’s rather dismal assessment is not inevitable and undisputed, however. First, the statement refers to the United States, where the degree of regional disparities between thriving metropolitan areas (such as San Francisco and New York) and the economic periphery is unusually large. In other countries, those disparities and spatial trends are less pronounced. In Box 1, we highlight the example of Germany where the economic geography is considerably more decentralized and characterized by several highly successful, yet remotely located small cities and regions.



### Box 1 – Germany's hidden champions and their impact on the economic geography

If Germany had the same degree of urban primacy as France or the UK, Berlin would be the largest city in Western Europe by far. But in reality, it has only 3.5 million inhabitants and is, thus, relatively small compared to Germany's national population of 83m people. The German economy still has a notable East-West divide even 30 years after reunification. Yet it is not dominated by one urban giant, but is relatively decentralized especially within the former Western Germany. There, thriving metropolitan areas such as Munich, Frankfurt or Hamburg co-exist with several highly successful small and medium-sized cities. For instance, Wolfsburg and Erlangen belong to the cities with the highest income per capita. The strongest employment growth between 1978 and 2018 has been observed in the North-Western city of Vechta.



Two key reasons seem to be responsible for this quite unusual economic geography:

- 1) Historical coincidence
- 2) The "hidden champion" phenomenon within the traditional German manufacturing model

First, after the German division in 1946, many prominent German companies (for example Siemens or Allianz) had to escape from the satellite-city of Berlin, and to resettle to some other location in Western Germany. Obviously, after the German re-unification in 1990, those headquarters were locked in and did not return, save for some representative secondary offices that were opened up in Berlin. Lock-in effects were also present in other instances, such as the country's major airport, which similarly did not revert back but remained in Frankfurt (see Redding et al. 2011).

In a hypothetical counterfactual scenario without those shakeups from division and re-unification, the German economic geography might thus have developed more similarly as in other countries, meaning that Berlin as the capital would probably play a much more dominant role today.

Yet, apart from these historical coincidences, the economic geography in Germany is different from most other countries because of its distinct focus on manufacturing value chains and closely related

business services. An integral part of this business model are small and medium-sized firms that are highly specialized on specific parts or niche products. They sell those products to manufacturing networks both domestically and abroad, and many have a dominant position in global markets (among the 3 leading firms worldwide) in their particular branch. Simon (1996) has coined the term “hidden champions” for those type of firms: small, successful, but quite unknown to the general public. Germany has disproportionally many (around 1,500) of such firms by international comparison.

The key feature for economic geography is that those hidden champions are not highly spatially concentrated. As the map from *The Economist* (9.2.2019) shows, hidden champions are relatively spread across Western Germany. The majority is still placed in adjacency to big cities, but many are located (partly also for historical coincidence) somewhere in the countryside. Take Vechta as an example, which is both small (31,000 inhabitants) and remote. There happen to be firms like *Pöppelmann*, world market leader for protective plastic caps and plugs, or *Big Dutchman*, a world-leading supplier of henhouses.

Such hidden champions play an important role in their respective local labour market. They are strongly contributing to the presence of high-paying, well-protected manufacturing jobs far away from the big cities, as well as for abundant tax revenue which allows local governments to invest in modern infrastructure. Thereby they limit the degree of regional economic divides.

Looking into the future, there are certainly some challenges ahead. Business surveys, starting from Simon (1996), indicate that shortage of skilled labour might be among the most severe ones, because hiring and attracting skilled workers (especially specialists with a foreign background) to the peripheral locations has often turned out to be quite demanding. Still, the example of the German “hidden champions” from the countryside shows that the Moretti-quote might be a bit overly pessimistic, and that peripheral locations are not necessarily stuck only with dead jobs.

Second, also for other countries it is not entirely clear if the Moretti-quote applies. Although there is overwhelming evidence that large metropolitan areas are ahead when it comes to productivity, wage and income *levels*, this is not necessarily the case for *growth* of those economic indicators. The OECD (2011) has developed a one-third, two-third rule for the decomposition within its member states: roughly one third of aggregate growth comes from metropolitan “hub regions”. The other two-thirds, however, have their origin in the remaining areas.<sup>7</sup> This illustrates that remotely located small cities are not automatically doomed, as the Moretti-quote might suggest, but significantly contribute to aggregate growth.

Yet, even if peripherality is not automatically synonymous to decline, there are still reasons to stay alert about growing spatial divides in the future (and, for that matter, about the design of

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<sup>7</sup> Hsieh and Moretti (2019) provide a similar decomposition for the United States. For a similar pattern, see also Boarini et al. (2015).

place-based policies). Consider again the case of Germany. Starting from the relatively balanced economic geography within Western Germany, there is evidence of rising urbanization and growing interregional divides. Recent research by Dauth et al. (2020) finds that assortative matching has significantly increased over time, both within and between cities. The “best workers” increasingly work for the “best firms”, which pay the highest firm-specific wages. Despite the “hidden champions” in the periphery that were introduced in Box 1, it is still the case that most superstar firms are predominantly located in or close to larger cities. Those metropolitan areas thus see an influx of highly productive and ambitious workers, which in turn reinforces their edge over peripheral regions. Consistently, Dauth et al. (2020) find that the urban wage premium has more than doubled in Germany between 1985 and 2014, while interregional wage inequality as measured by the standard deviation of regional wages has increased by more than 25 per cent.

Furthermore, going back to the dialectic outlook about the prospects of future productivity growth, the concern is that regional economic disparities will widen as a by-product of the ongoing transformation in OECD countries. Advanced economies are undergoing a gradual shift away from traditional manufacturing and towards knowledge-intensive services, which tend to be over-represented in cities. A similar trend may apply when it comes to digitalization. There exist various projections which types of jobs will disappear, and which types of jobs will flourish as new digital technologies diffuse more widely. Many observers expect that there will be no decrease in the overall number of jobs in the economy, but significant shifts in job characteristics including location. Firgo et al. (2018) have taken some of those projections at face value, and put growing and shrinking jobs on the map. They find that digitalization mainly benefits jobs that are currently mostly urban, while the shrinking job categories tend to be over-represented in peripheral labour markets. This pattern is also found in other OECD countries, see OECD (2018), and thus confirms that digitalization may further widen regional divides.

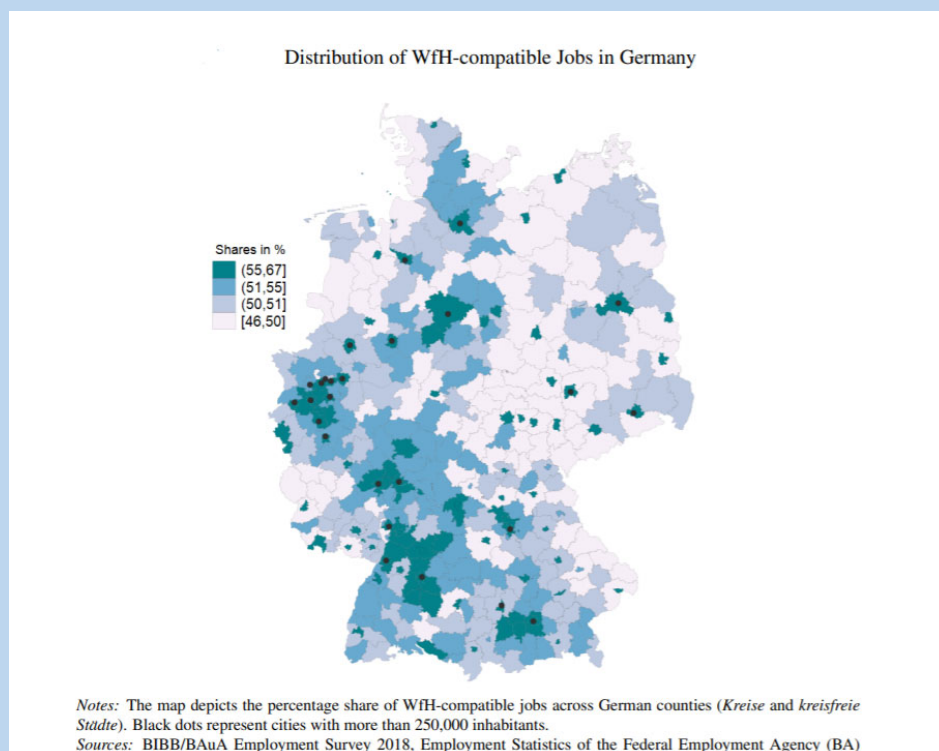
Summing up, even though the Moretti-quote may not be an accurate description of reality everywhere yet, at least not to its full extent, there is the valid concern that the quote may increasingly become true in the future. Most OECD members countries are characterized by growing regional divides and there is also no clear indication, as argued briefly in Box 2, that COVID19 will reverse this general trend. Place-based and cohesion policies will therefore remain a crucial challenge in the upcoming decades for all advanced economies.

## Box 2 – Will COVID19 cause the end of large cities?

One unpleasant lesson from the pandemic has been that urban density can facilitate the spread of the virus. Several large cities (most notably, New York) have been Corona hotspots especially during the first wave. The richer population flocked out of inner cities, and escaped to the allegedly safer rural hinterland. Many commentators have speculated if growing concerns about future pandemics could change the attitude towards urban density and big cities more fundamentally.

In the same vein, remote and home office work have become widespread in many, mostly high-skilled professions. Those activities can be performed from basically anywhere. New technologies may facilitate an effective decoupling of residence and workplace locations, and allow to combine a high-paying urban job with an attractive and relatively cheap rural residence equipped with a home office.

Alipour et al. (2020) have recently classified the “working from home” (WfH) capacity of various jobs. Since regions differ strongly in their occupational structure, this also gives rise to spatial differences in WfH-potential. The map from Alipour et al. (2020) illustrates this WfH-capacity for Germany, which is the share of regional jobs that could – potentially – be performed mostly from home.



As can be seen, it is highest for large metropolitan areas which tend to be specialized in advanced and business-related service industries, such as Berlin, Hamburg, Munich, Cologne or Frankfurt. Garnandt

et al. (2020) have recently shown that this WfH-potential is strongly correlated with local housing prices, and with the rate of net inward commuting prior to the pandemic.<sup>8</sup>

At the moment, it is too early to tell if COVID19 will indeed have a long-run impact on location choices, or if things just revert back to the status quo ante after the pandemic has come to an end. But if such long-run changes occur, then it would probably have the strongest immediate effects on the largest cities as they lose inhabitants and potentially even jobs. When those people and jobs move towards different places, this trend could potentially mitigate (or even revert) the rising urbanization that was observed prior to the pandemic (see Dauth et al. 2020 for evidence from Germany), thereby spurring inclusiveness and regional cohesion.

This scenario might turn out to be overly optimistic, however. Extrapolating from previous commuting flows, Garnadt et al. (2020) argue that, if urban residents indeed move away from inner cities, most of them would go to places in the direct vicinity, but not to rural places further out. In that case, the main impact of the pandemic would be further suburbanization and urban sprawl – with potentially problematic environmental effects – but not spatial inclusiveness and regional cohesion.

The reasons are twofold: first, physical presence might be partly substituted by teleworking in some advanced industries, but face time in urban offices would not disappear entirely, thus giving workers an incentive to keep commuting times manageable. Second, sparsely populated rural areas often lag the infrastructure and the set of urban amenities, both for consumption and production, that made agglomeration attractive to begin with. Some rural areas are deliberately trying to make up for this, and try to offer typical urban features in order to become attractive for urban residents. Examples include co-working spaces in small East German cities, which are trying to lure Berlin residents. But the success of such initiatives (trying to mimic Berlin in the countryside) remains to be seen.

Definite research on those topics will require a least a few years before long-term location choices have materialized and reliable data becomes available. For the time being, however, it seems safe to conjecture that COVID 19 will not mean the end of big cities.

#### **4. Place-based versus people-based– Theoretical background for regional policies**

The traditional paradigm in economics, based on the canonical Rosen-Roback spatial equilibrium framework, has stipulated that place-based policies are inefficient and cannot be justified in strict economic terms. As mobile workers and firms optimally choose their location within a country, all policies which distort those choices potentially lead to welfare losses (Kline and Moretti, 2014).

In particular, if regional policies divert economic activity away from productive core cities and towards unproductive remote areas, this can cause a productivity and output loss at the national level (Hsieh and

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<sup>8</sup> This pattern is similar in other OECD countries, see OECD (2020).

Moretti, 2019) and shrink the pie that is available for re-distributive policies.<sup>9</sup> Any re-distributive effort should therefore be spatially neutral, and focus solely on individuals rather than on locations. This paradigm is summarized in the famous quote by Glaeser and Gottlieb (2008), who demand: “*Subsidize people, not places!*”.

If anything, regional policies should focus on removing zoning and housing supply restrictions, which effectively prevent large cities from growing even further (Hsieh and Moretti, 2019). Moreover, research by Chetty et al. (2016) suggests that households (especially children) who moved from deprived to thriving cities (“moving to opportunity”) benefited enormously in their later careers. This makes a case for regional policy schemes which focus deliberately on relocations towards big cities, in order to fully exploit their unused agglomeration advantages.<sup>10</sup> Furthermore, other barriers to individual mobility should be reduced, which slow down the convergence of real living standards (welfare levels) across space by hindering the flow of people to jobs.

During the recent years, however, there has been somewhat of a paradigm shift in the profession towards place-based policies. This has been motivated, firstly, by empirical evidence that perfect individual mobility, one cornerstone of Rosen-Roback-type spatial equilibrium analysis, is a highly unrealistic assumption. For example, research by Bosquet and Overman (2019) shows that around 40 per cent of the UK population essentially never moves, but remains at their birthplace location (which is often also their parents’ birthplace) during their entire careers. When faced with adverse shocks to the local labor market, or with negative externalities resulting from a brain drain of young and skilled workers, this immobile population typically would not respond with “exit”, i.e., own migration towards thriving cities. They may, however, potentially react with “voice” at the ballot box – as exemplified by the evidence on the political backlashes of widening regional inequalities (Iammarino et al. 2019, Rodriguez-Posé, 2019). Partially as a result of those experiences, place-based policies (with the aim to bring jobs to people) have gradually received a more benign reception among economists.<sup>11</sup>

But this paradigm shift is also more fundamentally grounded in new theoretical research which has shown that a laissez-faire approach can lead to an inefficient spatial structure, where big cities are “too large” from a social point of view (Fajgelbaum and Gaubert 2020; Fajgelbaum et al. 2019; Henkel et al. 2020).<sup>12</sup> This string in the academic literature implies that there can be an *allocative* economic case for the conduct of place-based policies, not just a *political* justification based on re-distribution or political

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<sup>9</sup> In this spirit, Albouy (2009) argues that the ordinary system of income taxation, which appears to be spatially neutral at first sight, may actually bias locational choices against cities because nominal income is taxed, not adjusted for higher costs of living in denser metropolitan areas.

<sup>10</sup> Also see Newmark and Simpson (2015) for a review of those arguments.

<sup>11</sup> To quote one famous example, roughly ten years after Edward Glaeser coined the influential term “subsidize people, not places”, after the experiences of the 2016 presidential election, he published another paper (see Austin et al. 2018) with the instructive title “Jobs for the heartland: place-based policies in 21st-century America”.

<sup>12</sup> Another string in the theoretical literature integrates explicit mobility costs into dynamic spatial equilibrium models, see Ahlfeldt et al. (2020). This gives rise to heterogeneous welfare effects of local shocks across individuals, since utility equalization (potentially augmented with idiosyncratic locational tastes) does not hold at any given point in time as in standard Rosen-Roback-type frameworks.

economy. According to this literature, the society as a whole would benefit in terms of welfare if economic activity was distributed more equally across space.

An example for this research is discussed in Box 3. The case about fiscal transfers in Germany also highlights one important normative implication: introducing fiscal transfers may decrease productivity, as it diverts economic activity away from cities towards less productive peripheral regions. But still this policy may increase welfare as it avoids over-congestion in already crowded places. This is a reminder that productivity, although of fundamental importance, is not tantamount to well-being, and that density not only implies productivity-enhancing agglomeration effects but also urban costs and various types of negative congestion externalities.

### **Box 3 – A Germany without fiscal transfers**

Many countries conduct policies that shift tax revenue across regions in order to tackle spatial economic disparities. Henkel et al. (2020) estimate that Germany alone shifts roughly €60 bn across districts per year via various equalization schemes. The volume of fiscal transfers within Germany is, thus, more than twice as large as all EU structural funds combined, and it dwarfs the amount of roughly €1.5 bn that is paid on classical regional development policies by the German Federal government.

To understand the economic effects, Henkel et al. (2020) set up and quantify a general equilibrium model with multiple asymmetric regions, costly interregional trade, and imperfect labour mobility. In a counterfactual analysis, they simulate how the spatial equilibrium would change if Germany were to abandon all fiscal transfers completely. In this hypothetical scenario, local public goods are financed solely by taxing local economic activity, but there are no more transfers across jurisdictions.

The authors observe a major migration wave out of the former recipient and towards the former donor regions. Some East German cities would lose almost one quarter of their population, while big cities like Frankfurt would grow substantially. In total, roughly 3.2 million people would change residence.

As the induced migration is from less to more productive regions, there are substantial aggregate output gains; average labour productivity would increase by 5.8%. National welfare, however, would mildly decrease by 0.05% when transfers are abolished. Vice versa, introducing fiscal transfers from rich to poor regions would decrease national productivity and output, but potentially raise welfare.

This surprising difference is rooted in inefficiencies of the initial spatial equilibrium. There is a mix of positive and negative externalities embedded in the framework that individuals ignore in their private location decisions, representing different agglomeration and congestion forces. In the initial equilibrium, large cities tend to be ‘too large’ from a social point of view, although interregional transport costs and market size effects can work against this tendency. Fiscal transfers effectively countervail over-congestion, because they provide incentives for workers to reside outside the big cities. This can be welfare-enhancing, especially if transport costs for goods are not too large and if the recipient areas are



not too remotely located. And vice versa, abolishing the existing transfers can have adverse welfare effects, despite the associated productivity gains, because it makes the problem of over-congestion in large cities even worse.

Wrapping up, there seems to be a solid economic case for place-based policies, not just a political case. This is true even in models that still maintain the Rosen-Roback-type assumption of perfect individual mobility (hence, utility equalization across space), and even more so in models that emphasize mobility frictions which may give rise to actual welfare differences across space.

Yet, even if one accepts the notion that place-based policies have a solid economic foundation, it is still an open question which instruments are the most appropriate ones to conduct those policies and to bring “jobs to people”. Traditionally, the debate about place-based policies was about pure income transfers paid directly to the residents of lagging regions. This is also true for the recent theoretical literature along the lines of Fajgelbaum and Gaubert (2020), who show that there can be a case for transfers from urban to rural residents. The rationale for such pure lump-sum transfers is that they are supposed to come with relatively little distortions – in contrast to other forms of regional policies, such as direct subsidies to firms, which may create additional inefficiencies.

However, pure transfer payments also have substantial disadvantages when implemented in practice. In particular, they are passive in nature and may carry a stigma for the recipients, especially when they are paid as monetary compensations to workers who lost their jobs through various forms of exogenous shocks or structural transformations in deeply affected local environments. Those workers, who were often active in manufacturing jobs prior to the decline of their residence region, are seeking for new job perspectives in their local labor market, not for monetary compensations from the government. Put bluntly, they do not want transfers but new perspectives – in the words of leading economist Daron Acemoglu “it is good jobs, not redistribution, that provide people with purpose and meaning in life”.<sup>13</sup> In the real world, regional and place-based policies typically do *not* take the form of direct monetary transfers to households. They use different approaches to shift resources across space, such as various forms of subsidies or targeted infrastructure investments. Those instruments seek for “activation” of economic activity in recipient areas rather than passive income support. That, in turn, raises the question which specific place-based policies are most appropriate to deliver the desired goals of spatial economic cohesion, while at the same time trying to minimize resource waste and secondary distortions. This practical discussion – which regional policy instruments to use? – is the topic of the next sections.

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<sup>13</sup> This assumption is hard to square with the simplest form of neoclassical microeconomic theory, because the standard “homo oeconomicus” is not reluctant to accept pure income transfers. However, new theoretical approaches conceptualize the behavioral foundations of this reluctance related to the concept of “human dignity”.



## 5. The abundance of place-based policies

The term *place-based policies* is an umbrella for a plethora of programs, all of which try to support particular recipient regions in various ways. At a broad scale, one may distinguish two different categories (financing modes): 1) fiscal equalization schemes, and 2) regional development policies.

An example for the former is the German *Länderfinanzausgleich*, as also discussed above in Box 3, which redistributes tax revenue from areas with high fiscal capacity to areas with low capacity, allowing recipients to offer more public goods than they otherwise could. Examples for the latter approach are EU structural funds, where a higher-order government layer (co-)finances specific types of public expenditure in delineated recipient areas.

A key difference between 1) and 2) concerns the targeting of the funds. With fiscal equalization schemes, net transfers typically materialize for the respective local government as additional general revenue, which they can use at their own discretion without targeting particular types of public spending. In classical regional policies, by contrast, a higher-order government layer defines overarching priorities, and designs the specific programs accordingly (for example, the European Regional Development Fund, ERDF). In practice, those programs often solicit applications by firms, public agencies, or local governments from designated areas, and then provide subsidies for specific projects that comply with the defined goals and were chosen to be funded.

This paper focuses on the second type of policies. But even with this narrower scope, there is still a vast multitude. To give an example, the German parliament (Bundestag) has recently reported that municipalities have access to a total of up to **943 different programs**, which provide funding opportunities financed either by the European Union, the Federal and/or the State level.<sup>14</sup> Not all of those interventions explicitly pursue goals of spatial economic cohesion, but they cover a diverse range of priorities including social structure, infrastructure, R&D, education, housing, urban planning, arts, environment, agriculture, and so on. Still, the vast majority of them will have implications for economic geography, and potentially even on inclusive productivity more narrowly defined, for example when some regions host disproportionately more subsidy recipients than others. The regional scope differs across programs as well. Some are accessible only to economically lagging regions, others are explicitly designed for rural areas, for cities, and yet others are principally open to all local governments.

There is a voluminous literature where single programs of this type are empirically evaluated (even more so for other countries than for Germany). This evidence-based approach is highly useful to inform policymakers about the actual effects and the real-world performance of their instruments. For instance, evaluations can show if the intended goals were met, how existing approaches might be improved, and so on. Yet, there are also some conceptual difficulties that researchers have to encounter.

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<sup>14</sup> See <https://dip21.bundestag.de/dip21/btd/19/235/1923514.pdf> (page 27). If funding programs for firms and other agencies are included, the number increases from 943 to more than 2,600.

To mention a few, a first problem arises from the fact that multiple programs co-exist in parallel, some of which overlap, interact or even have conflicting goals. It might therefore be difficult for researchers to attribute economic effects to just one particular intervention, because the impacts of all other policies would have to be properly controlled for. Such clinical *ceteris paribus* conditions are rarely met in practice. Second, there are external validity issues: when one particular policy has succeeded (or failed) in one circumstance, this does not mean it will necessarily succeed (or fail) in all other contexts, because the set of parameters (such as the availability of other policies not in the focus of the respective evaluation study) can differ. Finally, most empirical evaluation studies focus on partial effects, but ignore general equilibrium repercussions. For instance, evaluation studies typically ask if one Euro worth of subsidies had a measurable and significant effect on an economic outcome variable, say, on employment, R&D spending, or firm-level productivity. But studies typically cannot trace the full welfare impact of the policy, i.e., whether the same Euro might have had stronger effects had it been spent elsewhere, whether the potential benefits outweigh the full economic costs of the tax necessary to finance this subsidy, and so on. For those reasons, it is important to remain cautious when trying to design optimal place-based policies from the abundant empirical evaluation literature.

## 6. Place-sensitive policies for different types of regions

We believe it is still possible, however, to deduct some robust lessons by scanning the available academic literature for common conclusions and caveats that appear to hold in a variety of contexts. A recent paper by Barba Navaretti and Markovic (2021) has fully exploited this strategy, and provided the most comprehensive current survey on place-based policies. In particular, they have developed a useful categorization of four different broad program types, which are designed for the needs of different types of regions. Those categories for **place-sensitive policies** are:

1. Policies to preserve agglomeration
2. Policies to avoid deglomeration
3. Policies to foster agglomeration
4. Policies to connect center and periphery

The first type is mostly designed for large metropolitan areas and their specific needs, such as problems with housing scarcity, intra-city traffic congestion, urban inequality, social inclusiveness etc. Often those programs would not come under the conventional label of cohesion policies, because the recipient areas are large metropolitan areas. Those cities typically have high average per capita income levels, and are thus not eligible for funding under many classical schemes such as the ERDF. Still it is a place-

based policy, although much of the responsibility for the design and financing of those programs lies with the respective local governments.<sup>15</sup>

The second type is mostly for old industrial regions with long-term legacies. It tries to prevent an erosion of existing social structures, and supports the regions in coping with the challenges of transforming their local economies. Prominent examples from the past include aid programs for steel production and heavy manufacturing regions, such as the Ruhr area in Germany. Those policies may be in high demand in the future, since climate policies will have strong impacts on certain local industrial compositions. An example is the *Just transition fund* of the European Union or the German *Strukturstärkungsgesetz Braunkohlereviere*, which are designed to support coalmining areas as the extraction and use of fossil energy is faded out. A related discussion is whether similar (possibly even bigger) programs may be needed for regions highly specialized in components of combustion engines, as the automobile industry is currently undergoing a deep transformation towards electric mobility. This can imply severe and spatially concentrated job losses when regions host a cluster of firms whose business models are no longer sustainable – raising concerns that they might soon become the next Ruhr area.

The third type is probably the most classical case of place-based policies. It explicitly focuses on remote, rural and otherwise economically lagging regions, and tries to stimulate and attract private investment and job creation there. It also aims to support those activities by providing complementary public investments in areas such as infrastructure and education, or by relocating public sector agencies (such as courts, administrative bodies, etc.) specifically to those areas in order to boost demand. Important EU structural policies, such as the ERDF, operate mainly within this domain. They provide funding for areas with relatively poor overall economic performance, thereby leveraging national policy efforts which often target the same regions within their territory.

Finally, the fourth type is mostly about connecting different types of regions by investments into the trans-regional traffic infrastructure via highways, railways or airfare connections. The key goal is to reduce transport and commuting times/costs, thereby trying to improve market access for the firms located en route. Although true also for the other categories as well, this fourth type of policy clearly has spatial implications beyond the direct effects on the treated regions that are involved in a specific project. In particular, a reduction of transport costs not only has trade creation, but also trade diversion effects. The treated areas gain market access when a traffic project is completed, but the untreated regions somewhere else in the economy lose attractiveness in relative terms (“multilateral resistance”). Hence, they are indirectly affected by those policies.

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<sup>15</sup> There are exceptions, however. Berlin, for example, is one of the largest net recipients of fiscal transfers in Germany (see Henkel et al. 2020). One reason are again historical peculiarities, but there is also a systematic component: large cities often provide public goods whose value reaches out far beyond their own jurisdiction, and which are consumed also by tourists and residents of other municipalities. Examples include famous arts museums or concert halls. This can establish a case where larger cities can claim a higher fiscal need per inhabitant in existing equalization schemes (“*Einwohnerveredelung*”), which in turn leads to higher transfer receipts *ceteris paribus*.

Barba Navaretti and Markovic (2021) provide an extensive survey including various case studies and examples for all four types of policies. Rather than repeating it here, we will try to digest some general lessons and principles from this body of the academic literature in the final section of this paper. Within that discussion, we will put a special emphasis on investments in education as a tool for regional policy. Thereby we close the circle to the beginning of the paper, where we argued that rising productivity dispersion is a key principal challenge for OECD economies, by discussing how education policies might be the preferred answer towards those developments. Moreover, we will further elaborate on implementation problems of place-based policies (and scope for improvement) as highlighted by practitioners in expert interviews.

## **7. Three dos and dont's of place-based policies**

It is understandable that policymakers would ideally like to receive an unambiguous list of recommendations from academics which place-based policies work and which ones don't. Unfortunately, such a list does not exist – not even when focusing on just one of the four broad types of place-sensitive policies introduced in the previous section – partly for the reasons (context-dependence) discussed there. Still we believe it is possible to digest at least three basic principles that policymakers can and should take serious in the design of those policies.

### **7.1. Smart specialization: Building on inherent structures**

First, it is important to acknowledge that new economic structures cannot be initiated from scratch. Effective aid programs, of whatever type, should start from available local competencies, comparative advantages and specializations within the respective region. The programs should then try to build upon those structures in order to improve them and make them sustainable for the future. The European Union follows this principle, for example, with its smart specialization platform that aims to boost growth and jobs by enabling each region to identify and develop its own competitive advantages.

To be sure, an approach of smart specialization does not solely rely on gradual innovations while keeping existing industry compositions unchanged. It does leave room for disruptive changes, or the template of “re-invention cities” popularized by Glaeser (2005) and later extended by Duranton (2007) or Findeisen and Suedekum (2008). But even when there are profound shake-ups of local industry environments, the direction of those changes often follows the notion of “relatedness” (Balland et al. 2019), where the newly emerging structures are still stemming from pre-existing conditions.

This basic principle – smart and related specialization – does not only apply when it comes to agglomeration-fostering policies for lagging regions (the third type of place-based policies). Maybe somewhat surprisingly, it can also apply for the second type, which is about preventing de-glomeration

of old industrial areas. This may seem contradictory, because the challenge for those regions is precisely to transform their local economies and to get rid of their outdated structures. Still, this does not mean that the recipe for such places must be rapid destruction of all incumbent firms and jobs, hoping that a complete and quick re-shuffling will bring about new business models in entirely different areas.

The experience from past episodes of industrial and technological change rather suggests that transformation can occur within existing relationships, and that stability may actually be of inherent value in such situations. Dauth et al. (2020) have analyzed job biographies of German manufacturing workers who were exposed to new labor-displacing automation technologies (robots) which essentially took over the workers' previous tasks. Rather than letting those workers go, employers retained, retrained and repositioned them within the firm. The workers took over new complementary tasks, often even climbed up the occupational ladder, and eventually suffered no earnings losses in their job biographies. At the end of the day, robots caused no overall job losses in the German economy. Manufacturing employment gradually went down as old workers were not replaced when reaching retirement age, and young workers instead started their careers in different (mostly service) industries. Scarring disruptions in response to the robots, however, were successfully avoided in Germany – quite in opposite to the American experience with the same robot technologies, which led to painful job and earnings losses there (Acemoglu and Restrepo, 2018).

Thus, where ever possible, place-based policies should aim to support sustainable transformations within stable job relationships while trying to avoid individual disruptions. This will work better if existing competencies and skills are transitioned into new, yet related business areas. For instance, bringing this discussion to contemporaneous and future challenges, it should probably be the first priority to equip current production workers of combustion engines with the necessary skills to become specialists for electric vehicles; chances are, they might be even better prepared for those tasks than new workers without any experience and accumulated specific human capital in the automotive industry. Where such smooth transitions are not possible, a second option might be to support job switches into related industries, where the human capital is still of partial valuable.

A key ingredient to facilitate this strategy are investments into education, including on-the-job training schemes as firms transform their business models. The financing of those human capital investments is partly in the interest of firms and workers themselves, since they contain job-specific skills. However, there are also good economic reasons for government co-involvement, including via the design of place-based policies. The reasons are twofold. First, at least some parts of the education investments will concern general and transferable skills, for instance in cases where firms cannot retain all workers during their transition, which in turn requires some job switches across industries. Firms have little incentive to provide such training out of their own pocket, but it effectively requires cost sharing by public policy. Second, education investments are needed to adapt the set of skills provided to the young generation, in order to equip them with the necessary human capital for the changed local industrial structure.

Summing up, place-based policies for lagging regions and for regions under acute transformation stress should follow the principle of smart and related specialization. Start from existing competencies, skills, specializations, and comparative advantages, then take it from there to develop sustainable structures for the future. This requires steady investments into human capital and education, and the constant willingness for adaptation and transformation. But ultimately it is likely to work smoother than drastic shake-ups, where a region tries to completely overhaul its comparative advantages in the short run.

## **7.2. Strive for win-win potentials**

The traditional discussion about place-based policies strongly emphasized deadweight-losses and followed a zero-sum logic: A Euro that is invested in the unproductive periphery may distort location choices, and in the end do more harm than good. Had the same Euro been invested in thriving cities, it would have produced a higher economic rate of return, hence more tax revenue. It would have enlarged the pie available for re-distribution, and thereby facilitated more income transfers to residents of peripheral regions (“subsidize people, not places”). In anything, this conventional literature justifies the existence of place-based policies merely as an alternative, yet inefficient form of re-distribution, or as the outcome of a game of political economy where representatives of peripheral regions successfully lobby for subsidy payments.

As discussed before, this logic has long dominated the (academic and political) discourse about place-based policies, but it is no longer undisputed. Various arguments have been expressed in the literature that make a purely *allocative*, economic case for place-based policies (recall box 3). In this view, regional policies are efficient and raise the level of well-being in society. Yet, a zero-sum logic is still somehow present in the underlying static models, as the efficient policy scheme (e.g. in Fajgelbaum and Gaubert, 2020 or in Henkel et al. 2020) comes down to pure income or fiscal transfers from the core to the periphery. In other words, money is taken away from city residents and transferred to rural residents for consumption purposes. This result is important as a theoretical insight about the foundation of place-based policies, but it still misses some relevant points.

In reality, place-based policies are not about static re-distributions of income and consumption, but about investments with long-term payoffs. This opens the door for win-win constellations, where eventually everybody can be made better off when efficiently designed policies are put in place.

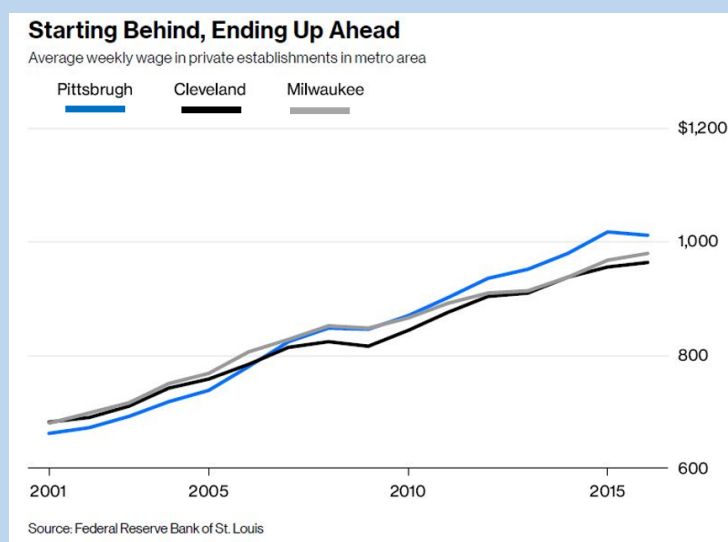
This is most obviously the case for public investments, especially in R&D and education. It would certainly be an exaggeration to claim that such investments always “pay for themselves”. Still, there is a growing body of evidence suggesting that education investments have notable returns, both privately and socially. They spur growth in productivity and output, hence wages and tax revenue, and generate future economic value that would not have been created without the respective investment. Hence, this

policy is not about static zero-sum games, but about potential win-win constellations for both payees and payers.

#### Box 4 – The role of universities for the rebound of the Rust best: A tale of three cities

Around 20 years ago, the city of Pittsburgh had a battered reputation. Located in the middle of the American rust belt, it faced all hardships of de-industrialization, economic decline, population loss, and urban decay that characterized the area due to the shrinking of its once-powerful industrial sector, such as steel, automobile, and coal-mining. Columnist Noah Smith called the Pittsburgh of that time “a post-industrial sob story, a tumbledown slum where no one would want to live”. Two decades later, things have changes. The city is frequently portrayed as a growing mecca for millennials, with placements on the list of “*best cities to live*” in the United States, or the “*coolest neighborhoods in America*”. Sometimes it is even being hailed as the next tech industry hotspot.

Not so the neighboring city of Cleveland or Milwaukee in the northwestern rust belt. Both were hit by similar economic shocks, lost population and experienced income declines. But still, in 2001, both Cleveland and Milwaukee still had slightly higher average wages than Pittsburgh. Things started to change quickly afterwards. By the end of the great recession, Pittsburgh had overtaken both rust belt neighbors in terms of wages, and unlike them stabilized its overall population. It continued to forge ahead in building up its modern reputation in the subsequent decade.



What had Pittsburg done differently? The common story is that it revived itself by becoming a university-centered technology hub. A central player in this transition was Carnegie Mellon University, a renowned research university comfortably ranked 25-30th in the nation, but nowhere near the ivy league of Harvard or Stanford.

It has cooperated closely with industry and government to help revive the city. The sectoral focus was on robotics and self-driving cars. The University founded a Robotics Institute as early as in 1979, Google opened up a campus in the city, Uber initiated an autonomous vehicle pilot program there, and so on. As a result, Pittsburgh has developed a growing startup scene, with incubators from the private sector again closely collaborating with Carnegie Mellon to enable direct spin-offs and to place university graduates in the business world. To attract smart workers, which are essential for tech startups, the city invested into fashionable neighborhoods and a lively downtown. A cultural arts scene developed, aided by the Pittsburgh cultural trust. It has also been welcoming to immigrants and became considerably more diverse over those two decades, with a big increase in its Asian population.

So, all the typical ingredients of a modern urban success story have been there – an educated and diverse workforce, a great university, and close cooperation between the public, private, nonprofit and academic sectors. Other cities, including Cleveland and Milwaukee, have plausibly tried to cook up a similar mix using similar ingredients. But they did not succeed quite as much as Pittsburgh. One possible reason is that they did not have access to a resource such as Carnegie Mellon (or did not push their own local resources quite as much into the same direction), which made the smart specialization from old to new industries harder for them.

The example of Pittsburgh illustrates the central role that universities and research institutions can play in the process of urban revival and industrial transformation. And this is not specific to the American rust belt. Turning to the German Ruhr area, it has taken a somewhat similar route. When comparing Ruhr to other German metropolitan areas, like Munich or Frankfurt, it is still ranked consistently below in most economic dimensions. However, when comparing former coal and steel areas across countries, Ruhr is often considered a role model. For example, while Detroit lost more than 50 per cent of its local population from the peak in the 1970s, even the worst-performing cities in the Ruhr area (Duisburg and Gelsenkirchen) lost less than 15 percent.

Today the Ruhr area hosts 25 universities and research institutions. “30 years ago, the Ruhr area had 300,000 coalminers and no students, today it’s the other way around”, is a slogan that is frequently used to describe the development over time. It has developed several modern business sectors, such as logistics, green energy, insurance services, as well as software engineering for self-driving cars (in Bochum). It has also developed a lively startup scene.

Although it would certainly be a stretch to call Ruhr a “boom region”, it is nevertheless a second example that highlights the importance of universities and human capital investments for industrial transformation and regional development.

In particular, institutions of higher education (such as colleges or universities) notably seem to spur local economic growth. Valero and van Reenen (2019) estimate that an increase in a region's number of universities per capita by 10 percent is associated with 0.4 percent higher future GDP per capita in that



region. Furthermore, they find positive spillover effects to geographically adjacent areas. The relationship between GDP per capita and universities is not simply driven by the direct expenditures of the university, its staff and students. Rather the positive growth effects seem to come, at least partly, from increased supply of human capital and greater innovation. Similar findings have been made by Moretti (2004a,b) or by Abel and Deitz (2009), who find that colleges and universities can raise local human capital levels by increasing both the supply of and the demand for skill. In other words, universities raise the level of productivity of local workers and firms, but they furthermore attract new human capital from other regions to the area, thereby pushing productivity gains even further.

A key question for the design of regional education policy is: should it focus on **knowledge creation** or on **knowledge diffusion**? The right answer is probably that it should aim for both, and depending on the context apply different priorities for different types of regions. Supporting knowledge creation by funding cutting-edge basic research is key to shift out the frontier, and thereby to boost aggregate productivity and growth. But from a spatial point of view, it is evident that knowledge creation is not always inclusive. World-class research institutions are typically located in (or close to) thriving cities, and for various reasons are difficult to replicate in remote rural areas. This is a direct corollary of the findings by Carlino and Kerr (2015) that R&D activities are considerably more spatially concentrated than production and income. Put differently, support of knowledge creation is extremely important (and extremely expensive), but it is not a widely applicable instrument for cohesion policy.

Investments in R&D and education still remain very important tools of place-based policy, possibly the most important ones as suggested by Box 4, also for regions that are economically lagging or face acute structural problems. But the angle should be a different one in those cases. The focus should explicitly be on knowledge *diffusion*, i.e., aiding firms and workers in learning and applying *existing* knowledge and technologies. This activity does not shift out the frontier, but it moves laggards closer to the frontier by **upgrading** their business models, their modes of production, and their productivity more generally. Evidence suggests that knowledge diffusion will not just have negligible, but substantial effects on aggregate growth. This is what the one-third-two-third rule of the OECD (2011) shows, which estimates that actually the majority of growth originates outside the major economic hubs.

In practice, it is impossible to sharply delineate knowledge creation and knowledge diffusion. Every piece of academic and applied research tends to carry both elements. Any good teacher (knowledge diffuser) is also sometimes a knowledge creator. No university will openly admit that their main business model is knowledge diffusion, since knowledge creation tends to carry a more prestigious reputation, and so on. The lines between the two activities are blurry. But leaving aside those distinctions, let us summarize the discussion about human capital investments in the context of place-based policies with the following bullet points:

- Human capital investments are among the most important tools to support regions; they generate growth and have high private and social returns on investment (thus, a high win-win potential for payees and payers of this policy).
- Knowledge diffusion is not inferior to knowledge creation. Both are key ingredients to economic growth, both can lead to an upgrading of production processes and productivity.
- Institutions of higher education (universities and colleges) are key vehicles for regional growth, even if they are mainly active in knowledge diffusion.
- Building and supporting such institutions is a key priority for place-based policies, both for economically backward regions and for regions under acute transformation pressure.
- Those regions should not try to attract world-class research institutions. It is highly unrealistic to build the next Harvard from scratch. But the vast majority of regions also don't need to host the next Harvard. Utilizing and upgrading their local resources, as described in Box 4, may cater the needs of those region just as well.
- Vice versa, stellar projects of groundbreaking basic research are also key for knowledge creation and economic growth. Their location should be chosen optimally solely on the basis of academic merit and excellence, in order to maximize the chances for success. Lobbyism, political economy, or regional vanity fairs should not interfere with those decisions.

### **7.3. Focus on good institutions and efficiently designed programs**

As pointed out above, German municipalities alone have access to 943 different aid programs, providing funding opportunities for various types of projects and goals, (co-)financed by the European Union, the federal and/or the state level. Local governments in other OECD countries are confronted with a similar plethora of different programs. It is easy to imagine that the transaction costs of exploiting, managing, and administering those funding opportunities can be quite overwhelming, especially for thinly staffed public administrations in economically weak areas.

This general problem is emphasized in Box 5, which summarizes own field research on the practical implementation problems of European structural policies in Germany.

#### **Box 5 – Practical implementation problems of place-based policies**

Field research by Suedekum (2020) has conducted expert interviews with 17 practitioners of place-based policies from 9 different local municipalities in 5 different German federal states (60-90 minutes each). The experts represent both the local recipient level, mostly rural or economically lagging areas, as well

as the state level, which is responsible for the administration of the European structural and investment funds (ESIF) in the focus of this study (ERDF, ESF, INTERREG, EAFRD). Experts came from different hierarchical layers, from administrative aide to state minister, to ensure a diversity of different perspectives. The interviews were recorded and then transcribed for a structural citation analysis.

All interview partners emphasized that, overall, European cohesion policy has made indispensable contributions to economic development. This is especially true for East Germany after reunification, and for regions bordering on other EU member states. Nevertheless, when it comes to design and implementation, not everything was deemed optimal. In particular, the study has identified **three central areas of action** where the practice of existing European place-based policies could be improved.

Firstly, the level of bureaucracy, in particular the various documentation and proof requirements, must be reduced and redesigned in such a way that a “culture of mistrust” in the administration of the various involved government layers no longer hampers the effectiveness of the funding practice. It was emphasized, for example, that a single project can be monitored and checked by up to **eight different independent institutions** at various levels. This high complexity is binding administrative resources that would have a higher impact if focused on other activities. Moreover, the high administrative complexity is particularly burdensome for structurally weak regions with thin staffing levels. But smaller companies and associations, who are also eligible for certain types of direct funding, suffer the most from this complexity. At times, they even reject any involvement with European programs, because they fear an overburdening with the administrative demands.

Second, this has led several experts to point out that the current funding practice is not always benefiting “the weakest” regions with the highest need for support, but “the cleverest” regions who manage to navigate best through the jungle of administrative rules and procedures. This problem is exacerbated by the requirement for co-financing. Although the buy-in of local interests in the application for projects was generally accepted as a guiding principle, it was emphasized that local finances in economically weak areas are often in a precarious state. Even a co-financing requirement of just 10 per cent is overwhelming for some potential funding recipients, and this anticipation has at times induced them not to send in project applications in the first place. Possible solutions to those problems include professional funding advisors, who support weak regions in the management of those projects through all stages.

Third, the marketing and public image of European funds must be improved. When a project is completed, the general public often does not even know, according to the interviewed experts, if and how much the European Union has contributed to the financing. Local politicians instead try to emphasize their own merits, and only cite the European level when it comes to failures or less successful projects. Another key obstacle is that the marketing efforts of the single funds are not coordinated. Each

fund shows up separately as a co-financier of a project, but the acronyms (such as EDF, ESF, EAFRD, etc.) are generally unknown to the public. Experts have therefore suggested to move to a coordinated effort, where “financed by Europe” is conveyed as the comprehensive message.

Instead of project-based financing that is typical for regional development policies, many recipient regions openly admit that they would prefer untargeted funds as provided under fiscal equalization schemes. They claim that higher general tax revenue would allow local governments to conduct more public spending of the type that caters the preferences of the local population, thereby substantiating the general principle of subsidiarity. Higher-order government layers are concerned, on the other hand, that untargeted funds would not be used to achieve over-arching goals (such as tackling climate change, investing in education, and so on) that require effective coordination.

It is beyond the scope of this paper to ultimately resolve this trade-off, or to discuss those issues of multi-level governance in detail. We simply close with the general observation that any place-based policy can only be as good as the quality of the institutions that govern it, both at the local and the higher-order layers. Local government must have the capabilities and resources to effectively absorb the various funding opportunities, and to ensure that the funding flows into worthwhile projects with notable and sustainable economic returns. Higher-order government layers need to monitor the efficient and correct use of public money on the ground. The subtle balance that needs to be hit is how to ensure this high quality of public spending without creating the above-mentioned “culture of mistrust”, with excessive checks and controls that overburden the involved agents.

## **8. Conclusion**

Place-based policies will remain a key task for governments in all OECD economies. They have become an indispensable part of the policy mix, they exist for good economic reason, and they affect society and politics in a fundamental way – far beyond the narrow realm of mitigating spatial disparities in single economic indicators. To design efficient place-based policies, this paper has made three key proposals: they should start from the principle of smart specialization, they should avoid zero-sum thinking but thrive for win-win-potential, and finally, they should focus on good institutional designs to ensure the quality (not just the quantity) of public spending.

## Literature

J. R. Abel and R. Deitz (2009). Do Colleges and Universities Increase Their Region's Human Capital? Federal Reserve Bank of New York Staff Reports, no. 401

Acemoglu, D., P. Restrepo (2018). The Race Between Machine and Man: Implications of Technology for Growth, Factor Shares and Employment. *American Economic Review*

Acemoglu, D., Lelarge, C. and Restrepo, P. (2020). Competing with Robots: Firm-level Evidence from France, Technical Report 23285, Working Paper, Boston University.

Acemoglu, D. and Restrepo, P. (2020). Robots and Jobs: Evidence from US Labor Markets, *Journal of Political Economy* 128(6): 2188–2244.

Ahlfeldt, G., F. Bald, D. Roth and T. Seidel (2020). Quality of Life in a Dynamic Spatial Model, CESifo Working Paper No. 8767, Munich.

Albouy, D. (2009). The Unequal Geographic Burden of Federal Taxation, *Journal of Political Economy* 117, 635-666.

Alipour, J.-V., O. Falck und S. Schüller (2020). Germany's capacities to work from home, *CESifo Working Paper*, 8227, Munich.

Andrews, D., Criscuolo, C. and Gal, P. N. (2016). The Best versus the Rest: The Global Productivity Slowdown, Divergence across Firms and the Role of Public Policy, *Working Paper No. 5*, OECD Productivity Working Papers, November 2016.

Autor, D., Dorn, D., Katz, L. F., Patterson, C. and Van Reenen, J. (2020). The Fall of the Labor Share and the Rise of Superstar Firms, *Quarterly Journal of Economics* 135(2): 645–709.

Austin, B., E. Glaeser and L. Summers. 2018. Jobs for the Heartland: Place-Based Policies in 21st-Century America. *Brookings Papers on Economic Activity* 2018(1), 151-255.

Axtell, R.L. (2001). Zipf Distribution of US Firm Sizes. *Science* 293, 1818-1820.

Balland, P.-A., R. Boschma, J. Crespo and D. Rigby (2019) Smart specialization policy in the European Union: relatedness, knowledge complexity and regional diversification, *Regional Studies* 53, 1252-1268

Bernard, A., J. B. Jensen, S. Redding, P. Schott (2011). The Empirics of Firm Heterogeneity and International Trade. NBER Working Paper 17627

Bloom, N., C. Jones, J. Van Reenen, M. Webb (2017). Are Ideas Getting Harder to Find? NBER Working Paper No. 23782

Bloom N und J. Van Reenen (2007). Measuring and Explaining Management Practices across Firms and Countries. *Quarterly Journal of Economics*, 122 (4), 1351-1408.

Boarini, R., F. Murtin and P. Schreyer (2015), "Inclusive Growth: The OECD Measurement Framework", *OECD Statistics Working Papers*, No. 2015/06, OECD Publishing, Paris, <https://doi.org/10.1787/5jrqpqxjghg4-en>

Bosquet, C. and H. Overman (2019). Why does birthplace matter so much?, *Journal of Urban Economics* 110, 26-34.

- Byrne, D., J. Fernald, M. Reinsdorf (2016). Does the United States have a productivity slowdown or a measurement problem? *Brooking Papers on Economic Activity*, Spring issue
- Brynjolfsson, E., A. McAfee (2014). *The Second Machine Age: Work, Progress and Prosperity in a Time of Brilliant Technologies*. New York: *Norton and Company*
- Card, D., J. Heining, P. Kline (2013). Workplace Heterogeneity and the Rise of West German Wage Inequality. *Quarterly Journal of Economics* 128(3), 967–1015.
- Carlino, G. and W. R. Kerr (2015). Agglomeration and Innovation, in: G. Duranton, J.V. Henderson and W. C. Strange (eds.), *Handbook of Regional and Urban Economics*, Vol 5., 349-404.
- Chetty, R., N. Hendren and L. Katz (2016), The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment. *American Economic Review* 106(4): 855–902.
- Combes, P.-Ph., G. Duranton, L. Gobillon, D. Puga, S. Roux (2012). The Productivity Advantages of Large Cities: Distinguishing Agglomeration from Firm Selection. *Econometrica* 80, 2543–2594.
- Crafts, N., K. O'Rourke (2014). Twentieth Century Growth. in: Aghion, P., S. Durlauf (eds.), *Handbook of Economic Growth*, Amsterdam: Elsevier, 263-346.
- Dauth, W., S. Findeisen, E. Moretti, J. Suedekum (2018). Assortative Matching and Geographical Wage Differences. Processed, Düsseldorf Institute for Competition Economics
- Dauth, W., S. Findeisen, J. Suedekum, N. Woessner (2017). German Robots – The Impact of Industrial Robots on Workers. CEPR Working Paper 12306.
- De Loecker, J., Eeckhout, J. and Unger, G. (2020). The Rise of Market Power and the Macroeconomic Implications, *Quarterly Journal of Economics* 135(2): 561–644.
- Drum, K. (2017). You Will Lose Your Job to a Robot—and Sooner Than You Think. *Mother Jones Magazine* Nov/Dec 2017.
- Duranton, G. (2007). Urban Evolutions: The Fast, the Slow, and the Still, *American Economic Review* 97, 197-221.
- Fajgelbaum, P.D. and C. Gaubert. 2020. Optimal spatial policies, geography and sorting. *Quarterly Journal of Economics*, 135 (2): 959–1036
- Fajgelbaum, P.D., E. Morales, J.C. Suárez Serrato and O. Zidar. 2019. State taxes and spatial misallocation. *The Review of Economic Studies* 86(1), 333-37.
- Findeisen, S. and J. Suedekum (2008). Industry churning and the evolution of cities: Evidence for Germany, *Journal of Urban Economics* 64, 326–339.
- Firgo, M. P. Mayerhofer, M. Peneder, P. Piribauer and P. Reschenhofer (2018). Beschäftigungseffekte der Digitalisierung in den Bundesländern sowie in Stadt und Land, WIFO Institute Vienna
- Ford, M. (2015). *The Rise of the Robots*, New York: Basic Books.
- Garnadt, N., M. Schnitzer and S. Viete (2020). Räumliche Flexibilisierung durch zunehmende Homeoffice-Nutzung. *Wirtschaftsdienst* 100 (9), 661–666.
- Glaeser, E. (2005). Reinventing Boston: 1640-2003, *Journal of Economic Geography* 5, 119-153.

Glaeser, E. and J. Gottlieb. 2008. The economics of place-making policies. *Brookings Papers on Economic Activity Spring*: 155-253.

Gordon, R. (2012). Is the US Economic Growth Over? Faltering Innovation Confronts the Six Headwinds. NBER Working Paper 18315

Gordon, R. (2014). The Demise of US Economic Growth: Restatement, Rebuttal and Reflections. NBER Working Paper 19895.

Grullon, G., Larkin, Y. and Michaely, R. (2019). Are U.S. Industries Becoming More Concentrated?, *Review of Finance* **23**(4): 697–743.

Gutierrez, G. and Philippon, T. (2017). Declining Competition and Investment in the U.S., NBER Working Paper No. 23583, National Bureau of Economic Research.

Haldane, A. (2017). Productivity Puzzles. Speech at the *London School of Economics*, 20. March 2017. Available at: <https://www.bankofengland.co.uk/speech/speeches>

Henderson, J. V. (1974). The Sizes and Types of Cities." *American Economic Review* 64 (4): 640-656.

Henkel, M., T. Seidel and J. Suedekum (2020). Fiscal transfers in the Spatial Economy. CEPR Discussion Paper 12875. Forthcoming: *American Economic Journal – Economic Policy*

Hopenhayn, H., (1992). Entry, Exit, and Firm Dynamics in Long Run Equilibrium. *Econometrica* 60, 1127-1150.

Hsieh, C.-T. and E. Moretti. 2019. Housing constraints and spatial misallocation. *American Economic Journal: Macroeconomics* 11(2), 1-39.

Iammarino, S., A. Rodriguez-Pose and M. Storper. 2019. Regional inequality in Europe: evidence, theory and policy implications. *Journal of Economic Geography* 19, 273–298.

Kline, P. and E. Moretti. 2014. Local economic development, agglomeration economies and the big push: 100 years of evidence from the Tennessee Valley Authority. *Quarterly Journal of Economics* 129(1), 275-331.

Liu, E., A. Mian and A. Sufi (2019). Low interest rates, market power, and productivity growth, NBER Working Paper 25505, Cambridge (Mass.)

Melitz M. (2003). The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity. *Econometrica*. 71: 1695-725.

Moretti, E. (2004a). Estimation the social return to higher education: evidence from longitudinal and repeated cross-sectional data, *Journal of Econometrics* 121:175-212.

Moretti, E. (2004b). Workers' Education, Spillovers, and Productivity: Evidence from Plant-Level Production Functions, *American Economic Review* 94: 656-690.

Newmark, D. and H. Simpson. 2015. Place-based policies, in G. Duranton, J.V. Henderson, and W.C. Strange, eds., *Handbook of Regional and Urban Economics*, Vol. 5, Elsevier, 1197-1288.

OECD (2018), *Job Creation and Local Economic Development 2018: Preparing for the Future of Work*, OECD Publishing, Paris <https://doi.org/10.1787/9789264305342-en>.

- OECD (2020), "Exploring policy options on teleworking: Steering local economic and employment development in the time of remote work", *OECD Local Economic and Employment Development (LEED) Papers*, No. 2020/10, OECD Publishing, Paris, <https://doi.org/10.1787/5738b561-en>.
- Redding, S., D. Sturm and N. Wolf (2011). History and Industry Location: Evidence from German Airports, *Review of Economics and Statistics*, 93(3), 814-831
- Simon, H. (1996). *Hidden champions: lessons from 500 of the world's best unknown companies*. Harvard Business School Press, Boston (Mass.)
- Stiebale, J., Suedekum, J. and Woessner, N. (2020). Robots and the Rise of European Superstar Firms, CEPR Discussion Paper 15080.
- Suedekum, J. (2020), „Europas Regionen besser fördern: Ideen aus Rheinland-Pfalz und Sachsen-Anhalt“, Friedrich-Ebert-Stiftung, Bonn.
- Summers, L (2013). IMF Fourteenth Annual Research Conference in Honor of Stanley Fischer, 8 November
- Syverson, C (2016). Challenges to Mismeasurement Explanations for The U.S. Productivity Slowdown. NBER Working Paper 21974.
- Valero, A. and J. Van Reenen (2019). The economic impact of universities: Evidence from across the globe, *Economics of Education Review* 68(C), 53-67.
- Von Weizsäcker, C.-C. (2015). Kapitalismus in der Krise? – Der negative natürliche Zins und seine Folgen für die Politik. *Perspektiven der Wirtschaftspolitik* 16, 189–212.



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