

Regional Development in an Age of Divergence: Convergence, Territorial Traps and the Geography of the Twin Transition

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Abstract

Regional development has returned to the centre of economic policy after three decades in which national growth was assumed to lift all places. This article examines why convergence stalled in the advanced economies and why the gap between prosperous and lagging territories is widening in most of the world. It reports a comparative secondary analysis that synthesises the European Union's Ninth Cohesion Report, recent OECD regional and development assessments for Africa and Latin America, and four econometric evaluations of place-based policy in China. Four findings emerge. First, convergence is real but conditional: central and eastern European regions moved from forty-five per cent of the European Union average GDP per head in 1995 to nearly eighty per cent by 2023, while around a third of European regions have still not regained their 2008 level. Second, the green and digital transitions are territorially asymmetric, concentrating opportunity where absorptive capacity already exists. Third, place-based instruments work, but conditionally: the Chinese evidence shows positive effects on human capital and persistent first-mover advantages, alongside environmental and distributional costs. Fourth, the binding constraint outside the European Union is fiscal rather than technical - African infrastructure investment would need to rise from roughly eighty-three to one hundred and fifty-five billion United States dollars annually to double continental GDP by 2040, at a time when governments spend seven times more on debt service than on infrastructure. The article proposes a six-fold typology of regional trajectories and argues that institutional capacity, not the volume of transfers, determines whether regional policy converges or merely compensates.

Keywords: regional development, cohesion policy, territorial inequality, place-based policy, smart specialisation, green transition, infrastructure investment, convergence, development trap

1. Introduction

For most of the post-war period, regional policy rested on a straightforward proposition: national economies grow, and the benefits diffuse outwards to lagging territories through factor mobility, fiscal transfers and the spatial extension of markets. Williamson's (1965) classic account gave the proposition a shape, predicting that regional inequality follows an inverted U - rising during early industrialisation and falling as integration deepens. By the 2010s that confidence had evaporated. Regional disparities within the advanced economies stopped narrowing, and in several countries widened, while the political consequences - the revolt of the places that do not matter - became impossible to ignore (Rodríguez-Pose, 2018; Iammarino et al., 2019).

The European evidence is the most comprehensively documented. The Ninth Report on Economic, Social and Territorial Cohesion, published in March 2024, records an extraordinary achievement and a stubborn residue. On the one hand, GDP per head in central and eastern Europe rose from around forty-five per cent of the European Union average in 1995 to fifty-two per cent at accession in 2004, and to nearly eighty per cent by 2021 - a halving of the gap in a single generation (European Commission, 2024a). On the other hand, regional disparities narrowed until the financial crisis and then stagnated: around a third of European regions have yet to return to their 2008 level of GDP per head, twenty-eight per cent of the European population lives in regions below seventy-five per cent of the Union average, and forty per cent lives in territories whose population declined over the past decade (European Commission, 2024a, 2024b). Catch-up and stagnation are happening simultaneously, in the same policy framework.

Outside Europe the picture is starker because the constraints are different. African economies could double continental GDP before 2040 by raising annual infrastructure investment from about eighty-three to one hundred and fifty-five billion United States dollars, with an estimated return of around twenty per cent - yet between 2019 and

2023 African governments spent on average seven times more servicing debt than building infrastructure, and official development assistance is projected to fall by as much as seventeen per cent in 2025 after a nine per cent fall in 2024 (OECD, 2025a). In Latin America and the Caribbean, labour productivity grew by only 0.9 per cent a year between 1991 and 2024 against 1.2 per cent in the OECD, more than half of workers remain in informal employment, and public spending on production development policies is below 0.5 per cent of GDP against an OECD average of three per cent (OECD, 2025b). The regional problem is therefore not one problem but three: stagnation in mature economies, structural transformation failures in middle-income ones, and infrastructural and fiscal constraint in low-income ones.

This article makes four contributions. It integrates the theoretical literatures on convergence, agglomeration and place-based policy into a single framework that makes institutional capacity explicit (Figure 1). It assembles recent comparative evidence - European, African, Latin American and Chinese - into a common analytical frame. It reports what the newest econometric evaluations of place-based policy actually establish, which is more conditional than either advocates or critics usually concede. And it proposes a typology of regional trajectories that distinguishes convergence from compensation, a distinction with direct consequences for policy design.

The article proceeds as follows. Section 2 reviews the literature. Section 3 describes the comparative secondary analysis. Section 4 presents findings. Section 5 discusses their implications, and Section 6 concludes with policy recommendations.

2. Literature Review

2.1 Convergence, Divergence and the Return of Regional Inequality

The convergence literature has moved through three positions. The neoclassical position treated regional convergence as the default outcome of factor mobility and diminishing returns, with interregional disparities a transitional friction. The endogenous-growth and new economic geography position challenged that default, arguing that increasing returns can make divergence the equilibrium rather than the exception (Krugman, 1991). The contemporary empirical position is more nuanced still: Iammarino, Rodríguez-Pose and Storper (2019) show that the relationship between regional inequality and national development is not monotonic, and that the recent experience of advanced economies is better described as polarisation - the simultaneous advance of leading regions and relative decline of intermediate ones - than as simple divergence.

Two contributions clarify the mechanism. Storper (2018) argues that the current wave of polarisation is driven less by trade or technology in the abstract than by the geographic concentration of the knowledge-intensive activities that now command the largest returns, combined with the inability of housing and labour markets to redistribute the gains. Rodríguez-Pose and Storper (2020) add a crucial institutional detail: where housing supply is constrained, successful cities cannot absorb the workers who would benefit from moving there, so agglomeration generates rents rather than opportunity. The policy implication - that regional convergence may require interventions in housing and mobility as much as in productivity - is rarely drawn.

2.2 Agglomeration, Path Dependence and Related Variety

If increasing returns explain why leading regions pull ahead, path dependence explains why lagging ones struggle to respond. Martin and Sunley (2006) established that regional economies evolve along paths shaped by inherited industrial structure, institutional arrangements and local knowledge, and that the same inheritance that once generated advantage can become a lock-in. Boschma (2005) refined the argument by distinguishing several dimensions of proximity - cognitive, organisational, social, institutional and geographical - and showing that excessive proximity can be as inhibiting as excessive distance. Duranton and Puga (2004) provided the micro-foundations for agglomeration economies in sharing, matching and learning, which remain the standard vocabulary for describing why firms cluster.

The practical content of this literature is that diversification is not arbitrary. Regions diversify most successfully into activities that are related to what they already do, because related activities draw on transferable capabilities. This insight is the intellectual basis of smart specialisation, and it also explains why generic infrastructure investment - necessary though it is - rarely transforms a regional economy on its own.

2.3 Place-Based Policy: The Case for and Against

Place-based policy has always been contested. The economic case for it rests on market failures that are spatially specific: agglomeration externalities that private actors cannot capture, coordination failures in complementary investments, and the public-good character of local infrastructure and skills. Kline and Moretti (2014) demonstrated

that well-designed local development programmes can generate self-sustaining gains rather than temporary displacement, because agglomeration externalities persist after subsidies end. Barca, McCann and Rodríguez-Pose (2012) made the normative case, arguing that efficiency and equity point in the same direction when interventions are designed around local institutions and directed at the binding constraint rather than at symptoms.

The case against is equally serious. Glaeser and Gottlieb (2008) showed that many place-making policies fail because they subsidise construction rather than productivity, benefiting landowners rather than workers. Neumark and Simpson (2015), surveying the evaluation literature, concluded that the evidence for employment effects is mixed at best and that apparent local gains frequently reflect displacement from elsewhere. The World Bank's (2009) World Development Report tried to reconcile the positions by distinguishing spatially blind institutions - which should be uniform - from spatially connective infrastructure and targeted interventions, which should not. That distinction remains the most useful one available, and Section 4.3 tests it against the newest evidence.

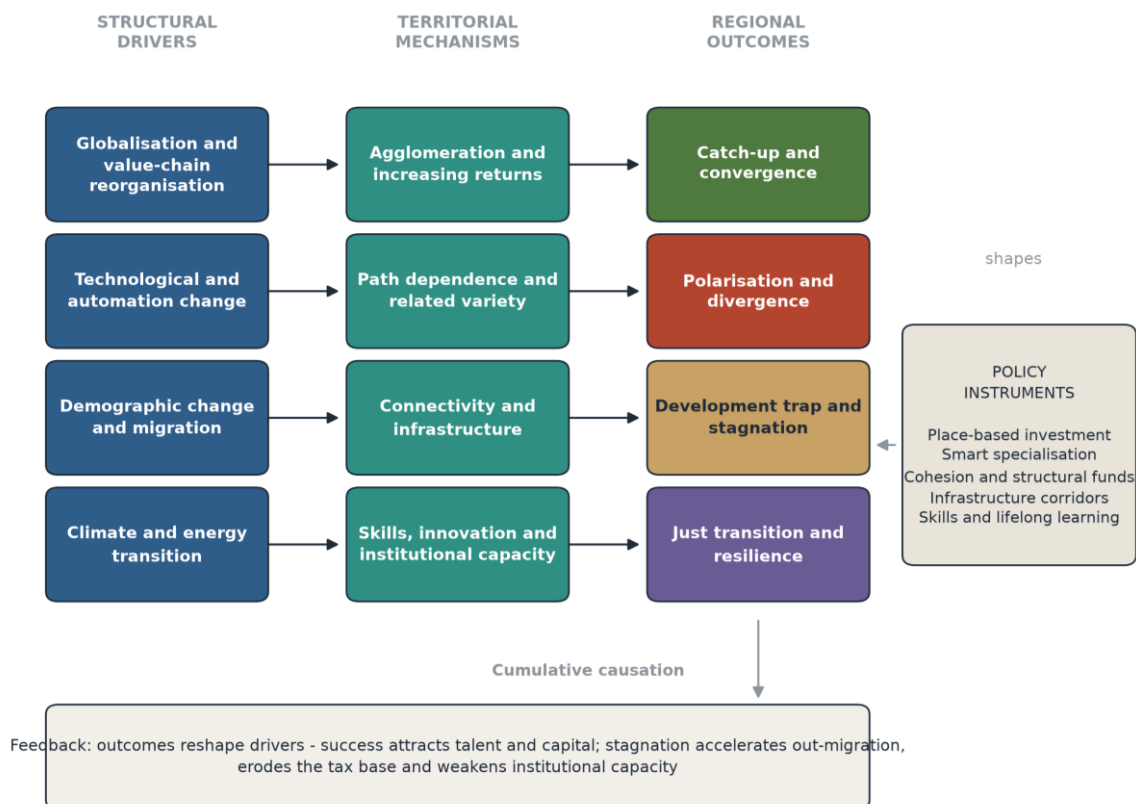


Figure 1. A framework for regional development: drivers, mechanisms, outcomes and policy

2.4 Smart Specialisation and Mission-Oriented Regional Policy

Smart specialisation emerged as the European Union's answer to the problem of undirected regional investment. Foray (2015) defined it as an entrepreneurial process of discovery in which regions identify a limited number of domains where they can build advantage, rather than subsidising everything. McCann and Ortega-Argilés (2015) traced its migration from a research-policy concept to a conditionality attached to European structural funds, and warned that administrative compliance could substitute for genuine discovery. Pike, Rodríguez-Pose and Tomaney (2017) situated the debate in the longer history of local and regional development thinking, noting that each generation of policy - growth poles, industrial districts, clusters, smart specialisation - rediscovers the same tension between exogenous investment and endogenous capacity.

Recent modelling work supports a conditional reading. Simulations of Italian regions found that improving weak or

underdeveloped smart specialisation governance substantially increases the impact of investment, implying that the quality of the process - who participates, how priorities are revised, how failures are handled - matters as much as the amount spent (European Commission, 2024a). This is the clearest available evidence that institutional capacity is a multiplier on transfers rather than a separate concern.

2.5 The Twin Transition as a Territorial Shock

The green and digital transitions are usually analysed as sectoral changes with distributional consequences. They are better understood as territorial shocks, because their costs and benefits fall on places unevenly and because the capacity to respond is itself unevenly distributed. The Ninth Cohesion Report is explicit on both counts: climate change bears most heavily on coastal, Mediterranean and south-eastern European regions, where annual costs can exceed one per cent of GDP, and regions differ sharply in their capacity to capture the benefits of decarbonisation and digitalisation (European Commission, 2024a). The same report records that more than one hundred billion euro of the 2021-2027 programmes is directed at green action, around forty billion at digitalisation and forty-five billion at education and training - an implicit admission that the market will not spread the transition's benefits by itself.

The theoretical point is that transitions revalue territorial assets. Carbon-intensive regions, peripheral manufacturing regions and regions dependent on routine back-office employment all face asset stranding, while regions with research infrastructure, grid capacity and skilled labour gain. Absent deliberate policy, a transition intended to be universal becomes another mechanism of regional sorting.

2.6 Institutions, Governance and Territorial Capital

A final strand argues that the variable which consistently separates successful from unsuccessful regions is not endowment but the capacity to act collectively. Hirschman's (1958) account of unbalanced growth already placed the emphasis on linkage effects and on the problem-solving capacities that development itself induces, rather than on the stock of factors a region happens to possess. Contemporary work reaches a similar conclusion by a different route: analysing the rise and fall of urban economies over several decades, Storper, Kemeny, Makarem and Osman (2015) find that the most durable advantage lies in the combination of specialised skill pools and the institutional arrangements that sustain them, and that economies which lose these arrangements lose their position even when their physical capital remains intact.

This literature supplies what the convergence and agglomeration traditions both lack: an account of why two regions with similar endowments, similar shocks and similar transfers nonetheless diverge. The answer it offers is that territories differ in what might be called territorial capital - the stock of institutions, networks, administrative routines and shared expectations that determine whether a policy instrument can be implemented as intended. Territorial capital is slow to build, easy to erode, and largely invisible in the indicators by which regional policy is monitored. It is also, on the evidence assembled in Section 4, the variable that most reliably explains why identical instruments produce different results in different places.

2.7 Synthesis and Gaps

Three gaps emerge. First, the literature remains siloed by region: the European cohesion literature, the North American place-based policy literature and the development literature on infrastructure and structural transformation rarely engage one another, despite addressing the same underlying question. Second, the conditional nature of place-based policy is asserted more often than demonstrated with recent data. Third, the institutional variable - governance quality, administrative capacity, the ability to absorb and revise investment plans - is acknowledged but rarely modelled as the primary determinant. The study reported below addresses the first gap directly, the second with recent evaluations, and the third through the framework in Figure 1.

3. Method

3.1 Design and Rationale

The study is a comparative secondary analysis. Because no single dataset contains comparable measures of regional convergence, place-based policy effects and infrastructural constraint across Europe, Africa, Latin America and China, a secondary design was chosen in preference to either a single-country econometric study or a purely narrative review. The design has three components: (a) a descriptive reconstruction of convergence trajectories from official cohesion and development reports; (b) a structured review of recent econometric evaluations of place-based policy; and (c) a comparative diagnostic of the binding constraint in three macro-regions. The components are triangulated in Section 4.6.

The design is explanatory, not confirmatory. No hypotheses were pre-registered and no causal estimates are claimed

beyond those reported by the primary studies cited. The purpose is to establish whether patterns identified in one setting - for example, the conditionality of place-based policy in China - are consistent with patterns identified in another - the uneven impact of cohesion policy in Europe - and to specify the conditions under which they should be expected to co-occur.

3.2 Evidence Base

Sources were eligible if they (i) reported original data or original empirical analysis of regional or territorial development; (ii) were published in 2021 or later, with priority to 2023-2026; (iii) documented methodology and, where relevant, sample or coverage; and (iv) were available in English. Sixteen sources met the criteria. Table 1 summarises the principal ones and their role in the analysis. Two features of the corpus shape interpretation. The European material is the most detailed but is also the most institutionally specific, since cohesion policy has no close analogue elsewhere; and the Chinese evaluations are the most methodologically rigorous but concern a political and administrative context that differs fundamentally from the others.

Table 1. Principal evidence base

Source	Year	Coverage	Contribution to the analysis
European Commission, Ninth Cohesion Report (COM(2024) 149 final)	2024	EU-27, NUTS 2 regions; 1995-2023	Convergence trajectories, territorial challenges, policy allocations (Sections 4.1, 4.2)
European Commission, Commission Staff Working Document (SWD(2024) 79)	2024	EU-27; economic cohesion analysis	Detail on stagnation, development traps and productivity (Section 4.1)
High-Level Group on the Future of Cohesion Policy	2024	EU-27; forward-looking assessment	Post-2027 design debate and territorial polarisation (Section 5.2)
OECD, Africa's Development Dynamics 2025	2025	African continent; infrastructure and finance	Investment gap, returns, financing structure and fiscal constraint (Section 4.4)
OECD, Latin American Economic Outlook 2025	2025	33 LAC countries; 1991-2024	Productivity, informality, skills and policy spending gaps (Section 4.4)
Hu, Huang, Wu and Zhang	2024	China; county-level SEZ programme, census microdata	Place-based effects on human capital (Section 4.3)
Chen, Huang and Xie	2025	China; national development zones, archival data	First-mover advantage and persistence (Section 4.3)
Xu and Zheng	2025	China; Xinjiang targeted pairing aid programme	Environmental and distributional costs of interregional transfers (Section 4.3)
World Bank	2025	Middle East and North Africa	Comparative human development and megatrend pressures (Section 5.4)

3.3 Analytic Procedures

Three procedures were applied. For the convergence reconstruction, reported GDP per head series were assembled at the level of aggregation used by the source and plotted against the relevant reference average; no attempt was made to splice series with different definitions or to re-weight regional aggregates. For the policy review, each evaluation was coded for identification strategy, outcome measured, effect size, and stated limitations, and the results were compared against the claims made in the general survey literature. For the comparative diagnostic, each

macro-region was coded for its binding constraint - institutional capacity, productive structure, or fiscal and infrastructural capacity - on the basis of the indicators reported by the source, and the coding was checked against at least one independent source.

A note on units is necessary. European figures are expressed in purchasing power standards relative to the European Union average; African and Latin American figures are expressed in United States dollars or in ratios to the OECD average. These are not comparable across sources, and the analysis treats them as within-region diagnostics throughout.

3.4 Limitations

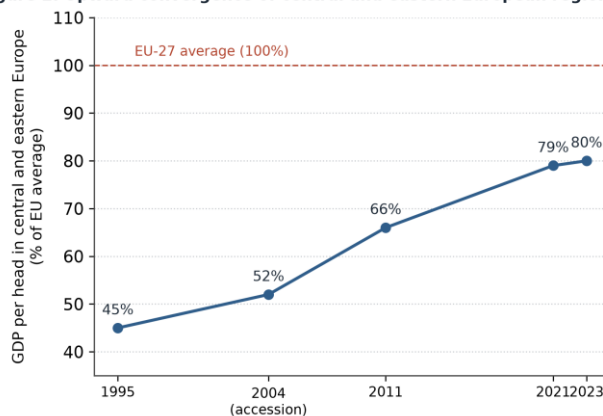
Four limits should be stated. The analysis relies on published aggregates rather than unit-record data, so no multivariate controls are possible and no effect can be attributed to a single cause. The European evidence is produced by the institution responsible for the policy it evaluates, which creates an incentive to report favourable modelled results; the modelled multipliers cited below should therefore be read as the Commission's own estimates. The Chinese evaluations use credible identification strategies but concern an administrative context with unusual state capacity. And the evidence base is uneven in coverage: sub-Saharan Africa and South Asia are represented by a single continental assessment each rather than by country-level evaluations.

4. Findings

4.1 Convergence That Stalled

The first finding is that convergence is real but conditional, and that the condition is no longer being met uniformly. Figure 2 reconstructs the central and eastern European trajectory: from about forty-five per cent of the Union average GDP per head in 1995, to fifty-two per cent at accession in 2004, to sixty-six per cent by 2011, and to nearly eighty per cent by 2021 and 2023 (European Commission, 2024a). The unemployment rate in the same group of member states fell from an average of thirteen per cent to four per cent. This is a large, well-documented success, and it is directly attributable to a combination of market integration and sustained transfer.

Figure 2. Upward convergence of central and eastern European regions, 1995-2023



Source: compiled from the Ninth Report on Economic, Social and Territorial Cohesion (European Commission, 2024a); 1995, 2004, 2021 and 2023 values as reported.

Figure 2. Upward convergence of central and eastern European regions, 1995-2023

The simultaneous failure is equally well documented. Around a third of European regions - less developed, transition and more developed alike - have yet to return to their 2008 level of GDP per head, concentrated in Italy, Spain, Greece and France but present also in Germany, Finland and the Netherlands. Growth of GDP per head averaged one per cent a year across the Union between 2001 and 2021, and in many regions stagnated or declined (European Commission, 2024b). Figure 3 assembles the three headline indicators of that stagnation. The Commission's own diagnosis is that these regions risk falling into a development trap: a self-reinforcing combination of slow productivity growth, weak investment, skills loss and out-migration from which escape becomes progressively harder.

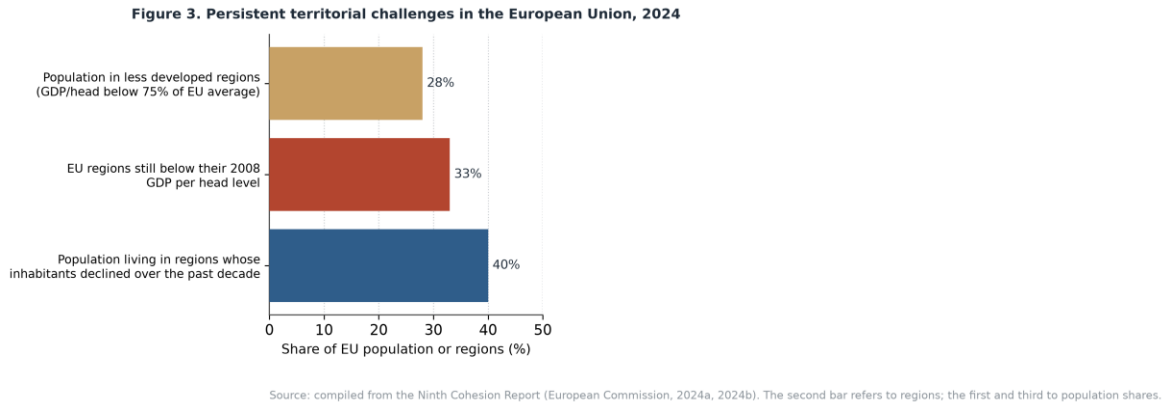


Figure 3. Persistent territorial challenges in the European Union, 2024

Two features of the pattern deserve emphasis because they are often overlooked. First, the divergence is internal as well as international: capital-city regions in eastern member states grew rapidly while poorer regions within the same countries did not, which means that national convergence statistics can conceal regional polarisation. Second, rural areas present an ambivalent picture: they face distinctive service-access and demographic challenges, yet their average GDP per head growth has been roughly twice that of urban areas in recent years, at around 1.5 per cent (European Commission, 2024a). Simple urban-rural binaries misread the evidence as much as national averages do.

The Commission's modelled assessment of its own policy helps explain why the pattern is so persistent. Simulations using a spatial general equilibrium model suggest that the 2014-2027 programmes will reduce the coefficient of variation of regional GDP per capita by about three per cent at the peak of their impact in 2030, and that each euro invested will have generated an additional 1.3 euro of Union GDP by 2030 and almost three euro by 2043 - an implied annual return of about four per cent (European Commission, 2024a). These effects are large by the standards of public investment, and they include positive spillovers to regions that receive nothing, through trade linkages. But a three per cent reduction in dispersion over a decade and a half is a modest correction against disparities in which the least developed regions remain below seventy-five per cent of the Union average. Modelled success at the margin is not the same as convergence, and the distinction matters for how the next generation of instruments should be judged.

4.2 The Territorial Signature of the Twin Transition

The second finding is that the green and digital transitions are territorially asymmetric in ways that policy has begun to acknowledge but not yet fully internalise. Table 2 sets out the thematic composition of the 2021-2027 cohesion programmes. Of a total of three hundred and ninety-two billion euro, more than one hundred billion is programmed for green action - renewable energy infrastructure, energy efficiency, sustainable transport and nature conservation - around forty billion for digitalisation, and forty-five billion for education and training (European Commission, 2024a).

Table 2. Thematic orientation of European cohesion policy, 2021-2027

Thematic priority	Programmed amount (EUR billion)	Share of total (%)	Illustrative measures
Green transition	>100	~26	Renewable energy infrastructure; building energy performance; sustainable transport; flood protection; habitat conservation
Education and training	45	~11	Skills for the twin transition; youth employment; lifelong learning
Digital transition	~40	~10	Broadband roll-out; e-government and e-health; digital skills; business digitalisation
Other cohesion objectives	~207	~53	Research and innovation; transport and connectivity; social inclusion; health; capacity building
Total	392	100	Approximately 30.5 per cent of the EU budget 2021-2027

Note: figures are as reported by the European Commission (2024a); categories overlap because individual operations serve multiple objectives. Shares are computed by the author.

The distributional implication follows from the interaction between thematic priorities and absorptive capacity. Modelling reported in the Ninth Cohesion Report suggests that every euro invested through the 2014-2027 programmes will have generated an additional 1.3 euro of Union GDP by 2030 and almost three euro by 2043 - an annual return of roughly four per cent - and that the coefficient of variation of regional GDP per capita declines by about three per cent by 2030 (European Commission, 2024a). These are substantial effects, but the same modelling finds that the impact per euro is greater in regions with a strong export base and smaller capital endowments, and that improving weak smart-specialisation governance significantly increases the return. Transfers do the work only where institutions can use them.

The risk runs in the other direction too. The Commission reports that climate change costs in the most exposed coastal, Mediterranean and south-eastern regions can exceed one per cent of GDP annually, and that regions dependent on sectors disrupted by the pandemic or exposed to energy price shocks were worst affected (European Commission, 2024a). A transition that raises costs where capacity is lowest and concentrates benefits where capacity is highest will widen territorial gaps unless the allocation rule explicitly compensates for absorptive capacity rather than rewarding it.

4.3 What Place-Based Policy Actually Delivers

The third finding concerns the effectiveness of place-based instruments, and it is more nuanced than either the advocacy or the sceptical literature suggests. Three recent evaluations of Chinese programmes provide the clearest evidence because they exploit credible quasi-experimental variation.

First, place-based policy can produce durable capability gains rather than transient activity. Using a cohort difference-in-differences design and population census microdata, Hu, Huang, Wu and Zhang (2024) find that exposure to China's special economic zone programme increased completed schooling by about 0.14 to 0.16 years, operating through higher educational spending and the inflow of educated workers. The effects are concentrated among women and at senior secondary level. This matters because it identifies a mechanism - human capital accumulation - through which a temporary place-based intervention can generate returns that persist long after subsidies end, which is precisely the claim Kline and Moretti (2014) advanced and which had previously been difficult to demonstrate.

Second, timing matters, and early advantage persists. Chen, Huang and Xie (2025) show that China's early national development zones consistently exhibit higher firm entry, innovation and labour pooling than later ones, and interpret the pattern through a spatial equilibrium framework in which early establishment allows agglomeration to take hold before competing locations emerge. The implication for policy is uncomfortable: place-based policy is most effective

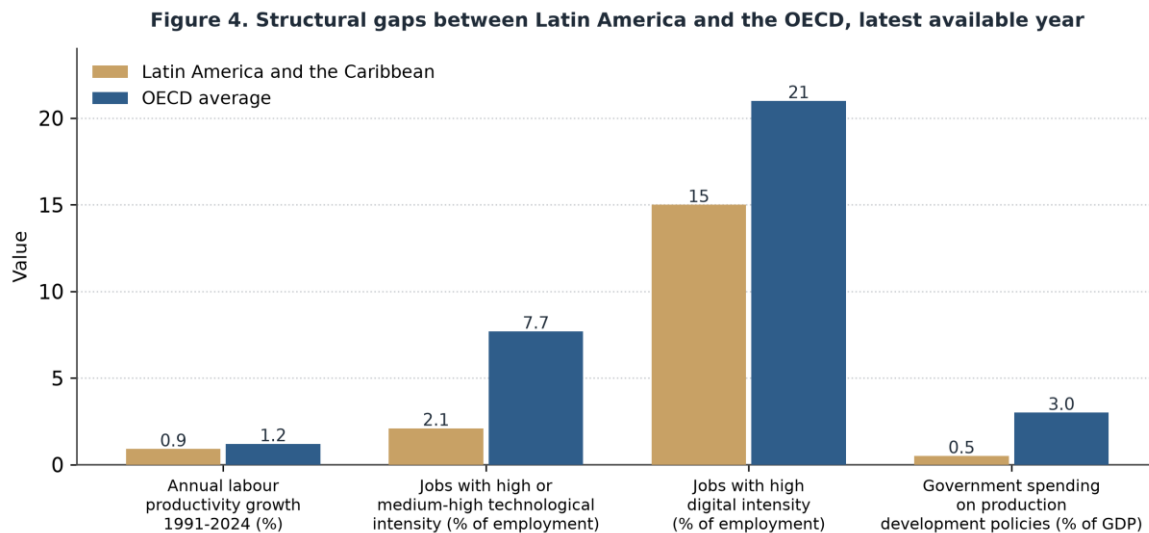
where it is least needed as redistribution, because agglomeration economies are easiest to ignite where some density already exists.

Third, interregional transfers carry environmental and distributional costs. Evaluating the targeted pairing aid programme in which richer provinces support Xinjiang, Xu and Zheng (2025) document a flypaper effect - transferred funds stick where they land - alongside evidence consistent with pollution-haven dynamics, in which transferred industrial activity raises local emissions. Pairing aid is among the most ambitious interregional redistribution mechanisms in the world; that it produces measurable local gains alongside environmental costs is a warning for the design of just-transition instruments elsewhere.

Taken together, these evaluations support a conditional conclusion rather than a verdict. Place-based policy works when it builds durable capabilities, when it is timed to coincide with emerging agglomeration, and when governance can direct it; it fails, or displaces, when it subsidises activity without capability and when environmental and distributional costs are externalised.

4.4 Beyond Europe: Productivity and Infrastructure Constraints

The fourth finding is that the binding constraint differs by macro-region, and that confusing them leads to the wrong prescription. In Latin America and the Caribbean the constraint is productive structure and state capability rather than physical capital. Labour productivity grew at 0.9 per cent annually between 1991 and 2024 against 1.2 per cent in the OECD; jobs with high or medium-high technological intensity are 2.1 per cent of employment against 7.7 per cent; jobs with high digital intensity are 15 per cent against 21 per cent; and public spending on production development policies is below 0.5 per cent of GDP against an OECD average of three per cent (OECD, 2025b). Figure 4 displays these gaps. In 2023, 55.1 per cent of workers were in informal employment - a figure that has fallen from 62.5 per cent since 2009 but remains far above OECD levels, and which intensified among young workers between 2013 and 2022 - the only group for whom informality worsened in that period (OECD, 2025b; ECLAC, 2024).

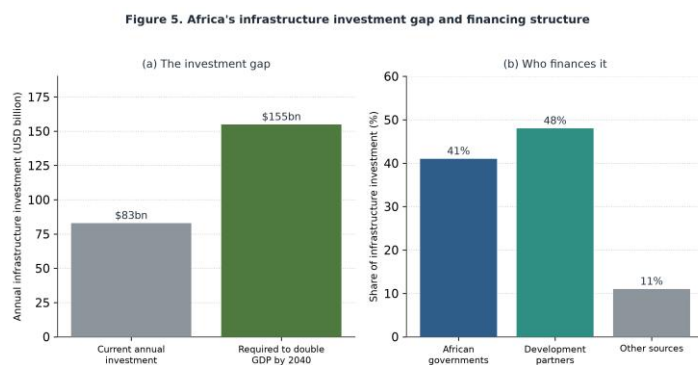


Source: compiled from OECD (2025b), Latin American Economic Outlook 2025.

Figure 4. Structural gaps between Latin America and the OECD, latest available year

In Africa the constraint is infrastructural and fiscal. Raising annual infrastructure investment from about eighty-three to one hundred and fifty-five billion United States dollars - around 5.6 per cent of continental GDP - could double African GDP before 2040 and accelerate growth by some 4.5 percentage points a year, with an estimated return of around twenty per cent (OECD, 2025a). Highest returns are reported for roads, railways, fibre-optic cable and solar energy. Yet African governments, which account for 41 per cent of infrastructure spending, spent on average seven times more on debt service than on infrastructure between 2019 and 2023, and fifteen countries spent more on debt

interest than on infrastructure. Development partners fund 48 per cent of infrastructure investment, but official development assistance is projected to fall by as much as 17 per cent in 2025 following a 9 per cent fall in 2024 (OECD, 2025a). Figure 5 summarises the gap and its financing structure.



Source: compiled from OECD (2025a), Africa's Development Dynamics 2025. Estimated return on investment is around 20 per cent; African governments spent on average seven times more on debt service than on infrastructure between 2019 and 2023.

Figure 5. Africa's infrastructure investment gap and financing structure

The contrast is instructive. In Latin America, additional capital would encounter a structural and institutional ceiling: the region already spends a comparable share of GDP but directs it to current expenditure - 80.7 per cent of public spending goes to current needs rather than capital investment - and tax revenues of 21.3 per cent of GDP against an OECD average of 34 per cent leave little fiscal room (OECD, 2025b). In Africa, capital is the binding constraint but fiscal space is closing exactly when it is needed. Prescribing infrastructure-led development to the first or structural transformation to the second would be to misdiagnose both.

A further qualification concerns cities, because regional policy is frequently discussed as though the relevant choice were between territories when the operative choice is often within them. Agglomeration economies remain the most reliable engine of productivity growth available to middle-income countries, and the World Bank's (2009) case for spatially connective infrastructure rests precisely on enabling them. But the returns to agglomeration depend on the institutional arrangements that Storper and colleagues (2015) show to be decisive - specialised skill pools, credible training systems, and the governance capacity to manage congestion, land and housing. Where those arrangements are absent, urbanisation produces density without productivity: large informal settlements, weak service delivery and limited formal employment. The distinction matters for the African and Latin American cases alike, since both are urbanising faster than they are building the institutions that make cities productive, and infrastructure investment that ignores this will deliver assets rather than growth.

4.5 Demography and the Shrinking Periphery

A fifth finding cuts across all three macro-regions: demographic change is becoming an independent driver of regional divergence rather than a background condition. In the European Union, forty per cent of the population lives in regions - typically rural - whose number of inhabitants declined over the past decade, and the Union's total population has begun to decline after decades of growth (European Commission, 2024a). Decline operates through a distinctive mechanism: out-migration is selective, removing younger and more educated residents; the remaining population ages, raising per-capita service costs while shrinking the tax base; and service withdrawal then accelerates further departure. This is cumulative causation in Myrdal's (1957) sense, and it is why the framework in Figure 1 draws a feedback loop from outcomes back to drivers.

Demographic decline also changes the objective of regional policy. Where a territory is not going to grow, the relevant goal is not catch-up but the maintenance of service access, social infrastructure and environmental quality at an acceptable cost - a goal for which growth-oriented instruments are poorly suited and for which few governments have designed explicit tools.

The service-delivery problem deserves separate attention because it is where demographic decline becomes politically salient. As a territory's population falls, the unit cost of schools, clinics, public transport and broadband rises, and standard funding formulas - which typically allocate per capita - amplify the spiral precisely because they respond to decline by withdrawing more. The result is what residents experience as abandonment, and it is a

well-documented contributor to the territorial dimension of political discontent that Rodríguez-Pose (2018) described. Few governments have explicit service-access guarantees that decouple provision from population thresholds, and fewer still have costed what such guarantees would require. This is a concrete and largely unaddressed design gap rather than a problem of resources alone.

4.6 A Typology of Regional Trajectories

Bringing the findings together, the analytically useful unit is not a region's income level but its trajectory: the interaction of its structural position, its institutional capacity and the direction of its demographic change. Table 3 proposes six trajectories and the instrument appropriate to each. The typology is offered as a heuristic for policy design and research rather than as a validated classification.

Table 3. A typology of regional trajectories and appropriate instruments

Trajectory	Characteristic conditions	Dominant risk	Appropriate instrument mix
Converging catch-up	Below-average income; rising productivity; adequate administrative capacity; net in-migration	Middle-income plateau as easy gains are exhausted	Investment in related diversification; skills; export-base strengthening
Metropolitan concentration	High productivity; strong in-migration; constrained housing and transport	Congestion rents; displacement of opportunity rather than creation	Housing supply; transport; inclusive labour-market access
Development trap	Stagnant productivity since 2008; skills loss; net out-migration	Self-reinforcing decline; low absorption of transfers	Governance capacity first; then targeted innovation and skills
Transition stress	Carbon-intensive or routine-intensive structure; moderate capacity	Asset stranding; concentrated job loss	Just-transition funds; redeployment support; diversification into related activities
Peripheral stagnation	Low density; ageing and declining population; thin service base	Service withdrawal spiral	Service-access guarantees; digital connectivity; environmental stewardship
Frontier growth	Research infrastructure; skilled labour; grid and digital capacity	Exclusionary growth; regional overheating	Spillover instruments; second-tier city development; diffusion programmes

The typology's principal value is negative: it shows why a single instrument cannot serve all regions. Transfers designed for converging catch-up regions - competitive calls, co-financing, absorption targets - systematically disadvantage development-trap and peripheral-stagnation regions, whose defining problem is precisely the capacity that such instruments presuppose.

A second value of the typology is that it makes the political economy of regional policy visible. Instruments that reward absorption flatter the capable and are popular with finance ministries because spending is predictable and measurable; instruments that build capacity in weak regions are slow, hard to audit and show results on a time horizon longer than any budget cycle. The observed bias of regional policy towards the former is therefore not an accident of design but the predictable outcome of accountability systems that measure disbursement more reliably than transformation. Any reform that leaves the measurement regime unchanged will reproduce the same allocation.

Third, the typology clarifies what 'success' means in each case. For converging regions it is rising productivity and diversification into related activities. For metropolitan regions it is whether growth translates into access for those outside the core. For development-trap regions it is the restoration of the capacity to formulate and deliver a strategy at all - a precondition rather than an outcome. For transition-stress regions it is the avoidance of stranded workers as

well as stranded assets. And for peripheral-stagnation regions it is service access and environmental stewardship rather than growth. Measuring all five against a single GDP-per-head indicator guarantees that four of them will be judged wrongly.

4.7 A Comparative Diagnostic of Binding Constraints

The findings can be consolidated into a single comparative statement: the binding constraint on regional development differs systematically by macro-region, and policy failure most often consists of applying the instrument appropriate to one constraint in a setting governed by another. Table 4 sets out the diagnostic. It is deliberately coarse, but it has a practical payoff: it predicts where additional finance will be productive and where it will not.

Table 4. Binding constraints on regional development by macro-region

Macro-region	Binding constraint	Evidence	Implication for instrument choice
European Union	Institutional capacity in development-trap regions; housing and mobility constraints in leading regions	A third of regions below 2008 GDP per head; 28 per cent of population in less developed regions (European Commission, 2024a)	Capacity-building and governance conditionality before capital; housing supply in agglomerations
Latin America and the Caribbean	Productive structure and coordination capacity; low public investment	Productivity growth 0.9 per cent versus 1.2 per cent in the OECD; production development spending below 0.5 per cent of GDP (OECD, 2025b)	Coordination institutions and selective production policy rather than general infrastructure
Sub-Saharan Africa	Infrastructural capital and fiscal space	Investment would need to rise from 83 to 155 billion dollars; debt service seven times infrastructure spending (OECD, 2025a)	Corridor prioritisation; cost recovery; project preparation to absorb concessional finance
Middle East and North Africa	Human development spending under demographic and fiscal pressure	Real-term declines in per-capita human development spending in several middle-income countries (World Bank, 2025)	Protect recurrent human development budgets; link skills to transition sectors
China (evidence base)	Timing and governance of place-based instruments; environmental externalities	Education gains of 0.14-0.16 years; persistent first-mover advantage; flypaper and pollution-haven effects (Hu et al., 2024; Chen et al., 2025; Xu & Zheng, 2025)	Sequence interventions to emerging agglomeration; attach environmental conditions to transfers

The global context reinforces the point. World Employment and Social Outlook reporting indicates that informality and working poverty remain concentrated in territories with the weakest institutional capacity, and that the quality of employment rather than its quantity is now the principal territorial divide (ILO, 2025). Sustainable Development Goal reporting likewise shows that progress on urban and territorial targets has stalled, with the gaps largest precisely where administrative data are weakest - which means the problem is measured least well where it is most severe (United Nations, 2025). And because the cohorts entering regional labour markets over the next two decades are those whose skills will determine whether the twin transition is captured locally or imported from elsewhere, education and training systems are a regional policy instrument whether or not they are governed as one (UNESCO, 2026).

5. Discussion

5.1 Reading the Findings Through the Framework

The findings support the framework in Figure 1, and they sharpen one of its elements. Structural drivers - globalisation, technological change, demography, decarbonisation - operate on places through territorial mechanisms, and the mechanisms are strongly path-dependent. But the decisive variable in the evidence reviewed here is not the driver and not even the mechanism: it is institutional capacity, which determines whether a mechanism can be activated at all. The European modelling result that improving smart-specialisation governance raises the return on investment, the Chinese result that early zones with stronger institutional foundations sustain advantage, and the Latin American finding that production development policies remain fragmented across an average of five or six ministries with weak coordination all point the same way (European Commission, 2024a; Chen et al., 2025; OECD, 2025b).

This reframes the long-standing efficiency-equity debate. Barca and colleagues (2012) argued that the two objectives align when interventions target the binding constraint within strong local institutions. The evidence reviewed here suggests a harder version: where institutions are weak, the two objectives conflict in the short run, because transfers that would be efficient cannot be absorbed and transfers that can be absorbed are often compensatory rather than transformative. Resolving the conflict requires investing in administrative capacity before, or alongside, investment in projects.

5.2 Institutions Before Infrastructure

If capacity is the multiplier, then the sequencing of regional policy matters more than its volume. Three implications follow. First, conditionality should be diagnostic rather than uniform: the regions least able to meet absorption conditions are frequently those where investment would have the largest long-run effect, and applying the same conditions to all regions transfers resources towards the already capable. Second, technical assistance, administrative twinning and long-horizon capacity building should be counted as investment rather than as overhead. Third, the debate about the future of cohesion policy after 2027 - in which a high-level group convened by the Commission recommended combining performance-based approaches with a stronger territorial dimension - should be read as an argument about exactly this sequencing (High-Level Group on the Future of Cohesion Policy, 2024).

The same logic applies outside Europe. Latin America's problem is described in the OECD assessment as one of coordination: across thirty-three countries, 197 ministerial entities participate in production development policies, typically five or six per country, yet multi-ministerial presence rarely produces effective coordination or a unified strategic vision (OECD, 2025b). Building the coordinating institution is a precondition for the policy, not an alternative to it.

Operationalising a capacity-first sequence is harder than stating it, and three design problems recur. The first is diagnostic: no jurisdiction has a routine, comparable measure of sub-national administrative capacity, so decisions about conditionality are made on impression rather than evidence. The second is incentive: capacity building is slow, and its results are attributed to whoever happens to hold office when they appear, which discourages decision-makers from choosing it over visible projects. The third is audit: supreme audit institutions and financial controllers are designed to detect irregularity in spending, not underinvestment in administration, so the system penalises the very activity that raises returns. Until these three are addressed, sequencing capacity before projects will remain a recommendation that everyone accepts and few implement.

5.3 Place-Based Policy Is Conditional, Not Universal

The evaluation evidence should temper both enthusiasm and scepticism. The finding that special economic zones raised completed schooling by around 0.14 to 0.16 years (Hu et al., 2024) is a genuine demonstration of durable capability effects, and it answers the long-standing objection that place-based policy merely relocates activity. But the finding that early zones sustain advantage over later ones (Chen et al., 2025) means that scaling a successful place-based programme is not mechanical: the second and third waves operate in a different spatial equilibrium and cannot simply replicate the first. And the evidence of flypaper and pollution-haven effects in China's pairing aid programme (Xu & Zheng, 2025) shows that redistribution between regions can produce local gains while externalising environmental costs.

The practical conclusion is that place-based policy should be evaluated against a capability criterion rather than an expenditure criterion. The question is not how much was spent in a lagging region but whether the region can do something after the programme that it could not do before. That is a demanding standard, and most monitoring frameworks - which track absorption and outputs rather than capability - do not measure it.

5.4 Finance, Fiscal Space and the Closing Window

The final implication concerns money, and it is the least tractable. Africa's infrastructure deficit is not a knowledge problem: the projects with the highest returns are known, and the estimated return of around twenty per cent is high by any standard (OECD, 2025a). It is a fiscal problem, compounded by a financing shock. With governments spending seven times more on debt service than on infrastructure, and official development assistance projected to fall by up to 17 per cent in 2025, the window for infrastructure-led convergence is closing at precisely the moment the demographic case for it is strongest. Three responses are available and none is sufficient alone: prioritisation of development corridors and urban infrastructure where returns are highest; stronger cost recovery and maintenance planning to protect existing assets; and improved project preparation so that available concessional finance can be absorbed.

The problem is not confined to low-income regions. Europe faces its own version: cohesion policy amounts to roughly 30.5 per cent of the Union budget for 2021-2027, and the same fiscal pressures that constrain national welfare states will constrain the next multiannual framework, at a time when enlargement would extend the policy to territories with much larger gaps. The comparative lesson from the Middle East and North Africa is sobering: several middle-income countries there have experienced real-term declines in per-capita human development spending as population growth and inflation outrun nominal budgets, despite rising nominal allocations (World Bank, 2025). Fiscal space, not policy design, may be the binding constraint of the next decade.

5.5 Practical Implications

For practitioners, five implications follow from the synthesis.

- Diagnose before allocating. The binding constraint differs by region - institutional capacity, productive structure or fiscal and infrastructural capacity - and standard instruments address only one of the three.
- Invest in absorptive capacity as a first-order objective, not as technical assistance attached to projects.
- Sequence matters: governance reform and coordination capacity should precede or accompany large capital programmes.
- Evaluate capability, not expenditure: ask whether a region can do something new after the programme ends.
- Design just-transition instruments with environmental and distributional conditions attached, since interregional transfers can externalise costs as easily as they create gains.

6. Conclusions

Regional development policy is being asked to do more with less at a moment when the forces shaping territorial outcomes have become less forgiving. This article has argued that three trends define the contemporary problem. Convergence has stalled in the advanced economies even where it succeeded spectacularly for a generation, because catch-up at the national level concealed polarisation within countries and because roughly a third of European regions never recovered their pre-crisis trajectory. The twin green and digital transitions are revaluing territorial assets in ways that reward existing capacity and penalise carbon-intensive and routine-intensive regions. And the infrastructural and fiscal preconditions for catch-up are tightening in much of the developing world precisely where the demographic case for investment is strongest.

The article's principal analytical claim is that institutional capacity is the multiplier on all regional investment, and that regional policy should therefore be sequenced accordingly: capacity first, projects second, and transfers conditional on diagnosis rather than uniform across regions. Its principal empirical claim is that place-based policy works conditionally - it produces durable capability gains where it aligns with emerging agglomeration and capable governance, and it produces displacement or environmental externalisation where it does not.

Both claims are offered with the limitations stated in Section 3.4. The analysis works from published aggregates rather than unit-record data; the European multipliers are the Commission's own modelled estimates; and the Chinese evaluations, however rigorous, concern an administrative context that cannot be assumed to generalise. Establishing the empirical distribution of the trajectories proposed in Table 3 requires comparable sub-national panel data across regions that differ in institutions and in fiscal capacity - data that do not currently exist at comparable quality.

Two research priorities follow. The first is measurement: a cross-national sub-national panel that records not only income and employment but institutional capacity, service access and environmental exposure would allow the typology to be tested rather than asserted. The second is evaluation: because place-based policy is conditional and its effects depend on timing, the field needs evaluations that measure capability change over long horizons rather than

expenditure and short-run outputs. Without them, the risk is not that regional policy will be judged too harshly but that it will be judged on the wrong criteria - and that a generation of transfers will be recorded as successful while the places they were meant to transform continue to fall behind.

What would change the trajectory is neither more money nor better models but three specific shifts. The first is to make institutional capacity measurable and comparable across sub-national units, so that conditionality can be calibrated to it rather than applied uniformly. The second is to lengthen evaluation horizons so that capability change is observable before a programme is judged, which in practice means committing to evaluation at ten rather than three years. The third is to treat service-access guarantees in declining territories as an explicit objective with its own budget line, rather than as a residual of formulas designed for growing ones. None of the three is technically difficult. All three are politically difficult, because each redistributes credit away from the visible and towards the durable - which is, in the end, the same choice that regional policy has been avoiding for thirty years.

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References

- Barca, F., McCann, P., & Rodríguez-Pose, A. (2012). The case for regional development intervention: Place-based versus place-neutral approaches. *Journal of Regional Science*, 52(1), 134-152.
- Boschma, R. (2005). Proximity and innovation: A critical assessment. *Regional Studies*, 39(1), 61-74.
- Chen, Y., Huang, T., & Xie, X. (2025). Place-based policies: First-mover advantage and persistence. *Journal of Economic Geography*, 25(4), 539-567. <https://doi.org/10.1093/jeg/lbaf001>
- Duranton, G., & Puga, D. (2004). Micro-foundations of urban agglomeration economies. In V. Henderson, & J.-F. Thisse (Eds.), *Handbook of Regional and Urban Economics* (Vol. 4, pp. 2063-2117). Amsterdam: Elsevier.

- ECLAC. (2024). Social panorama of Latin America and the Caribbean 2024. Santiago: United Nations Economic Commission for Latin America and the Caribbean.
- European Commission. (2024a). Ninth report on economic, social and territorial cohesion (COM(2024) 149 final). Brussels: European Commission.
- European Commission. (2024b). Commission staff working document: Economic cohesion (SWD(2024) 79 final). Brussels: European Commission.
- Foray, D. (2015). *Smart specialization: Opportunities and challenges for regional innovation policy*. London: Routledge.
- Glaeser, E. L., & Gottlieb, J. D. (2008). The economics of place-making policies. *Brookings Papers on Economic Activity*, 2008(1), 155-239.
- High-Level Group on the Future of Cohesion Policy. (2024). *Report on the future of cohesion policy*. Brussels: European Commission.
- Hirschman, A. O. (1958). *The strategy of economic development*. New Haven, CT: Yale University Press.
- Hu, W., Huang, W., Wu, J., & Zhang, C. (2024). Place-based policies and local human capital accumulation: Evidence from China's special economic zone program. *China Economic Review*, 85, 102163. <https://doi.org/10.1016/j.chieco.2024.102163>
- Iammarino, S., Rodríguez-Pose, A., & Storper, M. (2019). Regional inequality in Europe: Evidence, theory and policy implications. *Journal of Economic Geography*, 19(2), 273-298.
- ILO. (2025). World employment and social outlook: Trends 2025. Geneva: International Labour Organization.
- Kline, P., & Moretti, E. (2014). Local economic development, agglomeration economies, and the big push: 100 years of evidence from the Tennessee Valley Authority. *The Quarterly Journal of Economics*, 129(1), 275-331.
- Krugman, P. (1991). Increasing returns and economic geography. *Journal of Political Economy*, 99(3), 483-499.
- Martin, R., & Sunley, P. (2006). Path dependence and regional economic evolution. *Journal of Economic Geography*, 6(4), 395-437.
- McCann, P., & Ortega-Argilés, R. (2015). Smart specialization, regional growth and applications to European Union cohesion policy. *Regional Studies*, 49(8), 1291-1302.
- Myrdal, G. (1957). *Economic theory and under-developed regions*. London: Duckworth.
- Neumark, D., & Simpson, H. (2015). Place-based policies. In G. Duranton, J. V. Henderson, & W. C. Strange (Eds.), *Handbook of Regional and Urban Economics* (Vol. 5B, pp. 1197-1287). Amsterdam: Elsevier.
- OECD. (2025a). *Africa's development dynamics 2025: Infrastructure, investment and growth*. Paris: OECD Publishing.
- OECD. (2025b). *Latin American economic outlook 2025: Promoting and financing production transformation*. Paris: OECD Publishing.
- Pike, A., Rodríguez-Pose, A., & Tomaney, J. (2017). *Local and regional development* (2nd ed.). London: Routledge.
- Rodríguez-Pose, A. (2018). The revenge of the places that don't matter (and what to do about it). *Cambridge Journal of Regions, Economy and Society*, 11(1), 189-209.
- Rodríguez-Pose, A., & Storper, M. (2020). Housing, urban growth and inequalities: The limits to deregulation and upzoning in reducing economic and spatial inequality. *Economic Geography*, 96(3), 223-248.
- Storper, M. (2018). Separate worlds? Explaining the current wave of regional economic polarization. *Journal of Economic Geography*, 18(2), 247-270.
- Storper, M., Kemeny, T., Makarem, N., & Osman, T. (2015). *The rise and fall of urban economies: Lessons from San Francisco and Los Angeles*. Stanford, CA: Stanford Business Books.
- UNESCO. (2026). *2026 youth report: Lead with youth (Global Education Monitoring Report)*. Paris: UNESCO.
- United Nations. (2025). *The sustainable development goals extended report 2025* (Goals 8 and 11). New York: United Nations.
- Williamson, J. G. (1965). Regional inequality and the process of national development: A description of the patterns. *Economic Development and Cultural Change*, 13(4, Pt. 2), 1-84.

- World Bank. (2009). *World development report 2009: Reshaping economic geography*. Washington, DC: World Bank.
- World Bank. (2025). *Embracing and shaping change: Human development for a Middle East and North Africa in transition*. Washington, DC: World Bank.
- Xu, M., & Zheng, L. (2025). Place-based policies, agglomeration economics, and environmental impacts: Evidence from China's Xinjiang targeted pairing aid program. *Journal of the Asia Pacific Economy*, 30(4), 1328-1347. <https://doi.org/10.1080/13547860.2024.2365547>