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Jobs without People

The shift from labour-demand to labour-supply constraints in Sweden's regional labour markets

Martin Andersson and Johan Grip

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Jobs without People

the shift from labour-demand to labour-supply constraints in Sweden's regional labour markets

Martin Andersson[1] and Johan Grip[2]

ABSTRACT

Regional policy often rests on the premise that lack of jobs is a main constraint for development of lagging regions. Drawing on register data for the complete system of Swedish functional labour market regions over 1990–2024, we show that employment rates have converged sharply such that the domestic local labour reserve is largely mobilised, while human capital has diverged. Urbanisation continues but is nowadays primarily driven by demographic composition rather than net migration. We also document that employment appears to be reversible whereas population decline is much harder to combat. One result of this is that in many regions, job creation and local fiscal capacity has been decoupled. Our main conclusion is that the main binding constraint on regional development has shifted from jobs to workers. We discuss policy implications.

KEYWORDS: Regional labour markets; place-based policy; depopulation; labour supply; functional regions; fiscal capacity

JEL: R11; R23; R58; J61

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1. INTRODUCTION

Regional development policy typically rests on a premise about what factors are scarce in regions. Lagging regions are often held to be short of jobs, and policy instruments follow accordingly, such as firm subsidies, investment incentives, cluster programmes and enterprise zones. The premise is embedded in how regional performance is measured, in what counts as a successful intervention, and in the recurring finding that place-based policy has mixed effects on the places it targets (Kline and Moretti, 2014; Neumark and Simpson, 2015; Austin et al., 2018). The sums involved are not small. Bartik (2020) estimates that place-based jobs policies in the United States alone cost around USD 60 billion a year, and in the European Union EUR 392 billion is allocated to Cohesion Policy over the 2021–2027 programming period (European Commission, 2021), making it the largest of the Union's policies (McCann, 2023).

A focus on regional job policies also carries an efficiency rationale. The case for reallocating labour demand towards distressed areas partly rests on the proposition that such reallocation moves demand to where effective labour supply responds more elastically, without excess price pressure (Bartik, 2020). This assumption remains live and explicit in current European policy assessment. Evaluating Cohesion Policy in EU NUTS-2 regions, Casas et al. (2026) find that place-based allocation produces roughly 878,000 additional jobs against 376,000 under mission-led allocation, with 629,000 of the place-based jobs falling in less developed regions. They attribute this outcome to that less developed regions have greater labour market slack. Slack is thus both a mechanism through which the policy is expected to work and, in the form of jobs created, a metric by which it is judged to have worked.

Using Sweden as a case, we show that in a growing set of regions the premise of scarcity of jobs and labour market slack does not hold. Over the last three decades the binding constraint on regional growth has in many regions shifted from jobs to workers.

Background

Employment growth requires both labour demand and labour supply. For instance, a region with a low employment rate and low wage sums per employed worker has slack on the supply-side and a problem with labour demand. A region where the employment rate is at or near its practical ceiling, wages are competitive and employers report recruitment difficulties has a labour supply problem: further growth requires that labour is added from elsewhere, e.g. through commuting or in-migration. And a region where wages and productivity are high, demand is strong and in-migration is nonetheless modest may have a receiving-capacity problem, often located in housing and transport supply (see e.g. Hsieh and Moretti, 2019; Ganong and Shoag, 2017).

Which situation a region is in partly depends on how its labour market adjusts to shocks. In canonical models, adjustment runs through migration: negative (positive) employment shocks are absorbed by workers leaving (entering). Blanchard and Katz (1992) found that participation and wages tend to return to trend within a decade after a negative shock. Subsequent work has documented persistent local joblessness and slower adjustment in both the United States and Europe (Dao et al., 2017; Amior and Manning, 2018). Even if migration is limited, a region may absorb an employment shock through its employment rate. Rising local job opportunities could for instance be met by higher participation rates, i.e. putting more of its existing population to work. However, the participation margin has a ceiling. Once it is reached, a region that could previously absorb a demand increase through increased participation will face a problem with labour supply.

These examples point to structurally distinct regional conditions that call for different policy strategies. They also suggest that a lack of jobs is not necessarily a main obstacle to regional development. Job creation translates into development under conditions that cannot be taken for granted: either an available relevant local pool of workers exists, so that participation can rise to meet the new demand, or the region succeeds in attracting workers from elsewhere, which broadens the resident population and with it the local tax base. Where the participation margin is already exhausted and in-migration does not follow, new jobs are filled by commuters or go unfilled. Because observed interregional migration rates are low even in high-income countries (McCann, 2023), inter-regional labour migration is a limited mechanism to adjust demand and supply on regional labour markets.[3]

The idea that local availability of jobs will imply that people follow has also not gone unquestioned in the regional development literature. For instance, Florida (2002ab) and Florida et al (2008) argued that 'talent' does not simply appear where employment is created but is attracted by other types of regional conditions. This framework suggests that there is interdependence between jobs and people, and that the supply of skilled labour is a variable to be explained rather than assumed. There is also evidence that factors other than jobs, such as amenities and aesthetics (Marlet and van Woerkens 2005), consumption possibilities (Öner 2017) and cultural amenities (Falck et al 2018) matters for place attractiveness and the location of primarily highly educated workers. A main point in from this line of work is that whether people come is a separate question from whether jobs exist, for small regions as much as for large cities, and the two can move apart.[4] This suggests that whether it is lack of jobs or lack of workers that is a binding constraint on regional development is largely an empirical question and may vary across regions as well as over time.

In the European policy debate, it has in recent time also been claimed that lack of jobs is no longer a main obstacle for regional development, even in lagging regions. Brenner and Niebuhr (2021) identify labour shortage, rather than shortage of jobs, as a growing bottleneck in lagging European regions, which are increasingly confronted with a declining workforce arising from demographic change and net out-migration. They argue that the development of the regional workforce may become a significant mediating factor for the effectiveness of regional policy. It is presented as an emerging key challenge, while they also note that empirical evidence remains scarce.[5] Behind this challenge sits a demographic development that is not regional in origin: fertility has been falling across nearly all high- and middle-income countries since around 2010, accelerating from 2016 and running in close synchrony across countries whose fertility structures

[3]One illustration is the advice the economist Tim Leunig gave an audience in Liverpool Cathedral in 2008 as cited by Rodriguez-Pose (2018): that the city's economic moment had passed, that regeneration policy had failed, and that public effort should concentrate on London and the south-east while residents of declining northern cities moved there to take up the opportunities on offer. Rodríguez-Pose (2018) reads the episode as expressing a typical urban-economics assumption and makes two observations against it. Easing the move would be unlikely to raise the number who make it, due to attachment to place, age and skills; and telling people that where they live and where they feel they belong does not matter provokes populist voting.

[4]This potential can also be claimed to have been re-inforced due to the rise of work-from-home in the wake of the COVID-19 pandemic.

[5]For Sweden, some evidence already points that way. Surveying the business units of Swedish municipalities, Nyström (2021) finds that recruiting scarce competences is perceived as difficult in rural and non-rural regions alike, and the resulting mismatch is reported as a significant obstacle to regional growth and development.

differ substantially (Andersson 2026).[6] Regions are therefore drawing on cohorts that will most likely keep contracting.

Understanding the main constraints for regional development, i.e. jobs or people, matters for policy design, because a diagnosis is not itself a policy position but is what any policy position is calibrated against. Whichever instruments are chosen, they rest on an implicit analysis of what constrains target regions, and an instrument calibrated to labour-demand constraints in regions facing labour-supply constraints will most likely be inefficient.[7]

Contribution and summary of main findings

Against this backdrop, this paper contributes with an empirical analysis of changes in the main constrains on regional development in Sweden in the last three decades (1990-2024). First, we measure outcomes in population registers across a complete national system of functional regions over three decades and show that what Brenner and Niebuhr (2021) describe as prospective has already occurred in many Swedish regions: the binding constraint on regional development has shifted from jobs to workers. Second, it shows that urbanisation is now driven by demographic composition rather than by migration flows. Metropolitan net in-migration has fallen sharply since the mid-2010s, yet the concentration of jobs, wages and human capital has continued. Only 8 per cent of the growth of the largest regions since 1999 is net in-migration, the remainder being births and immigration, while in the smallest regions immigration has offset the birth deficit almost exactly over 26 years. Interregional migration redistributes the young, and children are subsequently born where the young end up, so that concentration today is the compounding of flows that occurred a generation ago. Urbanisation in this sense is a sorting process more than a migration process, and jobs grow where the young arrived a generation earlier. Third, it identifies three structurally distinct growth regimes within one national system – human-capital-driven, capital- and resource-driven, and publicly dominated – whose binding constraints are receiving capacity, labour availability and the staffing of statutory services respectively, and which therefore require different instruments. Fourth, it documents an asymmetry between employment and population that breaks the link on which local development policy implicitly relies: employment appears to be reversible whereas a negative (or stalling) population development is much more difficult to reverse. Because local tax revenue follows residence rather than workplace, local job creation has today a weaker influence on local fiscal capacity. Fifth, it shows that the growth in employment in many lagging regions in recent times has largely been driven by immigration. Sixth, it shows that two indicators widely used to assess regional economies, the employment rate and the child ratio, do not predict regional trajectories.

The rest of the paper is organized as follows: Section 2 describes the data and methods. Section 3 presents five results on the Swedish regional system. Section 4 develops the consequences for municipal finance, mobility and skills supply. Section 5 concludes and discusses policy conclusions.

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[6]For instance, Swedish fertility reached 1.43 children per woman in 2024, the lowest recorded since measurement began in 1751, against an EU average of 1.39 (Hansson and Lundberg, 2025).

[7]Much of the debate in recent years has focused on place-based versus place-neutral development policy, which has centred on whether intervening in lagging places is justified (Barca et al., 2012) and on the political consequences of not intervening (Rodríguez-Pose, 2018; Iammarino et al., 2019). The claim here is regards the diagnosis that any such intervention rests on.

2. DATA AND METHODS

Sweden's 290 municipalities are grouped into functional labour market regions based on commuting statistics. We use functional analysis regions (FA regions) which are held fixed between revisions. The analysis draws on Statistics Sweden (SCB) register data covering the entire population: night-time and day-time population; industrial composition; employment rates; wage sums; in- and out-migration by region and year; educational composition; and population by age class and citizenship. Employment statistics come from the register-based labour market statistics (RAMS) through 2018 and from the population's labour market status register (BAS) from 2019.

Two FA classifications are used. FA15 (Tillväxtanalys, 2015) with 60 regions is used for migration and education data; FA25 (Tillväxtverket, 2025) with 71 regions for register-based labour market data. To permit comparisons placing population against employment, we construct 52 geographically consistent units by crosswalking the official municipality keys, so that each unit's composition is identical under both classifications. Metropolitan regions throughout refer to the FA regions Stockholm-Solna, Gothenburg and Malmö-Lund.

As a short explanation of the Swedish regional context there are, broadly speaking, four broad region types. The *metropolitan regions* – Stockholm-Solna, Gothenburg and Malmö-Lund – hold just over half of national employment and are specialised in knowledge-intensive business, most notably services. A tier of *regional centres*, typically anchored by a university, forms the middle of the distribution. In the sparsely populated north sit a small number of *resource-based industrial regions*, where mining, energy and heavy manufacturing generate high wages on a very thin population base. A large group of *small and remote regions*, most under 20,000 inhabitants, depend heavily on publicly financed employment. The types correspond to distinctions drawn in the European literature on lagging and peripheral regions.

The empirical strategy is descriptive by design. Our main objective is to characterise the joint evolution of population, employment, human capital and fiscal base across a complete national system over three decades where. To assess which factors are main constraints for regions development we employ six procedures: pooled five-year growth windows (1,800 region-window observations) binned by size to locate where expected growth crosses zero; a first-order Markov analysis of five-year transitions by size class; cohort ratios tracking an age class against the class ten years younger a decade earlier; a decomposition of population change into net internal migration and a residual of natural change plus net international migration; OLS convergence regressions of end-period on start-period values; and correlations reported with Fisher-z intervals.[8]

3. A DESCRIPTIVE ANALYSIS OF SWEDISH REGIONS

This section presents five stylized characteristics results of the development in Swedish regions over the last decades. In short, economic activity has concentrated with wages concentrating faster than jobs or people. The mechanism has changed, from migration flows to the demographic compounding those flows set in motion decades ago. At the same time, employment rates have converged and the local labour reserve has decreased. Swedish regions yet drift apart in terms of the overall education-level of their workforce.

[8] Construction details and bin sensitivity are available from the authors upon request.

Human capital concentrate to the metropolitan regions. The result is a system of structurally distinct growth regimes with different binding constraints in regional growth and development. A generic patter is yet that employment is reversible, whereas population decline in small remote and lagging regions appears to be much more difficult to halt or change.

3.1 Jobs follow people; wages do not

Where Sweden's employed population lives and where it works almost coincide: 54 and 55 per cent respectively are in the three metropolitan regions. The wage sum is distributed considerably more unevenly, with the metropolitan regions accounting for 59 per cent of the national total and the capital region alone for 34 per cent. This skewness in part reflects industrial composition. Knowledge-intensive services account for just under 37 per cent of the wage sum in the capital region against a median below 10 per cent elsewhere, and in the most industrially specialised small regions for under 4 per cent.[9] This ordering – population concentrated, employment slightly more so, wage sums considerably more so – is the same one observed across OECD capital regions.

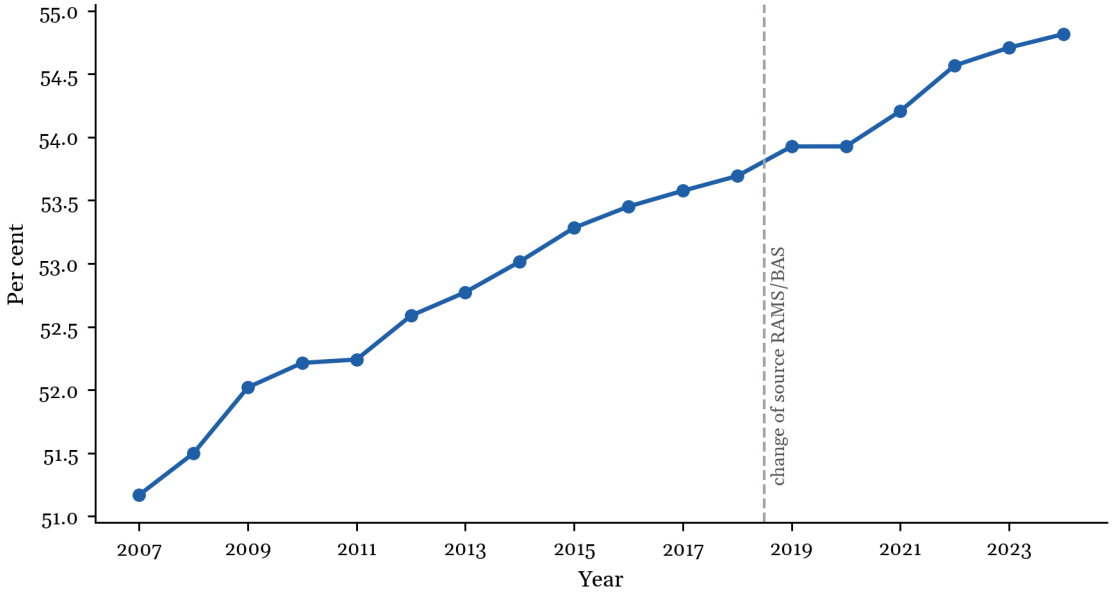

Figure 1. *Metropolitan share of employment, 2007–2024.*

Source: *Statistics Sweden, register-based labour market statistics (RAMS through 2018, BAS from 2019), day-time population, 71 FA regions (FA25). The share rises from 51.2 to 54.8 per cent. Metropolitan regions are the FA regions Stockholm (Stockholm-Solna in the 71-region classification), Gothenburg and Malmö-Lund. The dashed line marks the change of source between 2018 and 2019.*

The metropolitan share of employment rose from 51 to 55 per cent between 2007 and 2024. These four percentage points corresponds to those three regions absorbing 73 per cent of total national employment growth. Of 71 regions, 25 had fewer jobs in 2024 than in 2007.

[9] NACE divisions 58–63, 64–66 and 69–82, as a share of the region's total wage sum in 2024. The median is computed over the 70 regions remaining when Stockholm-Solna is excluded; excluding Gothenburg and Malmö-Lund as well gives 9.4 per cent.

Where work is done and where workers live is a distinction that matters for what follows, because Swedish local income tax accrues to the municipality of residence rather than of workplace.[10] Employment growth is therefore no guarantee of local tax capacity, and an out-commuting municipality may have a strong revenue base without local workplaces.

3.2 The mechanism of urbanisation has changed

The type of urbanisation described above is usually associated with an assumption of strong migration from other parts of the country to metropolitan regions. Yet migration flows have lost momentum in Sweden over the last decades. Stockholm's net internal migration has fallen from an average of 6,000 persons a year in 2008–2014 to just over 1,400 in 2015–2024, and metropolitan gains are now modest, even though net internal migration over 1999–2024 remains negative in 49 of 60 regions.

The size gradient in the migration system has nonetheless not weakened. Figure 2 shows the correlation between region size and relative net in-migration for eighteen overlapping ten-year windows since 1998, under three specifications.[11] Measured by rank, or by Pearson correlation with size in logarithms, the gradient holds at around 0.7 throughout and in fact peaks as late as 2010–2019. Measured by Pearson correlation with size in levels, it falls almost monotonically after the crisis windows, from 0.43 to 0.33.

The divergence between the specifications is what identifies the change. Because the size distribution is extremely skewed, the level-based correlation is in practice determined by where the three metropolitan observations fall. As metropolitan net inflows decrease, the level measure loses its leverage at the top of the distribution, while the small regions' position at the bottom is largely unchanged. The gradient is now sustained by continuing losses from small regions rather than by metropolitan pull.

Those losses remain large. Regions with fewer than 10,000 employed persons have lost about 15 per cent of their employed population through internal migration over a decade. That the number employed nonetheless falls by only 1 per cent is not because the loss failed to materialise, but because the employment rate among those remaining rose by almost five percentage points. Urbanisation is to be read in the small regions' losses rather than in metropolitan gross gains.

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[10] By construction the difference between resident and workplace population is small at FA level, since regions are delimited so that commuting occurs mainly within the boundary; at municipal level it is often large. The median region's ratio of employed day-time to night-time population is 0.98. Wage sums refer to the workplace. The wage sum should not be confused with value added: it captures the return to labour but not to capital, and it is value added that aggregates to GDP. For municipal tax capacity it is nonetheless the relevant quantity.

[11] Relative net in-migration is the region's cumulative net internal migration over the ten-year window, divided by ten and by the population at the end of the window's first year, expressed per thousand inhabitants per year. The rank correlation is invariant to monotone transformation and is therefore identical whether size enters in levels or in logarithms; the informative comparison is accordingly between the rank and logarithmic specifications on one hand and the level specification on the other. The eighteen windows overlap.

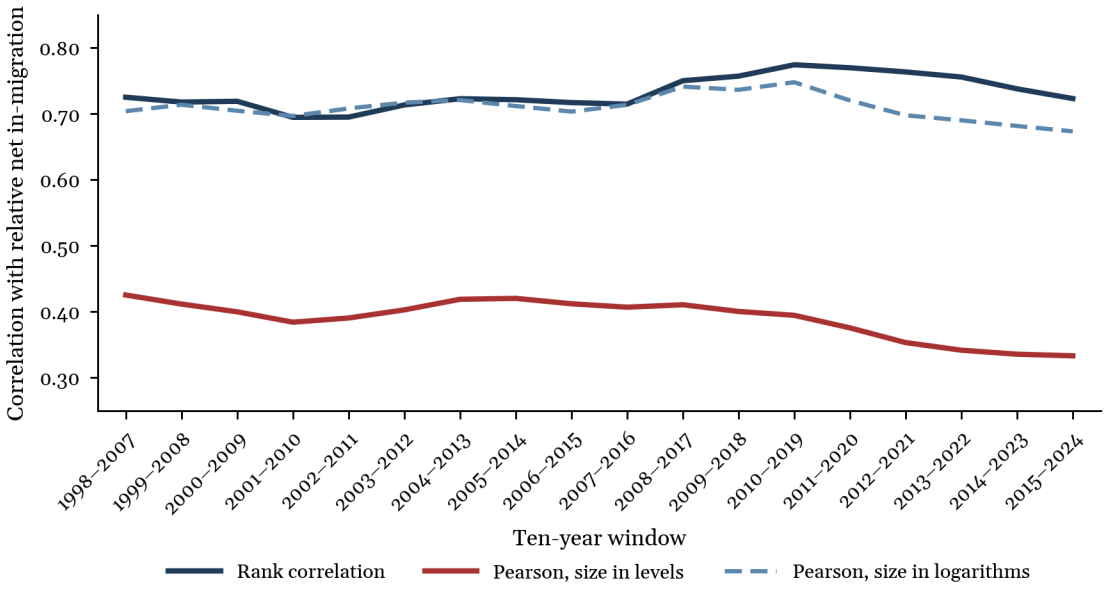

Figure 2. *The size gradient in the Swedish migration system, 1998–2024.*

Source: *Statistics Sweden, population and internal migration, 60 FA regions (FA15). Correlation across regions between region size, measured as population at the end of each window's first year, and relative net in-migration, for eighteen overlapping ten-year windows. Rank correlation and Pearson correlations with size in levels and in logarithms.*

A second compensating mechanism operates through immigration. In the last decades, population dynamics has been carried substantially by the foreign-born, who account for over two thirds of national population growth since 2007. The native-born population declines in 43 of 60 regions, and in 19 of these total population nonetheless grows entirely through growth in the foreign-born population. Only in the most remote northern and inland regions does population fall despite the immigration contribution. Immigration functions as a demographic compensation mechanism that partly masks how far the concentration of the working-age native-born population has gone.

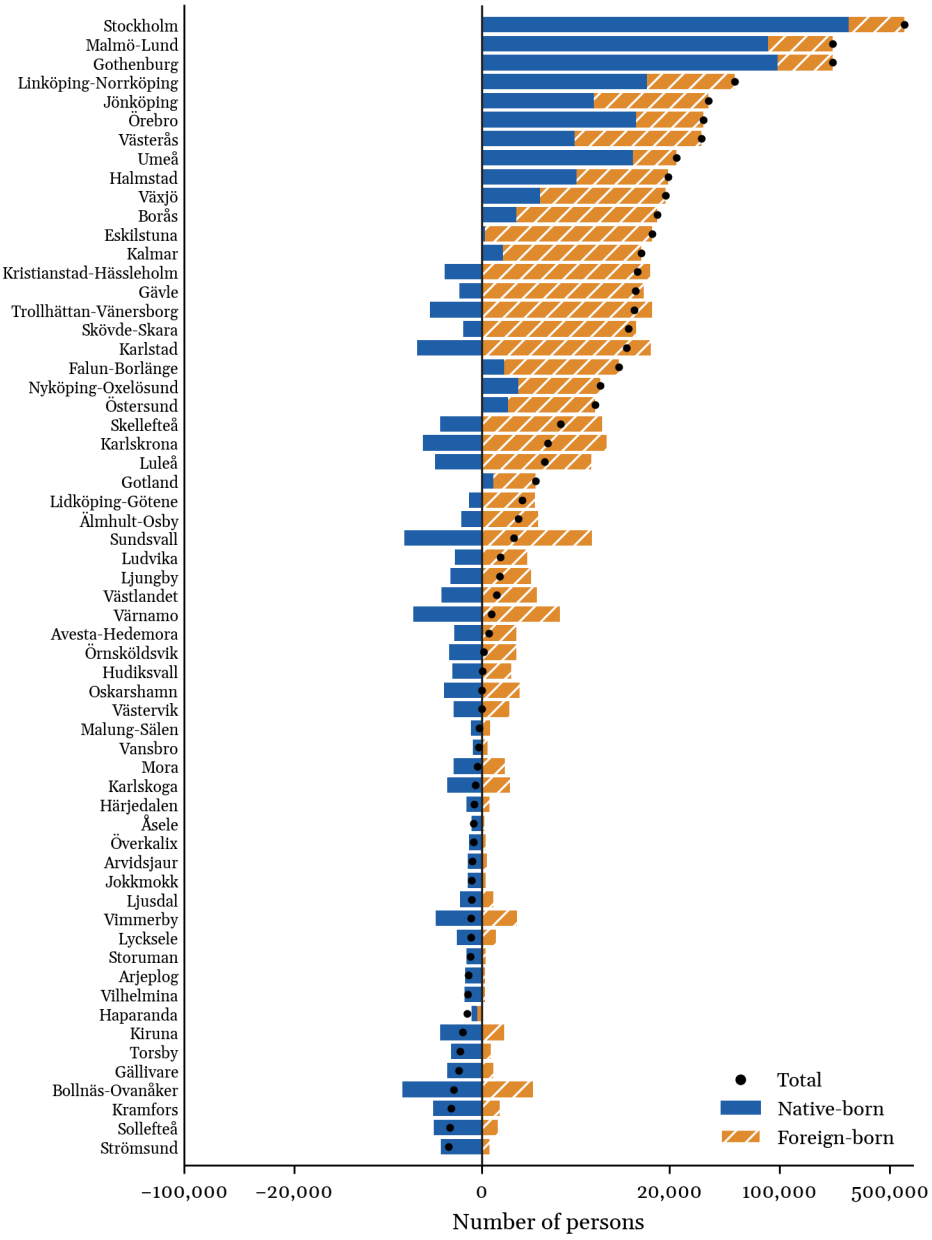

Figure 3. *Population change 2007–2024 by FA region, split by native- and foreign-born.*

Source: *Statistics Sweden, population by region of birth, 60 FA regions, sorted by total change. Native-born population falls in 43 of 60 regions; the foreign-born account for 69.2 per cent of national population growth over the period; 19 regions grow through immigration alone. The axis is symmetrically logarithmic.*

The underlying mechanism emerges most clearly in the age data. Following each region's 15–24-year-olds of 2010 into their late twenties and early thirties a decade later, the small and remote regions retain between 80 and 90 per cent of the cohort as a group, and the most peripheral of them – sparsely populated inland and far northern regions such as Arjeplog and Haparanda – retain only 70 to 77 per cent. The capital region amplifies the same cohort to 141 per cent and nationally to 117 per cent. Because the ratios also contain

immigration they understate domestic outflow: that the national figure is 117 per cent indicates how large that contribution is.

These aggregate ratios match what micro-level evidence shows about the underlying decisions. Tracking every Swedish university graduate of 2001 at five and ten years, Bjerke and Mellander (2017) find that the large majority move to or remain in urban regions, and that family structure is the strongest single divider: those returning to a home region are markedly more likely to have partnered and had children, accepting a thinner labour market in exchange. Thick labour markets matter most in the years immediately after graduation, when specialised matches are formed (Ahlin et al., 2014 and 2018), and German evidence points the same way (Buenstorf et al., 2016).

In Sweden, region size predicts the retention of young cohorts with a correlation of +0.81. In turn, cohort retention predicts the share aged 65 and over with −0.87. That share in turn predicts subsequent population growth with −0.86.[12] This chain thus consists of three links each with an absolute correlation above 0.8, running from regional structure through migration behaviour to demographic outcome (Figure 4). Ageing in this sense is not something that befalls regions from outside: it is the accumulated sum of decades of selective out-migration.

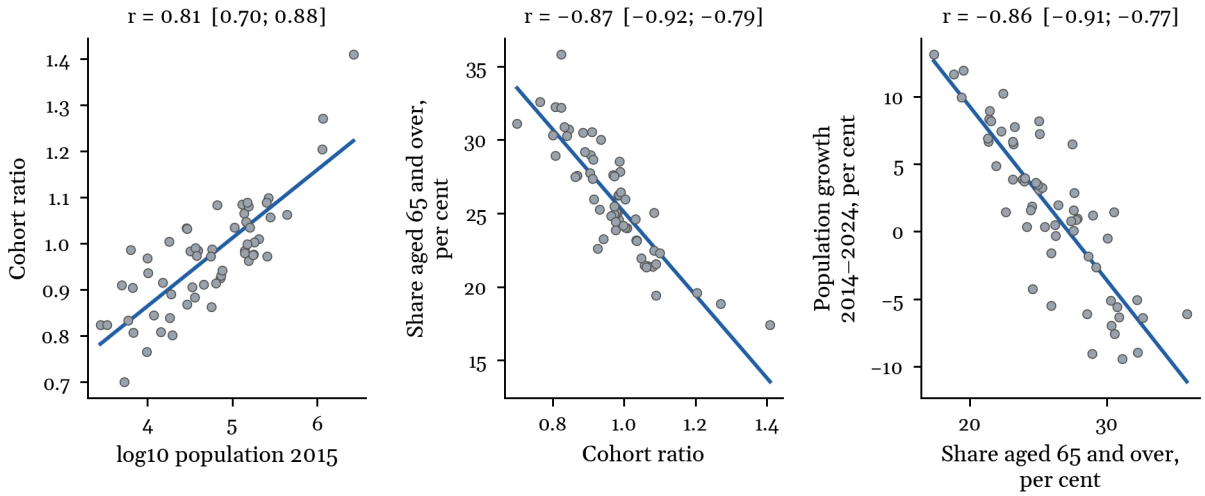

Figure 4. *Size, cohort ratio, age structure and growth.*

Source: *Statistics Sweden, 60 FA regions. Cohort ratio: persons aged 25–34 in 2020 divided by persons aged 15–24 in 2010. Correlations with 95 per cent confidence intervals (Fisher z): 0.81 [0.70; 0.88], −0.87 [−0.92; −0.79] and −0.86 [−0.91; −0.77]. The 65+ share refers to 2024 and population growth to 2014–2024. Region size is log population in 2015. The link between the cohort ratio and the 65+ share is partly definitional, since both rest on the same age distribution.*

The chain can finally be quantified in flow terms. Decomposing population change per size class into net internal migration and a residual gives a symmetric result. In the two smallest classes the residual is cumulatively close to zero over 26 years; since their age structure implies a clearly negative natural balance,

[12] The correlation with size uses log population; in levels it is 0.73 [0.59; 0.83]. The link between the cohort ratio and the 65+ share is partly definitional, since both rest on the same age distribution. Fisher-z intervals: 0.81 [0.70; 0.88], −0.87 [−0.92; −0.79], −0.86 [−0.91; −0.77].

net international migration has offset the birth deficit,[13] so the entire population loss corresponds to the internal migration deficit. In the largest class the relation inverts: only 8 per cent of the growth of 1.6 million persons is net internal migration, the rest births and immigration.

This implies that internal migration redistributes the young, and children are subsequently born where the young ended up; the direct contribution of migration is small, but its demographic compounding is the dominant force behind concentration, and it is why weakening metropolitan in-migration from the rest of Sweden do not signal a weakening of urbanization understood as the concentration of population to the country's metropolitan regions.

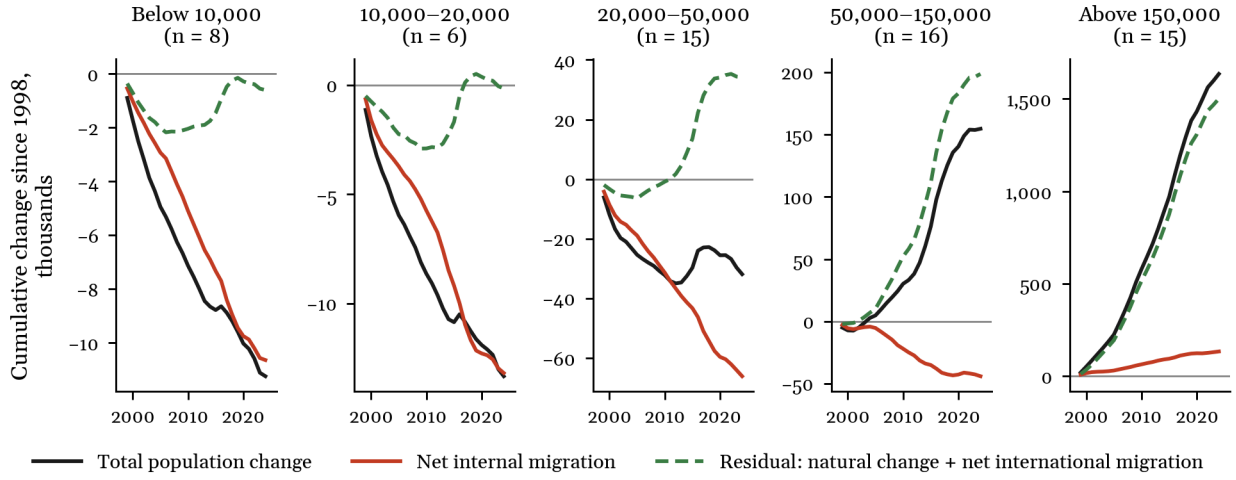

Figure 5. *Cumulative population change by size class, 1998–2024.*

Source: *Statistics Sweden, 60 FA regions, classification year 1998. One panel per size class; cumulative change since end-1998, in thousands. Net migration refers to 1999–2024, since population is measured at year end. Black: total population change. Red: net internal migration 1999–2024. Green (dashed): residual, that is natural change plus net international migration. In the two smallest classes the residual is cumulatively close to zero; in the largest class it is 91.8 per cent of the increase, with net internal migration of 133,925 persons or 8.2 per cent of that class's growth.*

3.3 Convergence in employment rates, divergence in human capital

The compounding described above has a consequence related to employment rates and local labour market slack: to an increasing extent, the local labour force in Swedish regions is employed, while highly educated workers continue to concentrate in the metropolitan regions.

[13] An interpretation, since natural change and net international migration cannot be separated in the extract; the direction follows from the age structure.

Employment rates for ages 20–64 across regions in Sweden have converged sharply. The median rose from 73 per cent in 1998 to 82 per cent in 2024, and the increase is largest where the starting level was lowest, with the weakest regions gaining 19 to 26 percentage points. Several of the sparsely populated northern regions – including the resource-based industrial regions and some of their remote neighbours – today record the country's highest employment rates, above those of the capital region. Among those aged 65 and over the employment rate has more than quadrupled in the median region since 1998, from 4.5 to 19 per cent, so the labour market has responded to ageing by drawing on the oldest age groups as well.

The international comparison registers how far this has gone. Bartik (2020) reports a gap in prime-age employment rates across US commuting zones of 9.0 percentage points, and notes that such differences persist for decades. The measures are not directly comparable, but a range falling from 32 to 13 percentage points describes a system in which employment-rate dispersion is no longer the dominant axis of regional difference.

Educational composition has moved the other way. The share with at least three years of tertiary education has risen nationally from about 6 to 20 per cent since 1990, but the metropolitan and university regions have gained roughly two and a half times as much as the small and remote ones from any given starting position.[14]

The regression slope in Figure 6 is approximately 2.5: each percentage point of advantage in 1990 has grown to about two and a half by 2024. Part of the increase in share among regions below 10,000 inhabitants reflects a shrinking denominator, but the bulk is a genuine increase – the number of tertiary-educated residents there has nearly tripled since 1990 while the population has fallen by more than a quarter.

This development is consistent with agglomeration advantages that raises the returns to skilled workers in large cities, thus fostering further concentration (Glaeser and Resseger, 2010). It also matches the wider pattern of skill-based divergence in location choice documented for other advanced economies (Diamond, 2016; Storper, 2018).

[14] Shares refer to the entire population, all ages, which explains the low level. Because the same definition is applied to all regions and years the development over time is unaffected; level comparisons between regions are somewhat coloured by differences in age structure. On the population aged 25–64 the national level in 2024 is about 30 per cent.

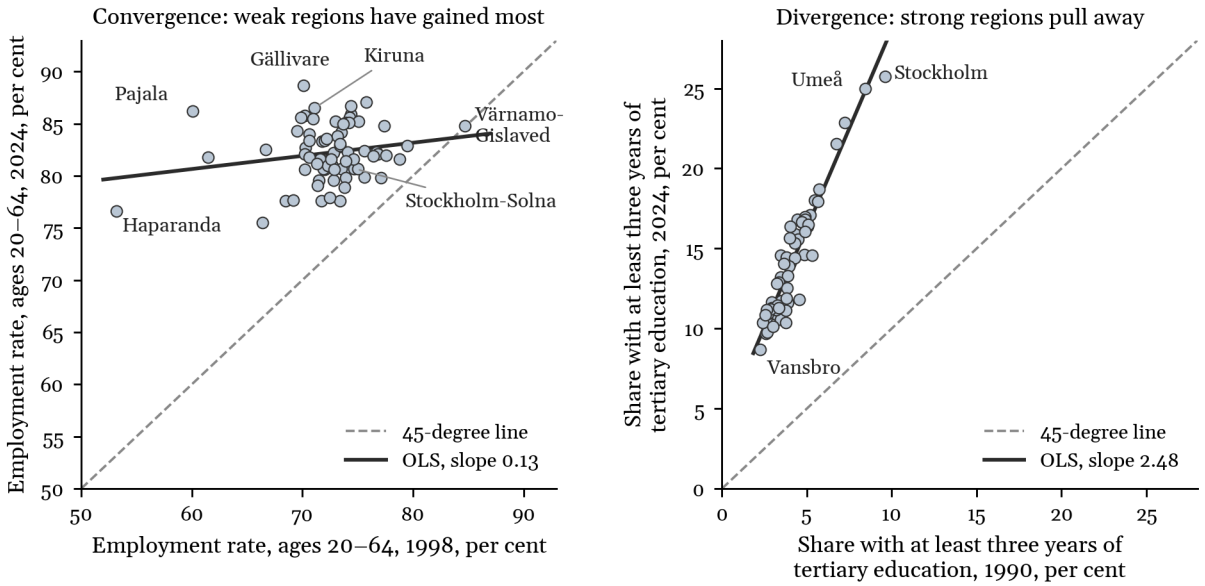

Figure 6. *Convergence in employment rates and divergence in educational attainment.*

Source: Statistics *Sweden, 71 and 60 FA regions respectively. Left: employment rate, ages 20–64, 1998 against 2024; the OLS slope of 0.13 means the starting level barely predicts the end level, the increase is largest where the level was lowest, and all regions lie above the 45-degree line; the median has risen from 72.8 to 82.1 per cent. Right: share with at least three years of tertiary education of the entire population including children, 1990 against 2024; the OLS slope of 2.48 means initial advantages are magnified.*

This illustrates that further employment growth in many regions in Sweden in principle requires labour added from outside, through commuting or in-migration. The argument of higher elasticity of local labour supply in lagging regions, on which the case for reallocating labour demand partly rests (Bartik, 2020), is weak in the case of Sweden.

3.4 Three growth regimes

Studying the joint configuration of employment rates, wages, industrial composition and migration is a way to assess different binding constraints on regional growth and development. Plotting the first two against each other, with employment as circle area, identifies three structurally distinct growth regimes.

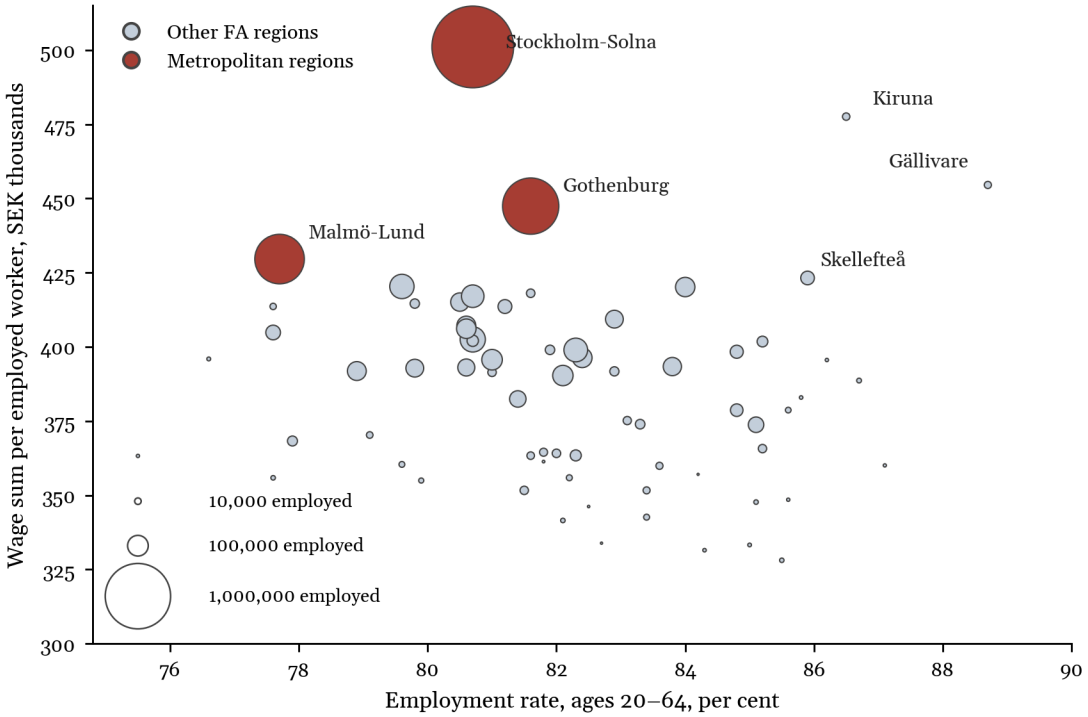

Figure 7. *Employment rate and wage sum per employed worker, 2024.*

Source: *Statistics Sweden, 71 FA regions, 2024. Employment rate for the resident population aged 20–64; wage sum per employed worker in the day-time population, SEK thousands, nominal. Circle area is proportional to the number employed in the day-time population; reference circles at lower left. Metropolitan regions (marked) are the FA regions Stockholm (Stockholm-Solna in the 71-region classification), Gothenburg and Malmö-Lund.*

The metropolitan regions, the three large circles in Figure 7, display human-capital-driven, self-reinforcing growth with high productivity – the capital region highest at SEK 501,000 in wage sum per employed worker[15] – and cumulatively positive net internal migration since 1998. In employment-rate terms they are not at the top, sitting slightly below the median region, which underlines that their growth is carried by an inflow of people rather than by higher labour utilisation. Their binding constraint is receiving capacity. The regional centres occupy the middle of the distribution on both axes and shade into this regime from below.

The resource-based industrial regions, the small points at the upper right, display capital- and resource-driven growth. They combine wages close to metropolitan levels – Kiruna and Gällivare at SEK 478,000 and SEK 455,000 respectively – with employment rates at the very top of the national distribution yet still negative net internal migration; the smallness of the circles shows how thin these labour markets are. This is the regional dimension of labour shortage: the growth constraint is demographic, not economic. Skellefteå, immediately adjacent in the figure, is the most pronounced Swedish case, with the country's fastest wage sum growth over 2011–2024.[16]

[15] Approximately EUR 44,000 at 2024 average exchange rates. All SEK figures are nominal.
[16] Outcome data for 2024 show continued increase: the wage sum rose 11 per cent and the day-time population 3 per cent from 2023. How much persists after the Northvolt failure will be determined by the 2025 data and subsequent years.

The small and remote regions form the swarm of small circles in the lower part of the figure: comparatively good employment rates but low wage sums per employed worker. Up to half the wage sum there is borne by publicly dominated industries, creating a municipal-fiscal circularity in which the tax base consists substantially of publicly financed wages. For these regions the operative question is not growth but whether statutory services can be staffed at all – the same question facing shrinking regions across much of peripheral Europe.

3.5 Employment is reversible, but population decline is difficult to halt

Pooling all five-year windows over 1990–2024 shows expected population growth crossing zero in the range 59,000 to 68,000 inhabitants. Below that threshold, shrinking is the norm: population falls in 95 per cent of all five-year periods among regions below 20,000 inhabitants and in 98 per cent below 10,000, against 20 per cent among regions of 100,000 or more.

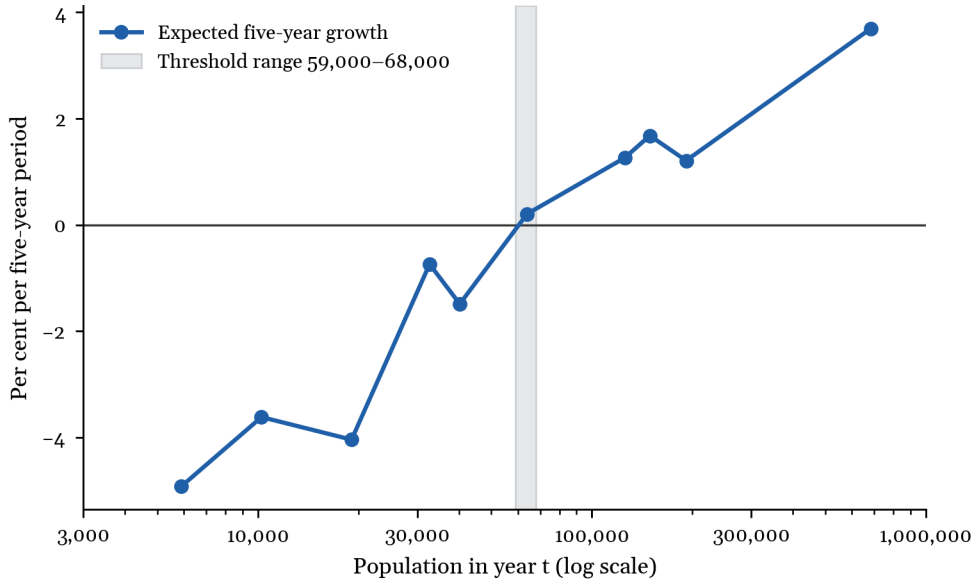

Figure 8. *Expected five-year population growth by region size, 1990–2019.*

Source: *Statistics Sweden, 60 FA regions, 1,800 pooled five-year windows (60 regions × 30 start years, start years 1990–2019; size measured at each window's start). The zero crossing is interpolated linearly between the median sizes of adjacent bins. Decile bins by population in year t; points show bin means. Shading indicates the threshold range of 59,000–68,000 inhabitants across alternative bin counts (8, 10, 12 and 15).*

A Markov analysis reinforces the picture. Table 1 reports first-order transition probabilities over five-year windows: the probability that a region shrinks in the coming period, conditional on whether it shrank or grew in the preceding one, by size class. Two features stand out.

The first is the steep size gradient in persistence. A region below 20,000 inhabitants that shrank in the previous five-year period shrinks again with a probability of 95.2 per cent, against 35.1 per cent for regions above 150,000. Decline, once under way, is far more likely to continue in a small region than in a large one,

and the phase ranges show this is not an artefact of where the windows are cut: across all five non-overlapping alignments the smallest class stays within 93.8 to 96.2 per cent.

The second is that growth confers little protection. Among regions below 20,000 inhabitants that had grown in the preceding period, 84.6 per cent nonetheless shrank in the next — eleven of the thirteen observed cases. The equivalent figure for the largest regions is 11.5 per cent. In a small region a period of growth is therefore closer to an interruption of decline than to a change of trajectory.[17]

Table 1. Probability of shrinking in the coming five-year period, by region size, 1995–2019.

	Given that the region shrank in t−5 to t				Given that the region grew in t−5 to t			
Size class	**P (shrink)**	**Region-years**	**N**	**Phase range**	**P(shrink)**	**Region-years**	**N**	**Phase range**
Below 20,000	95.2	398	18	93.8–96.2	84.6	13	5	66.7–100.0
20,000–50,000	77.4	243	15	75.0–79.2	47.9	71	11	15.4–69.2
50,000–150,000	46.6	161	16	36.7–52.9	17.7	249	18	13.7–23.1
Above 150,000	35.1	77	12	23.1–50.0	11.5	288	18	1.7–20.3

Source: Per cent. Rows are size classes defined by population in year t. Statistics Sweden, 60 FA regions, pooled five-year windows with start years 1995–2019; size class by population in year t. Phase range gives the minimum and maximum across the five non-overlapping phase alignments. The shaded cells rest on 13 region-years from 5 regions and should be read with caution.

Repeating the analysis on employment reveals a quite different picture. In the same small regions, population falls in 95 per cent of all five-year windows over 2007–2024 but employment in only 48 per cent.[18] None of the 21 regions with more than 50,000 employed persons in 2007 had fewer by 2024,[19] and sixteen regions that lost employment between 2007 and 2015 turned upward again in 2015–2024. Population recovery is both rarer and weaker: six regions against sixteen, the increases are small, and only two regions are back above their 2007 level.

[17] This cell rests on few observations, and its phase range is correspondingly wide, from 66.7 to 100.0 per cent, so the exact figure should not be pressed; the qualitative contrast with the larger size classes is nonetheless unambiguous and holds under every alignment.

[18] Employment is measured in the 71-region classification via the geographically consistent units; Jokkmokk is there part of the Gällivare unit, which exceeds 10,000 inhabitants, and the share refers to the group's seven remaining regions. Under the alternative delimitation of employed resident population below 10,000 in 2007 (22 regions), the share is the same: 48 per cent.

[19] The threshold corresponds in population terms to roughly 100,000 inhabitants. Measured on the geographically consistent units the boundary is clean: the smallest unit above 50,000 employed has 104,000 inhabitants (2007) and the largest below the threshold has 76,000.

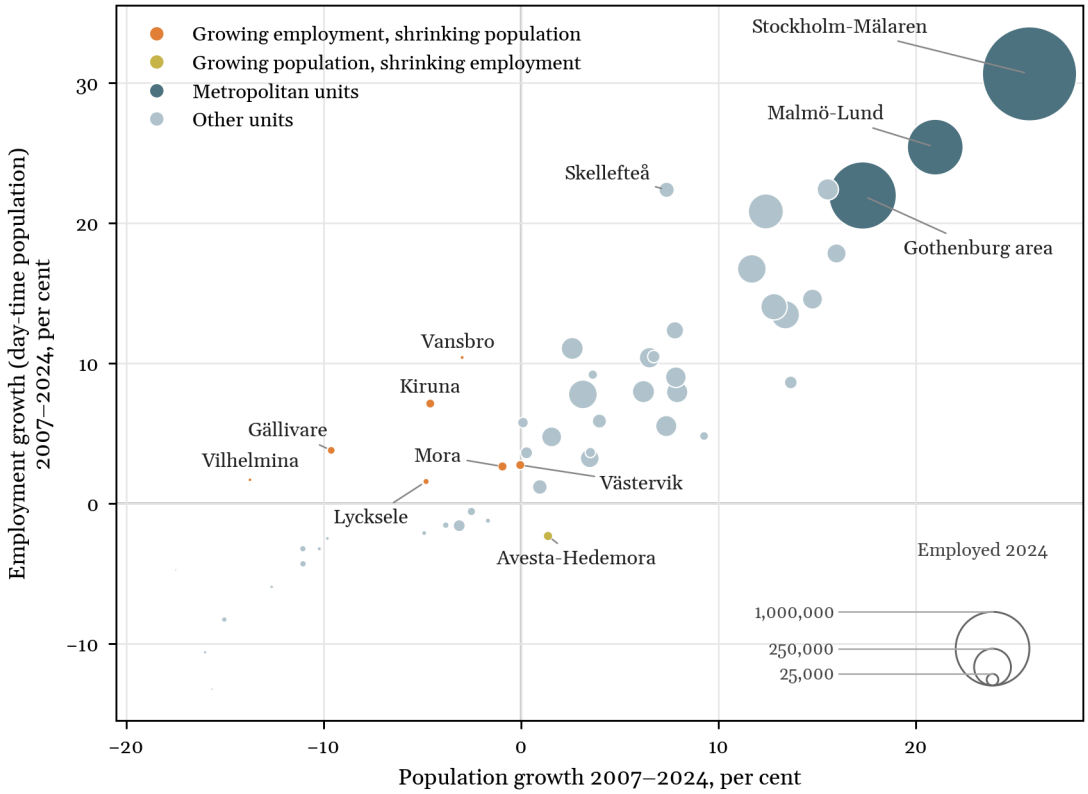

Figure 9. *Employment and population growth, 2007–2024.*

Source: *Statistics Sweden; crosswalk following Tillväxtanalys (2015) and Tillväxtverket (2025). 52 geographically consistent units in which the municipal composition of the 60-region (population) and 71-region (employment, day-time population) classifications coincides. In two units a single crossing small municipality is tolerated (Perstorp and Storfors respectively). The strictly exact 50-unit variant gives the same seven quadrant units. Circle area is proportional to the number employed in the day-time population in 2024; reference circles at lower right. Seven units have growing employment and shrinking population; the mirror case, Avesta-Hedemora, lies close to the origin.*

Plotted against each other (Figure 9), the two developments separate. Seven of the 52 units lie in the quadrant where employment has grown while population has fallen, and they are overwhelmingly the resource-based industrial regions and their remote neighbours. The mirror quadrant – population growth alongside employment decline – is effectively empty.

Estimates reviewed by Bartik (2020) put the elasticity of local jobs with respect to local population shocks at around unity, on the reasoning that migrants carry demand with them, so out-migration removes jobs roughly in proportion to the people it removes. In the smallest Swedish regions that proportionality does not hold: employment rates among those who stayed rose by almost five percentage points over 2015–2024, and new jobs were filled substantially by in-commuting and immigration. A tight local labour market absorbs population loss on the participation margin in a way a slack one cannot. Where mining and industrial investment has turned the job curves of the northern regions, residents have not followed to a corresponding degree, and in the one clear case of population reversal the increase occurred alongside net internal out-migration over the period. Labour arrived mainly through commuting and immigration.

The asymmetry bears on regional policy in shrinking regions. Much of the shrinking-regions literature treats population decline as the outcome to be reversed (Reckien and Martinez-Fernandez, 2011; Hospers, 2014), and Swedish regional policy has largely followed suit. The figures above show what that target implies: a policy evaluated against population recovery is evaluated against something that, below a certain size, has essentially never happened. Place-based measures yet appear to be able to recreate jobs: employment policy, unlike population policy, has documented reversals to point to. But the population base, and with it the municipal tax base and investment capacity, does not follow automatically.

4. Public finance and skills supply

This section draws out three consequences of the preceding of the recent developments of the geography of people and jobs in Sweden documented in the preceding section: for the local tax base, for the productivity case usually made for greater mobility, and for the role immigration has come to play in holding the regional system together.

4.1 The tax base follows the resident wage sum

Swedish municipalities carry a statutory obligation to deliver welfare services and finance it largely from a municipal income tax levied where residents live. Their capacity to do so therefore depends on the size of the resident population, the share of it in work, and the wages that work generates. This implies that the geography of jobs is a structural question for the whole economy rather than a sub-question of regional policy.

Where employment grows without population growth, as in several of the resource-based industrial regions, a growing share of the work is performed by people registered elsewhere, and the revenue from those jobs accrues, before equalisation, to other municipalities. Job creation and fiscal capacity have this increasingly decoupled.

For smaller regions, there are three patterns that point to the difficulty of the situation. Wage sums are more concentrated than employment, which in turn is more concentrated than population. In the small and remote regions up to half the wage sum is publicly financed, creating a form of circularity in which the local tax base is partly a function of the expenditure it funds. As the young working-age population leaves, the dependency ratio rises mechanically, while metropolitan ratios are held down by continuous inflow in working age. The ratio of taxpayers to welfare recipients deteriorates as the tax base shrinks (Kommuninvest, 2025; Svenskt Näringsliv, 2026).

This produces spatial variations that are larger than national employment statistics suggest. Wage sum per employed worker multiplied by the employment rate differs by more than 50 per cent across regions. Since employment rates have converged, that remaining variation is today less about employment shortfall in the traditional sense but more about age structure and wage levels. Age structure determines how much of the population is of working age at all, and the wage levels determine how much each worker contributes. The policy implication is clear: raising employment rates, the classic labour market policy lever, has limited remaining potential across much of the country simply because the rate is already high. What binds is the size and composition of the population base. The main challenge has in many regions shifted from jobs to workers.

4.2 Matching, mobility and productivity

Geography is a productivity question as well as a distributional one, since national productivity depends on labour being able and willing to move or commute to where matching jobs are (Moretti, 2011).

Inter-regional mobility has run between 22 and 25 moves per thousand inhabitants a year since 1998 despite sharply widening regional differences in human capital, so the migration system has not responded to growing imbalances. Nor has its structure shifted: as shown previously the size gradient in relative net in-migration has held at around 0.7 in every ten-year window over the period (see Figure 2).

But the small regions have the country's highest gross migration intensity, with in-migration of 32 per thousand inhabitants a year against 21 in the largest class.[20] There is a wedge between cumulative outflow and inflow in the classes below 20,000 inhabitants that has not closed in a single year since 1998, and the size classes below 50,000 inhabitants have had no year of net internal in-migration in 27 years (Table 2).

Table 2. Internal gross and net migration by region size class, 1998–2024.

Size class	In-migration	Out-migration	Net	Years with net in-migration (of 27)
Below 10,000	32.5	41.7	−9.2	0
10,000–20,000	32.5	39.3	−6.8	0
20,000–50,000	30.5	36.0	−5.5	0
50,000–150,000	31.0	32.0	−1.1	5
Above 150,000	21.0	20.3	+0.7	26

Source: *Statistics Sweden, internal migration and population, 60 FA regions; size classes by population in 1998. Annual means of yearly rates per thousand inhabitants over 1998–2024; the last column counts years with positive net internal migration.*

Two observations bound what greater out-migration could deliver. The reallocation reserve is small: the 35 regions below the median wage sum per employed worker contain only 8.4 per cent of national employment (Figure 10). Metropolitan net migration is low relative to metropolitan productivity (Figure 11), pointing to a bottleneck in receiving capacity, most likely the housing market (c.f. Hsieh and Moretti, 2019; Ganong and Shoag, 2017). Taken together, this pattern can be related to the arguments by Lall et al. (2009) in the wake of the World Bank's (2009) framework: between spatially blind policies and spatially targeted incentives sit spatially connective policies linking lagging and leading regions through transport and communications. The idea is in principle to raise the receiving capacity in growing regions and enlarging functional labour markets through accessibility, rather than in raising a propensity to move that is already high.

[20] Size classes defined on 1998 population. The wedge is cumulative outflow relative to cumulative inflow, 1998–2024.

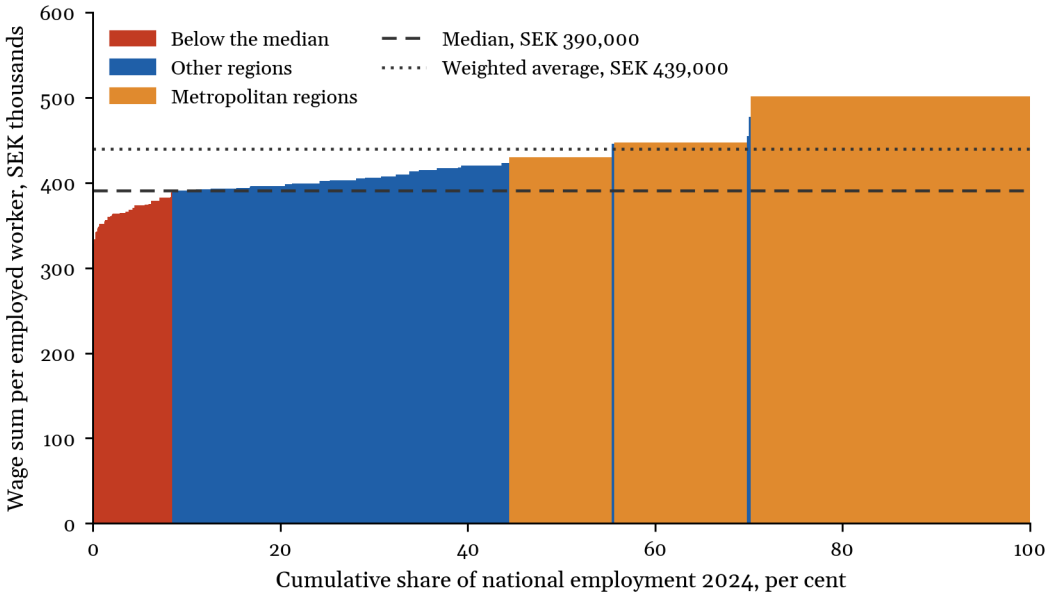

Figure 10. *The reallocation reserve: wage sum per employed worker by cumulative share of employment, 2024.*

Source: *Statistics Sweden, wage sums and day-time employed population, 71 FA regions, 2024. Regions ranked by wage sum per employed worker; bar width is proportional to the region's share of national employment. Dashed line: the median region (SEK 390,000); dotted line: the employment-weighted national average (SEK 439,000). The 35 regions below the median hold 8.4 per cent of national employment. Metropolitan regions in orange.*

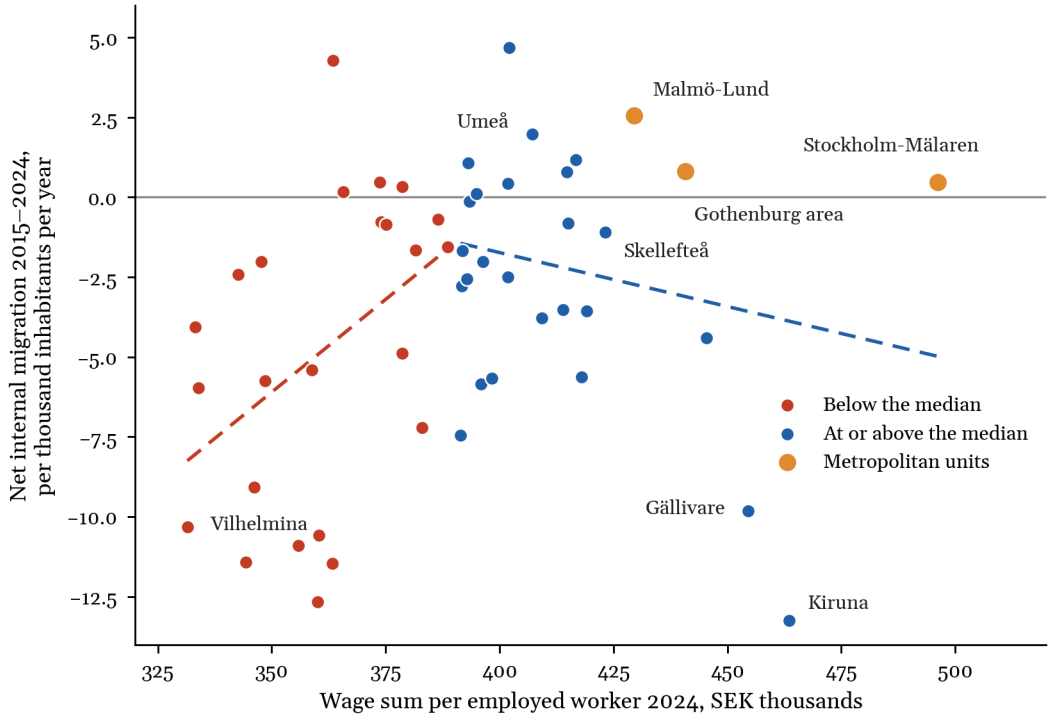

Figure 11. *Wage sum per employed worker and net internal migration, 52 units, 2015–2024.*

Source: *Net internal migration 2015–2024 relative to population in 2015, per thousand inhabitants per year, against wage sum per employed worker in 2024, SEK thousands. Fitted lines estimated separately below and at or above the median wage sum. Metropolitan units in orange.*

4.3 The structural role of labour immigration

Foreign-born workers account for 80 per cent of net employment growth over 2014–2024 while employed native-born fall in 47 of 71 regions,[21] which means the labour market's capacity to expand increasingly rests on immigrant labour at both ends of the regional system simultaneously: in the growth regions that must staff expansion and in the shrinking regions that must counter depopulation.

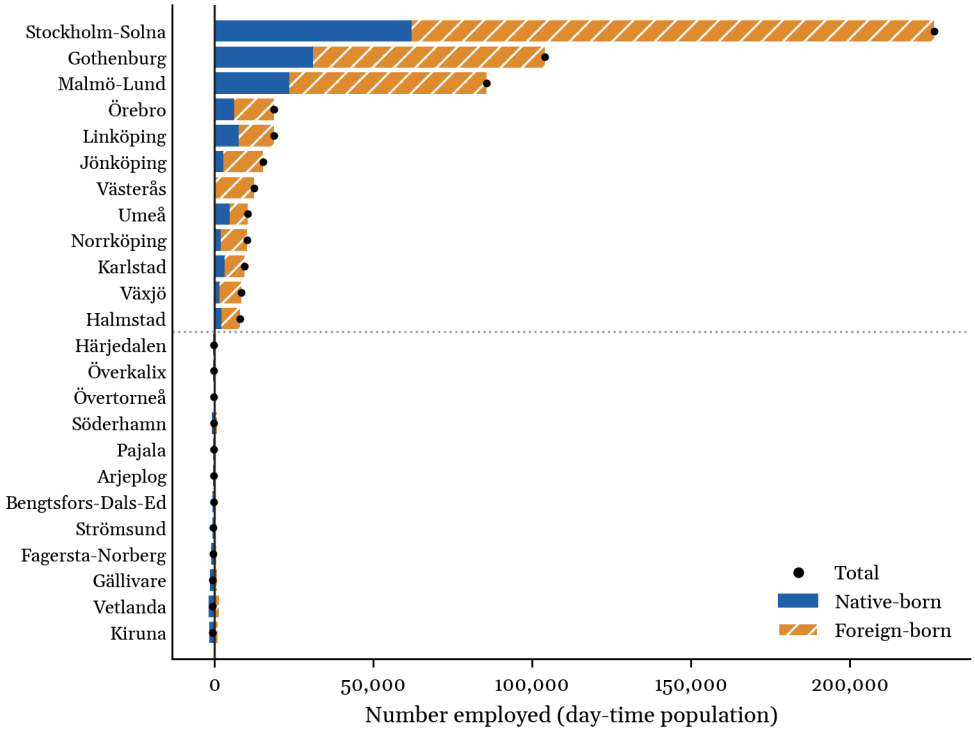

Figure 12. *Employment change 2014–2024 by region of birth: the twelve weakest and twelve strongest regions.*

Source: *Statistics Sweden, day-time population by region of birth, 71 FA regions, sorted by total change.*

In the resource-based industrial regions, labour immigration is in practice the only way to staff investment-driven growth after decades of thinned youth cohorts, which retained only 63 to 89 per cent of their young through the 2000s; inflows during the 2010s brought the ore-field regions back to full replacement. In the small and remote regions immigration works as a targeted rejuvenation mechanism: foreign citizens are concentrated in ages 25–44, at 48 per cent against 26 per cent for the population, and their population share is highest in the smallest regions. In those size classes the migration residual has been close to zero over 26

[21] Over 2014–2018 the foreign-born share is 70 per cent. In 2018–2021 it exceeds 100 per cent because native-born employment declines.

years, meaning immigration has covered the natural decrease. That dependence is not unique to Sweden. Nathan (2015) notes that over time whole sectors may become migrant-dependent, and the mechanism he describes for low-value urban industry operates here in a regional rather than sectoral form.

5. Summary and discussion

Regional policy has long been organised around the premise that what lagging regions lack is jobs. The Swedish evidence presented in this paper suggests that this premise no longer holds for a growing part of the regional system. Employment rates have converged substantially across regions, and several sparsely populated regions now record among the country's highest employment rates.

Four patterns emerge from the analysis that together are consistent with a shift in what constrains regional development. First, the concentration of economic activity to larger urban regions owes more to demographic composition than to current migration flows: metropolitan net inflows have fallen markedly since the mid-2010s, yet concentration has continued, compounding flows occurring a generation earlier. Second, the domestic labour reserve is in large already mobilised, since employment rates have converged while human capital has diverged. Regions have become more alike in how much of their population works and less alike with respect to the type of workforce. Third, employment appears more readily reversible than population decline, and because local tax revenue follows residence rather than workplace, the two have to some extent decoupled. Fourth, immigration seems have come to function as a demographic buffer.

Implications for policy

We emphasize four policy conclusions. First, policy instruments calibrated to a labour-demand constraint may have limited effect in regions where the binding constraint is instead labour supply, regardless of how they are funded or which side of the place-based debate they originate from. The second is that job creation may no longer restore local fiscal capacity to the extent commonly assumed. The third is that several widely used indicators of regional health appear to have limited predictive value, and in one case may point in the opposite direction to what is intended. Fourth, we argue that there is an argument to made to allow locally adjusted regulation and enforcement practices.

The distinction we draw is not between helping people and helping places. McCann (2023) argues that this dichotomy is largely illusory, and the instruments discussed here are place-specific throughout. The distinction is rather between policies whose objective is a place outcome and policies whose objective is the functioning of the labour market in which the place is situated. The former may tend towards support that conserves existing structures, since success is measured in preserved population; the latter points towards measures raising accessibility, lowering thresholds to mobility and easing recruitment. This also has some bearing on what might count as a realistic target. For the smallest regions, fiscal sustainability may be a more attainable objective than population growth, given that the probability of shrinking over a five-year period is 98 per cent below 10,000 inhabitants, that the tax base may consist to a substantial degree of publicly financed wages, and that immigration appears to dampen rather than reverse the trend. Much of the shrinking-regions literature nonetheless treats population decline as the outcome to be reversed (Reckien and Martinez-Fernandez, 2011; Hospers, 2014), and Swedish regional policy has largely followed suit.

Where labour supply is the binding constraint, the relevant instruments would appear to be those acting on accessibility, receiving capacity and recruitment rather than on labour demand. Agglomeration effects attenuate sharply with distance and operate mainly within a worker's own labour market region (Duranton

and Puga, 2004; Rosenthal and Strange, 2008; Andersson et al., 2016, 2019; Faggio et al., 2017), and commuting to an urban centre has been found to raise rural job growth below roughly 55 to 60 minutes with little effect beyond (Lavesson, 2017). This suggests that accessibility investment may do most where it brings locations within an hour of a larger centre, and that planning would benefit from proceeding on functional rather than administrative geographies (Johansson et al., 2003). Remote work seems unlikely to substitute, being concentrated in occupations themselves concentrated in metropolitan regions (Bond-Smith and McCann, 2022; Ramani and Bloom, 2021). In the growing regions the corresponding instrument would be housing and planning reform, which locates part of any response to peripheral decline in the country's most advantaged regions. Where labour availability rather than job availability binds, instruments acting directly on recruitment may become correspondingly more important: Nyström (2021) reports that Swedish municipalities favour relocation support for accompanying partners and tandem recruitment of couples at least as much as pecuniary measures. This addresses the co-location problem making large and diversified labour markets attractive to dual-earner graduate households (Costa and Kahn, 2000).

A broader question concerns the role of connections between lagging and leading regions. As discussed in the paper, Lall et al. (2009), discuss place connective policies, i.e. policies linking regions through transport and communications. If the propensity to move out of the weakest regions is already high, and if the binding constraint in the strongest is receiving capacity rather than attractiveness, then the margin on which policy can most plausibly act is neither the decision to move nor the decision to invest, but the time distance between where people live and where opportunities are concentrated. Connective investment in effect widens receiving capacity without requiring relocation, since it allows a larger population to reach the labour market of a growing region while remaining resident elsewhere. This logic applies at the national scale, but it may also apply within regions that already possess a strong core or regional centre, where relatively modest reductions in travel time could allow a wider hinterland to draw on the attractiveness of the core. The evidence on commuting thresholds discussed above suggests such gains would be concentrated where they bring locations inside the range within which commuting relationships are sustained.

Monitoring and indicator choice

Our analysis shows that the variables most closely associated with subsequent population development are consistently measures of demographic structure.[22] Two measures often used as indicators of regional health perform less well: the child ratio correlates only weakly (+0.20) and the employment rate negatively (−0.40). A plausible reading of the latter is that a high employment rate in small regions partly reflects the age structure and labour shortage associated with shrinkage.[23]

Fertility does not appear to be the principal difficulty in shrinking regions; what is missing is rather the parent generation. Consistent with this, the Swedish fertility decline has proceeded to a very similar extent across socioeconomic groups and across different types of localities (Andersson, 2026), which suggests that regional demographic divergence follows from migration and the composition it leaves behind rather than from regional differences in childbearing. If so, family policy delivered in place would not address the underlying mechanism. The issue is unlikely to be specific to Sweden. The employment rate is a standard measure in EU cohesion monitoring and in OECD regional statistics, and the mechanism that may render it wrong-signed – selective out-migration leaving a residual population whose remaining members are disproportionately employed – should operate in shrinking regions in ageing economies more generally.

Place based regulation and enforcement practices

A further implication concerns the uniformity of the regulatory framework. Swedish municipalities operate under largely identical national rules governing land use and construction, notably the Planning and Building Act and the shoreline protection provisions, even though the constraints they face differ substantially. Regulation calibrated to conditions where development pressure is high and land is scarce may have quite different consequences where the difficulty is attracting residents at all. A municipality experiencing sustained out-migration but possessing lakeside or coastal land may find one of its few available instruments for improving residential attractiveness constrained by rules designed with a different problem in view.

If the binding constraints vary across regions to the extent the preceding analysis suggests, there is a case for allowing correspondingly greater local variation in how such rules are applied – an extension of place-based policy to what might be termed place-adjusted regulation. This is not an argument for abandoning the protective purposes such rules serve, which apply with differing force in different settings, nor is it an argument that regulatory relaxation would by itself reverse decline. Instead, it is an argument that (i) where the constraint on a region is the availability of people rather than of jobs, the instruments that bear on residential attractiveness deserve to be counted among the relevant policy levers, and that (ii) uniform national regulations may foreclose their use precisely where they could matter most.

[22]Those measures correlate with population growth over 2014–2024 as follows: the in/out migration ratio (+0.86), the 65+ share (−0.86), region size (+0.84), the generational replacement ratio (+0.82), the cohort ratio (+0.81) and the educational share (+0.78).

[23]Excluding the three metropolitan units the correlations are +0.28 and −0.33, which suggests the results are not driven by those cases.

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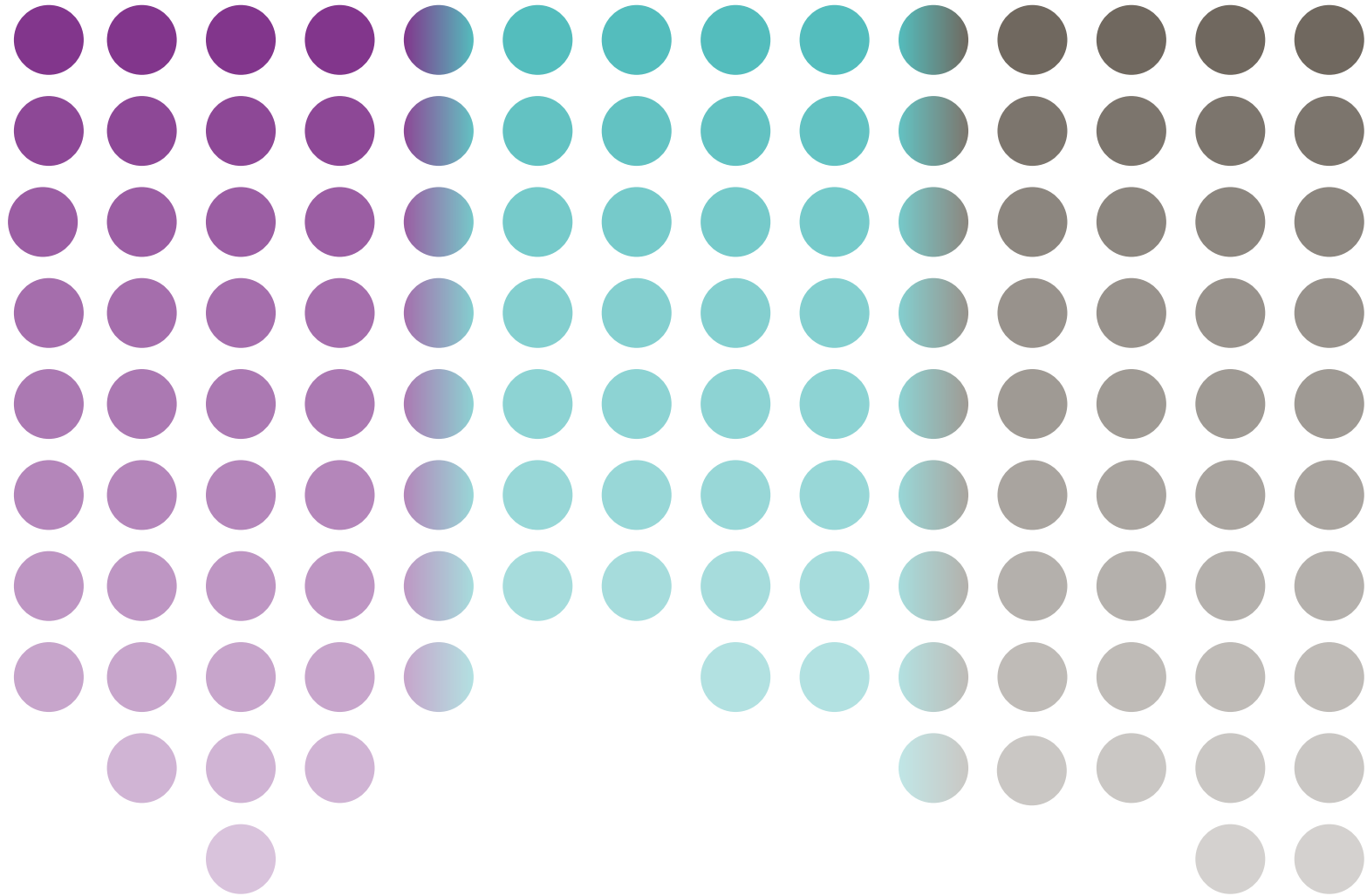

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