PART I

Chapter 1

Regional Growth: Disparities and Opportunities

This chapter begins with an assessment of the growth problem confronting OECD economies and the relevance of regional policy to the challenge of achieving strong, sustainable and equitable growth. It then turns to an analysis of the relationship between regional and aggregate growth performance, before analysing in depth two of the long-term forces shaping regional development: ageing and migration.

The OECD growth problem, a new development model and the role of regional policy

Among the myriad economic and social challenges facing OECD economies in the wake of the global economic crisis, there is a burning question around new sources of growth and their social inclusiveness. Despite the variety of situations in different countries, some trends emerge. In many economies, there is still room for increased labour-market participation and reduction in unemployment. However, even if these factors increase output levels, they are unlikely to generate sustained growth. Indeed, over the next decades, population ageing and political barriers to migration will limit the scope for further growth of labour resources. Economies could accumulate more capital, and notably more savings and investment could be obtained by appropriate pension, financial market and tax reforms. However, ageing trends are also expected to reduce savings and investment over the next few decades, and the financial crisis has generated concerns about the potential to stimulate OECD economies through a sustained deepening of capital and credit markets.

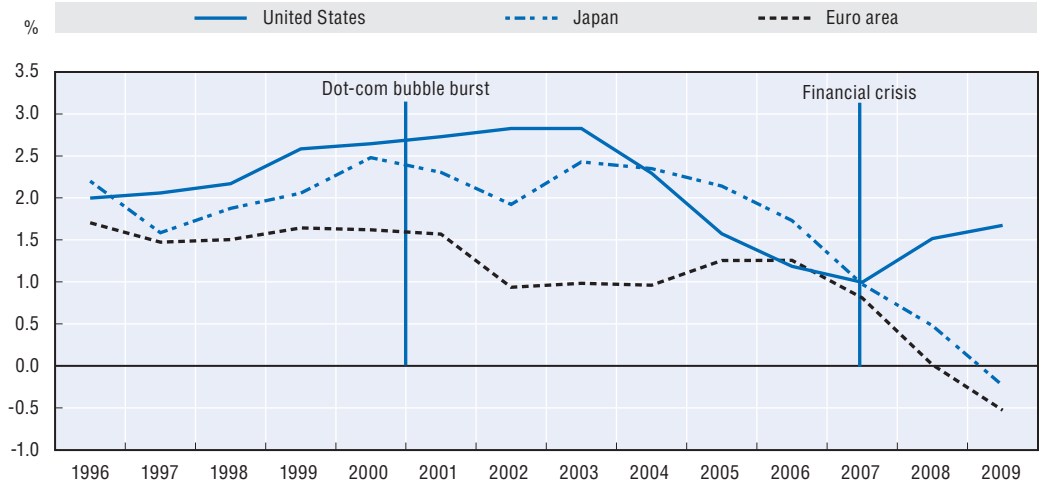
For these reasons, the policy focus has increasingly shifted towards the untapped sources of growth related to innovation and the improvement of skills. Only these can drive sustained growth of labour and capital productivity over the long run.

Productivity growth developments in the OECD have been mixed. Figure 1.1 illustrates this fact in a simple way by showing the evolution of labour productivity growth in the United States, Japan and the euro area over 1996-2009. Between the late 1990s and early 2000s, labour productivity steadily increased in the United States, stabilised in Japan and declined in the euro area. By 2003, there was a productivity gap of nearly two percentage points per year between the United States and the euro area and one percentage point with regard to Japan. These divergence trends generated an animated debate on the role of structural policies to determine the growth potential. The US positive productivity gap was assumed to be driven by the buoyant new economy, sustained by flexible labour, product and financial markets. The relation between the productivity and policy gaps triggered an agenda for structural policy reform in Europe, the so-called Lisbon Agenda.

After 2003, however, US productivity also started to decline, as it did in Japan. In the wake of the financial crisis, in all three major economic blocks, labour productivity was growing at around 1% per year. A possible explanation may be related to a significant decline in all innovation activities after the dot-com bubble burst in 2000-01.[1] Information and communication technology (ICT) investments made during the bubble had generated more research and development (R&D) and innovation, which in turn sustained productivity growth, but their effect seemed to have dissipated over 2004-07.

The financial crisis changed this picture dramatically. The rapid and deep labour adjustment in the United States induced a rebound in labour productivity, while in the euro area and Japan the inertia of employment to the crisis generated a pronounced dive in labour productivity. By the end of 2009, a 2% labour productivity gap had emerged again in

Figure 1.1. **Labour productivity growth trends in the United States, the euro area and Japan, 1996-2009**



Note: Three-year moving average of labour productivity growth (GDP per hour worked).

Source: OECD (2010), "Labour Productivity Growth", *OECD Productivity Statistics Database*, *http://dx.doi.org/10.1787/data-00493-en* (accessed on 25 July 2011).

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favour of the United States. But driven mainly by labour-market adjustments and not by innovation, these productivity changes are not sustainable. If a new wave of innovation does not materialise, comparable in size to that of the late 1990s, it is unlikely that productivity growth will resume its previous peaks. Instead, a low-productivity regime similar to the one between the mid-1970s to mid-1990s could prevail again. Only recovery in innovation itself could trigger sustainable recovery in productivity. Historical evidence suggests that innovation has played a crucial role in episodes where very heavily indebted countries have managed to grow their way back to financial sustainability relatively fast, as for example after World War II.

The global financial crisis has also brought a new set of policy goals to the forefront of the policy debate. It generated a quest for a new development paradigm integrating simultaneously three policy goals: efficiency, environmental sustainability and equity, as expressed in the OECD's *stronger, cleaner and fairer* agenda and the EU 2020 goals of a *smart, inclusive and sustainable* economy. Traditionally, policy debates have tended to focus on the trade-offs among these three objectives, often overlooking potential synergies. Now there is growing awareness of the need to pursue these three objectives in a more balanced and complementary way. These interrelations are schematically suggested in the policy matrix depicted in Figure 1.2. Usually, policy evaluation focuses on the diagonal, but it is obvious that synergies can be found in all cases of this matrix. A policy system constructed in this way displays the property that the effect of every single policy is reinforced by the presence of the other policies.[2] The current discussion on green growth is an example of such positive linkages (see Chapter 3).

When it comes to addressing concerns of environmental sustainability and equity alongside growth objectives rather than as subsidiary goals, this Outlook argues that a differentiated approach taking into account the specific conditions in each type of region can help us understand trade-offs or potential complementarities among the three objectives. Furthermore, the pages that follow will argue that regional policies are well

Figure 1.2. **New development paradigm: A policy complementarity matrix**

	Efficiency	Equity	Environmental sustainability
Economic policies	**Sustained growth**	Economic reforms may increase equity	Green growth may improve sustainability
Social policies	Social policies may increase efficiency (knowledge, trust, security)	**Social cohesion**	Environmentally sustainable social policies
Environmental policies	Green economy may boost innovation	Social policies can enhance inclusiveness; poor people are the most hurt by environmental degradation	**Sustainable environment**

equipped to create synergies where they are most evident, in particular places, as opposed to policies that are "spatially blind" or based on sectoral approaches.

Indeed, one major difficulty in achieving a more integrated approach is that the three dimensions of societal progress are often disconnected in space (Figure 1.3). People usually go to large cities for higher income and growth opportunities, but often at the cost of lower environmental quality and loose community connections. Cities also tend to provide better social public goods (*e.g.* health and education) than rural areas. In contrast, people living in intermediate and rural areas often benefit from a better and less stressful environment, at the cost of less growth and income opportunities and generally lower access to publicly provided goods. These trade-offs are generally accepted and it is often evoked that "people vote with their feet" by choosing different spatial locations.

Figure 1.3. **Intensity of dimensions of societal progress and geographic space**

	Cities	Rural areas
Efficiency/income	+	−
Environmental quality	−	+
Social dimensions: Public goods (*e.g.* health, education)	+	−
Social dimensions: Community-produced goods (*e.g.* trust, security)	−	+

However, the current debate about a new development model suggests less social acceptance for these trade-offs, with citizens asking for both greener and more liveable cities, and for rural and intermediate areas providing a minimum of employment opportunities and access to public services. In practice, spatial mobility of people is often limited and presents a large inertia (see the discussion below about migration trends).

Past experience suggests other reasons for paying greater attention to the regional dimension of economic policy. Establishing and sustaining strong growth against the backdrop of high debt and fiscal constraint will depend to a great extent on the dynamics of innovation, an activity that is in many respects place-based. The need to improve innovation performance is, in turn, reinforced by other factors, not least of which to address the demographic and climate-change challenges described in the pages that follow.

Although policy makers, journalists and others are generally inclined to focus on national and international scales when discussing the crisis and its aftermath, the impact of the downturn in many countries was highly concentrated geographically, and the weakness and apparent fragility of the recovery in many OECD economies owe much to problems affecting particular regions.

This underscores the extent to which an analysis of the regional dimension highlights both challenges and opportunities. On the one hand, there is a need for geographically differentiated policy responses to address phenomena like housing price collapses and some aspects of labour-market adjustment (Box 1.1). At the same time, an approach more sensitive to specific regional contexts may also help strengthen the recovery and rebuild it on new foundations. With governments struggling to generate growth while pursuing fiscal consolidation, it is more important than ever to maximise the growth-enhancing potential of public expenditure – particularly public investment – by seeking to manage the trade-offs among structural policies as efficiently as possible and to maximise the potential synergies among them. Such trade-offs and complementarities are likely to be easiest to identify and manage where they occur – in particular places. Governments seeking to "do better with less" in a period of fiscal consolidation will need innovative multi-level governance arrangements if they are to make the most of scarce resources.

With these considerations in mind, the *OECD Regional Outlook 2011* is structured as follows. Part I begins with an overview of recent work on the relationship between regional and aggregate performance, so as to set regional performance in a larger perspective. It then examines some of the long-term forces shaping regional development, such as migration and ageing, the impact of the crisis on regional labour markets and the finances of sub-national government, a crucial but often under-appreciated aspect of the current fiscal environment. It analyses policy responses to the crisis at the regional level in the two domains where the regional dimension is perhaps most salient – the efficient governance of public expenditure, especially public investment, and policies to generate employment growth. Part II offers a more focused treatment of two of the key long-term challenges facing OECD regions: policies to enhance the effectiveness of regional innovation systems and the potential role of green growth. In order to reflect to some extent the considerable diversity of views that exists with respect to economic geography and regional policy, Part III presents a policy forum, comprising a series of short contributions from a range of different experts' perspectives concerning the degree to which economic and social policy should or should not be spatially blind or geographically differentiated ("place-based"). Finally, Part IV provides detailed country information on regional performance and the institutional set-up of regional policies. To be sure, this list of topics does not exhaust the regional policy agenda, but it does encompass many of the most important questions and challenges facing regional policy today.

Box 1.1. **What are place-based policies?**

This Outlook will often use the term of "place-based policies" to designate policies that take into account the spatial dimension of economic activities. For example, developing labour markets or innovation in a city or in a rural area may not entail the same type of instruments and may require a differentiated approach. Policies that are "space-blind" may miss this element of differentiation and thus are not the most effective way of promoting growth in all types of regions.

The argument in favour of space-blind policies often refers to the existence of economies of agglomeration (see Part III). People are typically more productive in large agglomerations because they have access to more capital and infrastructure, and benefit from a greater number of connections to other people. In this way the migration of people to large cities is an engine of growth for the whole economy. In consequence, policies should not interfere with this optimal allocation of resources and be defined uniformly across all regions (or be blind to space). But space-blind policies are not space-neutral and generate huge spatial asymmetries. To address this political and social problem, governments have designed subsidy-based interventions to reduce regional disparities. Such transfers are often not sustainable because they create relations of dependency and, over time, the richest regions become more and more reluctant to finance the lagging ones.

Therefore, this Outlook considers that place-based polices should reflect the OECD's "new regional paradigm" (see table below), *i.e.* a much broader "family" of policies designed to improve the performance of regions. These can be characterised as follows:

- a development strategy covering a wide range of direct and indirect factors affecting the performance of local firms;
- a greater focus on endogenous assets rather than exogenous investments and transfers;
- an emphasis on opportunity rather than disadvantage; and
- a collective/negotiated approach to governance involving national, regional and local government along with other stakeholders, with the central government taking a less dominant role.

The rationale for the new regional approach is based on the principle that opportunities for growth exist in the entire territory and across all types of regions as documented in this Outlook. Going far beyond the problem of how to address lagging regions, the aim is to maximise national output by assisting and encouraging each individual region to reach its growth potential endogenously. Place-based policies cover urban policies, rural policies and governance mechanisms across different levels of government.

Old and new paradigms of regional policy

	Old paradigm	New paradigm
Objectives	Compensating temporarily for location disadvantages of lagging regions.	Tapping underutilised potential in all regions for enhancing regional competitiveness.
Unit of intervention	Administrative units.	Functional economic areas.
Strategies	Sectoral approach.	Integrated development projects.
Tools	Subsidies and state aids.	Mix of soft and hard capital (capital stock, labour market, business environment, social capital and networks).
Actors	Central government.	Different levels of government.

Source: OECD (2009a), *Regions Matter: Economic Recovery, Innovation and Sustainable Growth*, OECD Publishing, *http://dx.doi.org/10.1787/9789264076525-en*.

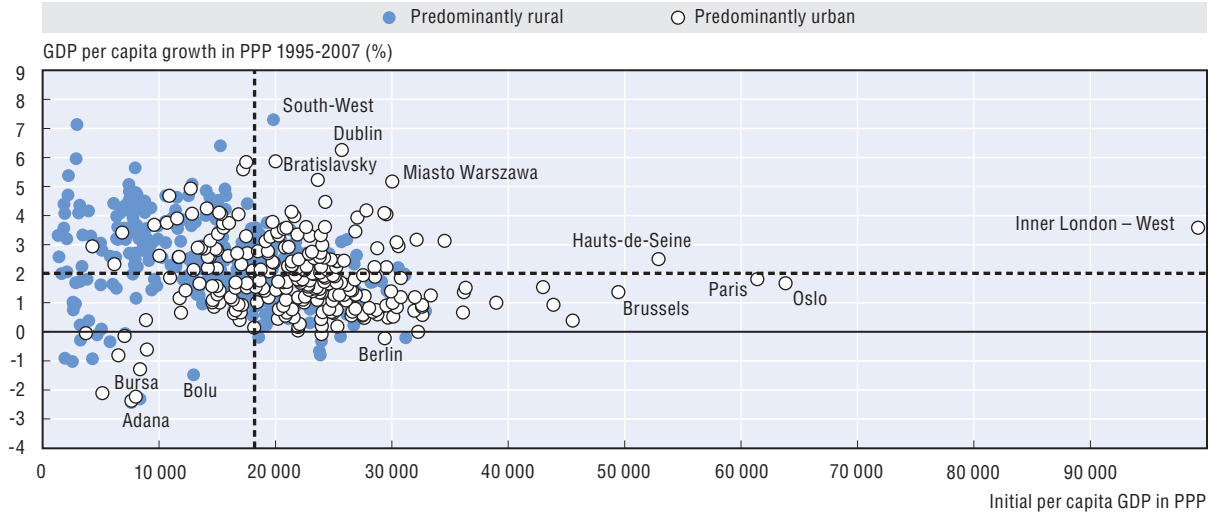
How regions contribute to national and OECD-wide growth and employment

Opportunities for growth are observed in all types of OECD regions

Over the past 15 years, regional growth in OECD countries has been quite heterogeneous. Figure 1.4 shows how the 1995 GDP (gross domestic product) per capita level in each region relates to the subsequent growth rate over the period 1995-2007. This relation at the country level is usually displayed negatively, *i.e.* countries with a higher level of GDP per capita tend to grow slower than the lagging ones. This implies that some convergence of incomes is taking place at the country level. The picture at the regional level, however, is much less clear. No particular relation seems to emerge. The cloud of data points in Figure 1.4 shows that both high-income regions and lagging regions can grow faster or slower than average and *vice versa*.

Figure 1.4. **A large variation of regional growth profiles, 1995-2007**

Predominantly urban and rural regions, 1995-2007



Note: The vertical and horizontal lines correspond, respectively, to the combined urban and rural average growth rates and the average income level in OECD regions. Regions from Australia, Canada, Iceland, Mexico, New Zealand, Switzerland and the United States are missing due to the lack of GDP data at TL3 level.

Source: OECD (2009b), *How Regions Grow: Trends and Analysis*, OECD Publishing, *http://dx.doi.org/10.1787/9789264039469-en*.

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Indeed, while predominantly urban regions have generally exhibited higher levels of productivity and GDP per capita, they have not seen any advantage in terms of growth performance. In other words, and contrary to possible *a priori* view, predominantly rural regions appear to be disproportionately represented among the fastest growing regions (Figure 1.4). This suggests that the recipe for high sustainable growth rates is not unique and that strong growth can indeed be achieved in different ways. The greater heterogeneity in rural regions' performance might well point to greater variation in the challenges facing such regions, but the data provide little support for the widely held belief that rural regions are necessarily in decline.

The convergence forces stem from the ability to import technical, managerial and other innovations from the more advanced economies – in short, to catch up by imitating the leaders. Against this, however, a major strand of the economic geography literature concerns the benefits of large urban agglomerations. It stresses the cumulative effect of the

economies of scale, labour-market pooling, forward and backward linkages, network effects, knowledge spillovers and other internal and external economies that firms may be able to exploit when economic activity is geographically concentrated. It is these effects that drive urbanisation and account for the well-established empirical observation that large urban areas tend to be characterised by higher productivity and higher levels of per capita value added. On its own, the logic of agglomeration would lead one to expect divergence of regional performance over time, with the leading regions pulling further ahead. In a world shaped solely by agglomeration, one would expect divergence to dominate until the forces of attraction driving increased agglomeration began to reach their limits and were overcome by the forces of repulsion (as when congestion and other diseconomies begin to outweigh the advantages of agglomeration).

Among rural and intermediate regions (see Box 1.2), the relation between the initial GDP per capita level and subsequent growth broadly displays a negative slope

Box 1.2. **Defining sub-national units: What is a region?**

In any study of economic and social processes, the choice of the unit of analysis is of prime importance. Regions may be defined on the basis of labour-market or other data that suggest the existence of a functional economic region, in line with administrative boundaries or through some combination of the two (economic and administrative) approaches. While there is much to be said for identifying and understanding functional regions, the data requirements for identifying them are extremely demanding – especially if the aim is to cover the whole of the OECD area – and they are in any case constantly changing. Policy, moreover, is often designed and implemented within administrative boundaries and national statistical bodies gather data that reflect administrative divisions. The *OECD Regional Statistics Database* therefore reflects such boundaries, albeit with an awareness of the limitations of such data. Where possible, data that reflect a more functional approach are often used to supplement the analysis based on data for administrative units.

For administrative boundaries, the OECD has classified two levels of geographic units within each member country. The higher level (Territorial level 2 [TL2]) consists of 371 large regions, which correspond in most cases to the principal sub-national unit of government (states or provinces), while the lower level (Territorial level 3 [TL3]) comprises 1 794 smaller regions. For functional boundaries we employ the *OECD Metropolitan Database*, covering 90 metropolitan regions from OECD countries; however, it does not cover non-metropolitan regions.

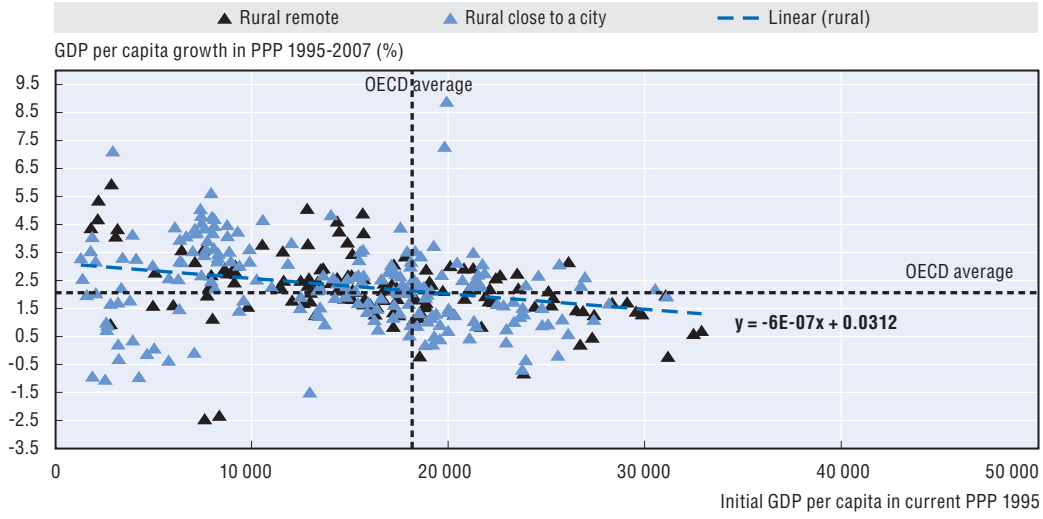
A second important issue for the analysis of sub-national economies concerns the different "geography" of each geographic unit. For instance, in the United Kingdom one could question the relevance of comparing London to the rural Shetland Islands, despite the fact that both belong at the same territorial level. To take account of these differences, the OECD has established a regional typology according to which TL3 regions have been classified as predominantly urban (PU), predominantly rural (PR) and intermediate (IN). An extended regional typology has been applied to Europe and North America. The new typology distinguishes between rural regions that are located close to larger urban centres and those that are not. The result is a four-fold classification of TL3 regions into: predominantly urban (PU), intermediate regions (IN), predominantly rural regions close to a city (PRC) and predominantly rural remote regions (PRR). The extended typology has not yet been applied to Australia, Japan and Korea or to emerging economies, owing to limits on the available data.

Source: OECD (2011), *OECD Regions at a Glance 2011*, OECD Publishing, *http://dx.doi.org/10.1787/reg_glance-2011-en*.

(Figures 1.5 and 1.6). Thus, forces of convergence appear to be dominant during the period 1995-2007, reinforcing the conclusion of OECD (2009b) that strong growth is not necessarily associated with agglomeration processes.

Figure 1.5. **Convergence patterns across rural regions, 1995-2007**

Remote and proximate rural TL3 regions



Note: Countries excluded are: Korea, Japan, New Zealand, Slovenia, since the extended OECD taxonomy has not been yet computed for these countries; and the United States, Mexico, Canada and Australia since GDP data is not available at TL3 level.

Source: OECD Regional Statistics Database.

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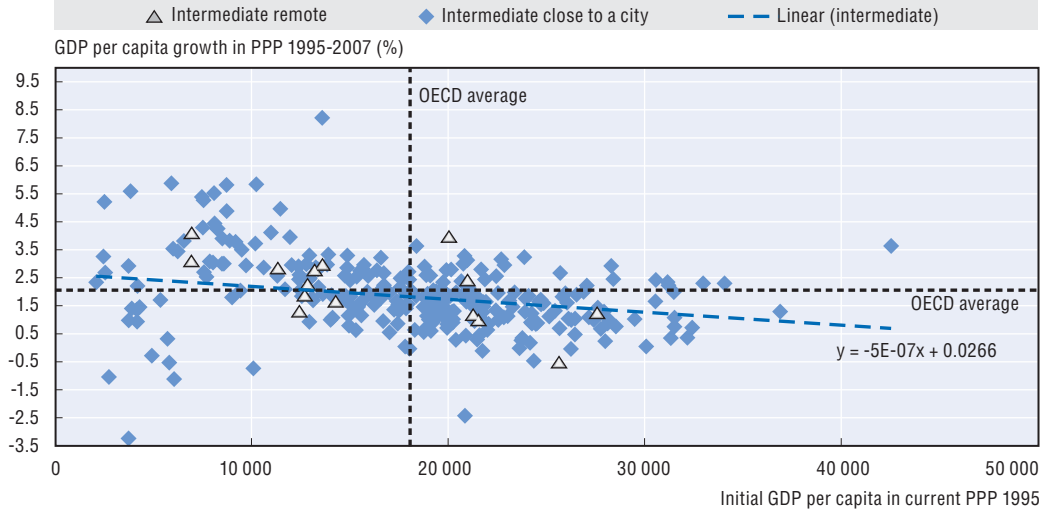
Figure 1.6. **Convergence patterns across intermediate regions, 1995-2007**

Intermediate TL3 regions



Note: Countries excluded are: Korea, Japan, New Zealand, Slovenia, since the extended OECD taxonomy has not been yet computed for these countries; and the United States, Mexico, Canada and Australia since GDP data is not available at TL3 level.

Source: OECD Regional Statistics Database.

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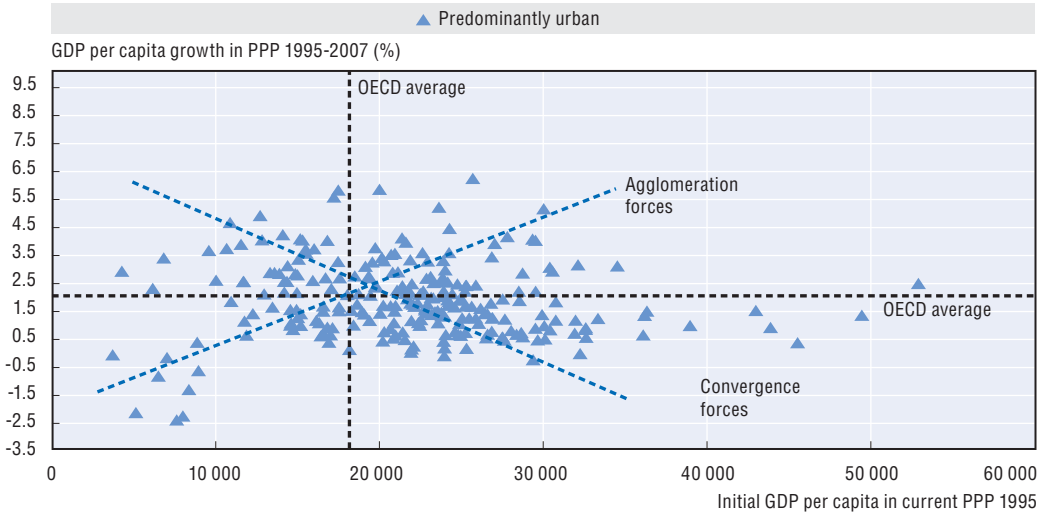
In contrast, among predominantly urban regions there are forces of both convergence and divergence. While urban regions have higher levels of per capita GDP overall (78% display higher initial GDP per capita than the OECD average), the majority (56%) are growing more slowly than the OECD average, indicating convergence from the top of the distribution. In other words, urban regions beyond a certain level of GDP per capita tend to experience a deceleration of growth rates. Nonetheless, one may also observe the divergence among a group of urban regions recording fast growth with higher-than-average levels of GDP per capita (Figure 1.7). These findings are fairly consistent with past analysis examining the performance of functional metro-regions; these tend to experience a deceleration of growth rates in GDP per capita growth. The analysis finds that only 45% of the metro-regions are growing faster than their respective countries over the period 1995-2005 (OECD, 2009b).

Figure 1.7. **Both convergence and divergence patterns for urban regions, 1995-2007**

Predominantly urban TL3 regions



Note: Countries excluded are: Korea, Japan, New Zealand, Slovenia, since the extended OECD taxonomy has not been yet computed for these countries; and the United States, Mexico, Canada and Australia since GDP data is not available at TL3 level.

Source: OECD Regional Statistics Database.

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In sum, the above evidence shows that possibilities for growth exist in all types of regions: urban, intermediate and rural. This mixed pattern of growth is largely driven by a wide range of interconnected factors influencing the performance of each region, including, *inter alia*, amenities, geographic location, size, demographics, industry specialisation and agglomeration effects (OECD, 2009b). Recent OECD analysis of the main factors underlying regional growth finds several endogenous elements to be critical drivers of regional performance over the medium and long term. These are human capital (both the presence of highly skilled workers and the relative dearth of low-skilled ones), infrastructure, innovation activity, scale and agglomeration effects, and, to a lesser extent, accessibility (see Box 1.5, below). These factors complement each other in important ways. The performance of a region will thus depend to a great extent on how well it manages to exploit and mobilise its own assets and resources.

The contributions of regions to national growth exhibit striking regularity

To compound the large variety of regional growth patterns into the aggregate growth rate of a country, the growth rate of each region needs to be multiplied by its size (*i.e.* its initial share in national GDP). This product is the region's contribution to aggregate growth and the sum of all contributions adds up exactly to the national growth rate. From a national policy perspective, therefore, it is not simply regional growth rates that matter – where the growth occurs is also critical. Large and fast-growing regions will have the largest impact on aggregate growth, while small regions with low rates will have the least impact.

If one orders regions by their contributions to aggregate growth (starting with the ones contributing more and ending with the ones contributing less), and plots their corresponding share of contribution to national (or OECD) GDP growth, a particular, rather skewed, distribution is obtained. It resembles a so-called "power law",[3] which is characterised by a "fat tail". This means that a few regions (the big "hubs") account for a disproportionate share of aggregate growth, while the rest collectively account for the bulk of growth but do not contribute much individually (*e.g.* fat-tail regions). However, the contribution of the tail of the distribution cannot be neglected,[4] since it plays a fundamental role in the overall phenomenon: even if they are not big growth hubs, these regions are so numerous that their contribution plays an important role in explaining aggregate growth. For an overview of the policy implications of this phenomenon, see Box 1.3.

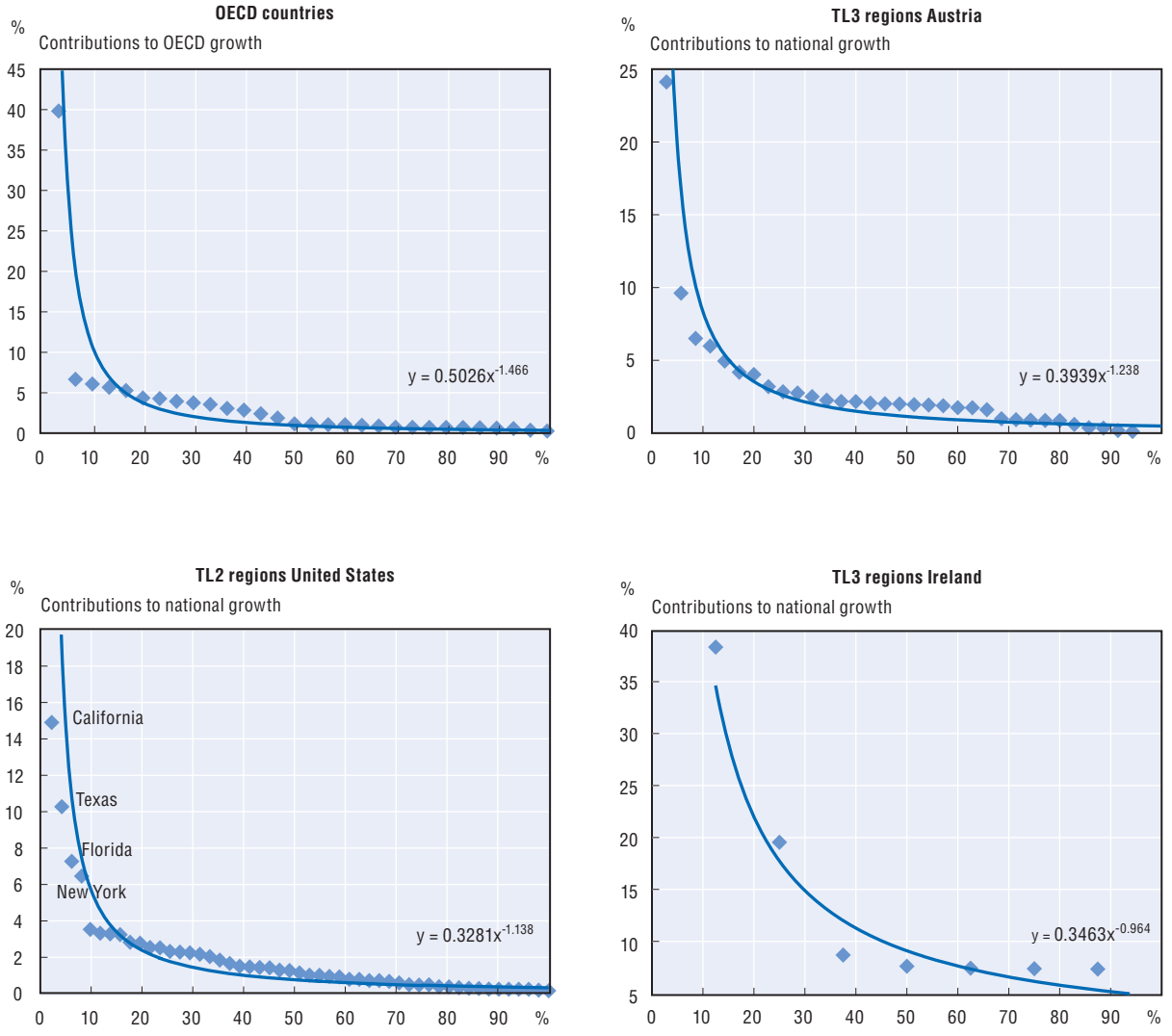
These distributions seem also to exhibit a scale-free property, meaning that this particular shape tends to replicate itself at smaller and larger scales or within sub-samples of the distribution. Figure 1.8 displays contributions to aggregate growth in four different settings: one at the country-wide level displaying countries' contributions to OECD growth,

Box 1.3. **Policy implications of growth contributions that follow a scale-free power law**

This tendency of growth contributions to follow a scale-free power law is more than a curious statistical regularity. It has a number of significant policy implications that are explored in the analysis that follows:

- Policy makers are right to be concerned about the performance of the big regional hubs that are their main drivers of growth. If they falter, the impact on aggregate performance will be significant.
- However, most growth occurs outside the hubs. Indeed, many of the fastest growing regions are second-tier cities and intermediate regions. An exclusive focus on the hubs neglects the potential impact on growth of policies that helped the great mass of regions in the fat tail to improve their performance.
- The notion of an "average region" is effectively meaningless. It is statistically useless, because there is no concentration around average values in the distribution. More importantly, it is meaningless in policy terms, because analysis of the determinants of growth at regional level suggests that the constraints on growth that confront the leading regions are different from those confronting the rest.
- There is low-hanging fruit in the "fat tail". Although the big drivers of growth are mainly large urban areas, as one would expect, there are many big urban regions to the right of the distribution – large cities that make little or no contribution to aggregate growth. Generating strong growth in such places could have a palpable impact on national performance.

Figure 1.8. **Contributions of countries and regions to growth, 1995-2007**



Source: OECD Regional Statistics Database.

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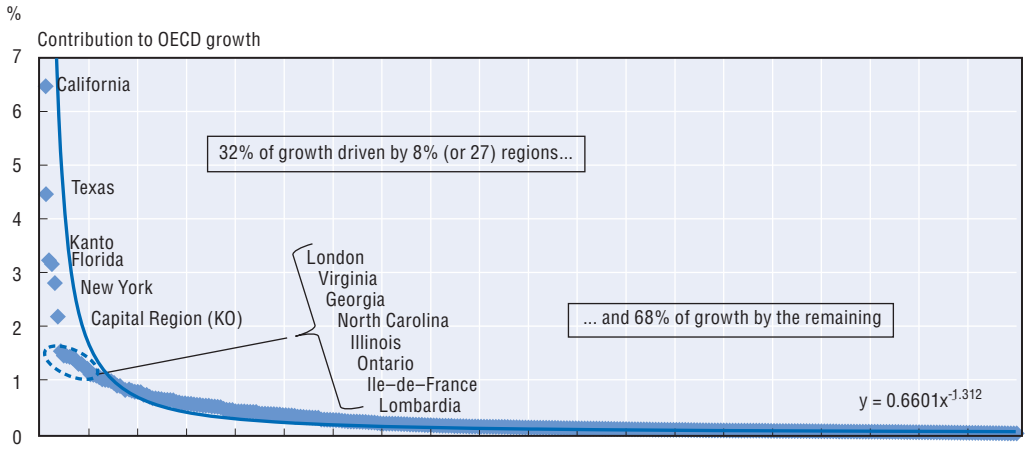
and the remaining three displaying regions' contributions to national growth in three OECD countries – two small ones (Austria and Ireland) and one large one (the United States). All four cases display a similar shape, confirming its scale-free property.

Taking the OECD as a whole, the contributions of 335 OECD Territorial level 2 (TL2) regions over the period 1995-2007 follow an approximate "one-third two-thirds rule": a few big hubs (around 4% of the total) contribute close to one-third in the OECD area, while two-thirds comes from the remaining regions. Amongst the 14 big hub regions (Figure 1.9), more than half are in the United States and the remainder are, as one would expect, dynamic capital regions such as Tokyo (Kanto), London or Paris (*Île-de-France*). Of course, the distribution of growth contributions at TL2 level reflects in part the great variation in the sizes of sub-national jurisdictions in OECD countries – TL2 regions are typically defined by the top tier of sub-national government, so constitutional structure plays a role. Nevertheless, as is clear from Box 1.4, dynamism also plays a critical role.

Figure 1.9. **Contributions of TL2 regions to OECD growth, 1995-2007**



Source: OECD Regional Statistics Database.

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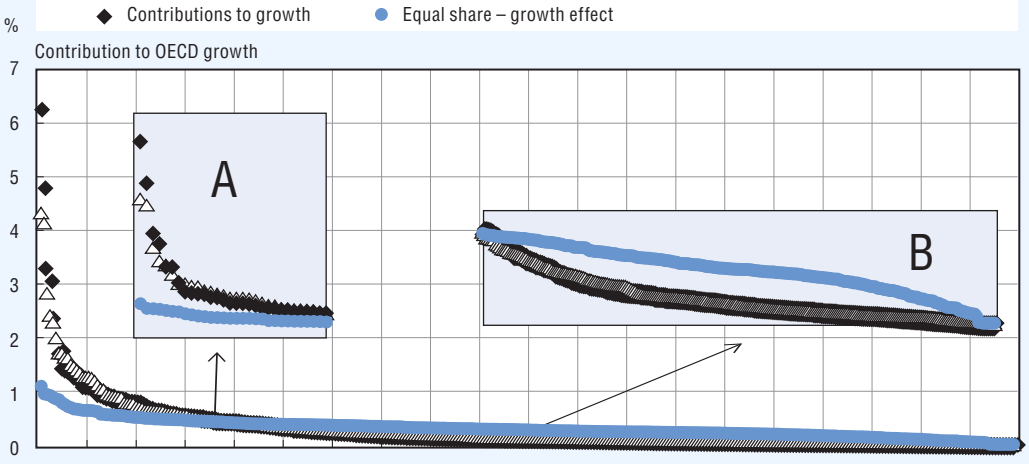
Box 1.4. **Contributions to aggregate growth: Size and growth effects**

Regions' contributions to aggregate growth depend on two elements; their size (initial share of GDP) and their dynamism (growth rates over a given period). Both effects can be tested by graphing two extreme cases: first the shape of contributions to aggregate growth assuming all regions have the same size (average initial GDP per capita) and their actual growth rates over the period 1995-2007, and secondly by assuming that all regions have the same growth rates (average growth rates over 1995-2007) and their actual size. The first case captures the growth effect and the second the size effect.

The following figure plots both extreme cases with the actual distribution of contributions to aggregate growth. As expected, the actual contributions to aggregate growth are dominated by size effects. In this context, improving the contributions of the regions in the long horizontal tail of the distribution would be mainly driven by growth effects, which in turn critically depend on endogenous factors (Box 1.5). The cumulated contribution of a synchronised improvement in the performance of these many regions could have a substantial effect on aggregate growth.

Contributions to aggregate growth by OECD TL2 regions, size *versus* growth effects, 1995-2007



Source: OECD Regional Statistics Database.

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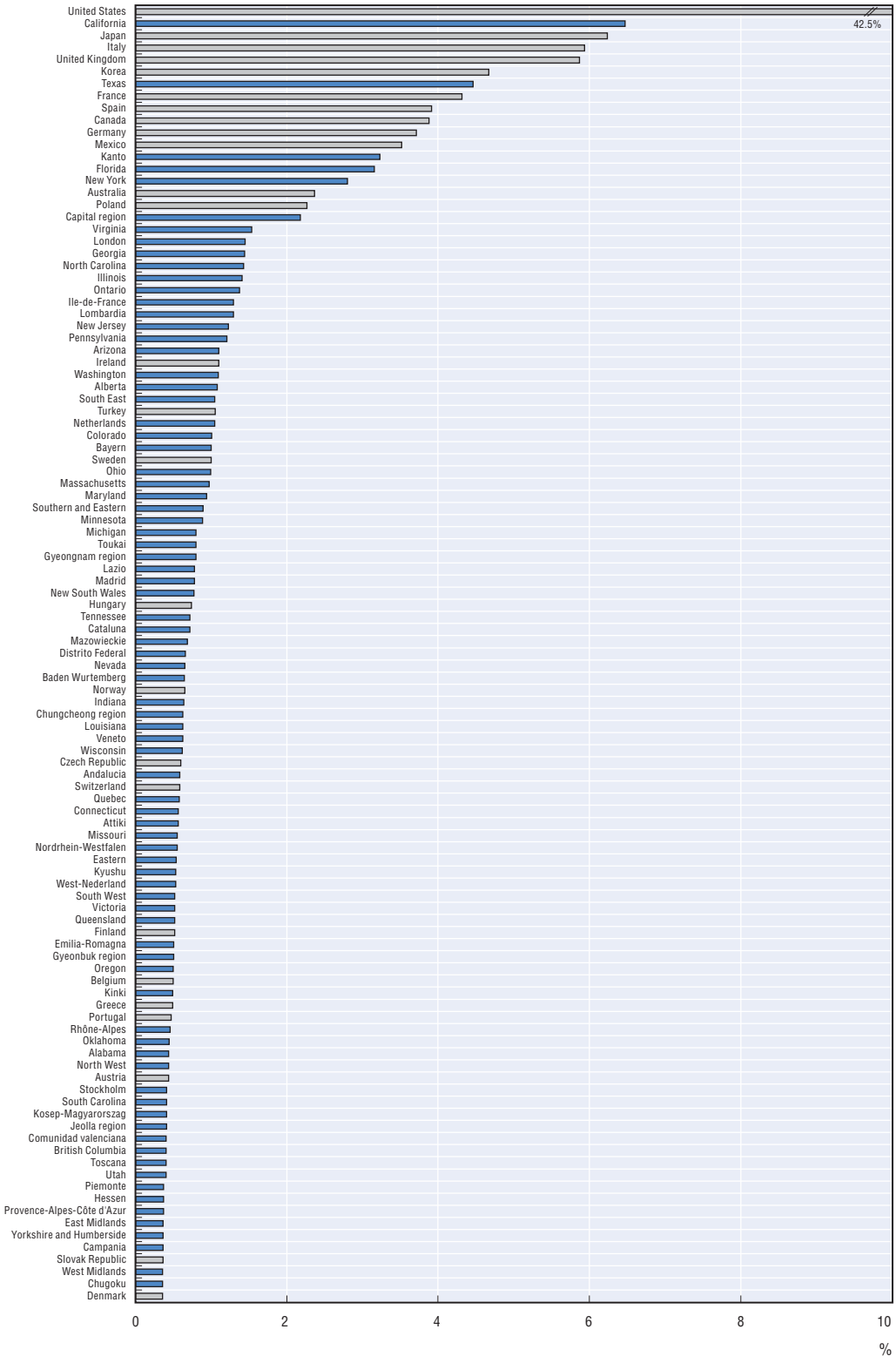
Figure 1.10. **Comparison of contributions of countries and TL2 regions to OECD growth, 1995-2005**



Source: OECD Regional Statistics Database.

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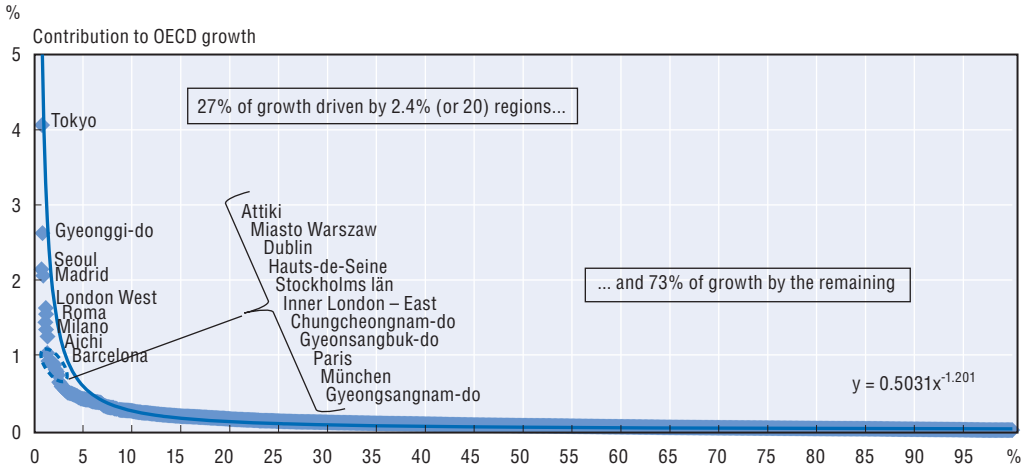
The magnitude of the largest regional contributors in many cases exceeds the contributions to aggregate OECD growth of entire countries. For example, there are 59 TL2 regions contributing more than Denmark (Figure 1.10). This means that in many cases the performance of a single region can have a larger overall impact than the performance of a country. As noted above, this to some extent simply reflects the sheer size of some OECD regions (California if it were a country would be a G8 economy) and it underscores the fact that one cannot assume that the national level is always the most important level of policy making in terms of potential impact. Decisions made by or about regions within countries can have far-reaching effects well beyond their borders. Moreover, the scale-free nature of the law reflects in part the fact that there are "Californias" at every scale: when looking across the OECD as a whole, it may seem odd to compare California to a much smaller TL2 region, such as the *Île-de-France*, but within France, the capital region itself looks California-sized in comparison with most other French regions.

The contributions to aggregate growth over the same period of those TL3 regions for which data are available[5] also display the same profile (Figure 1.11). Among TL3 regions for which data are available, Tokyo recorded the highest contribution to OECD GDP growth (4.1%), followed by Gyeonggi-do (2.5%), Seoul and Madrid (both 1.9%). The top 20 TL3 contributors to aggregate growth represent only 2.4% of the regions and yet accounted for 27% of OECD GDP growth during 1995-2005. None of the remaining 97.6% of regions individually contributed more than 0.7% of GDP, but their combined contribution amounts to almost three-quarters of aggregate growth. Since TL3 regions vary in size less than countries or TL2 regions, this reinforces the impressions that the result is not chiefly a product of the variation in the size of the regions themselves. Indeed, Box 1.4 suggests the contribution by the big hub regions is mainly due to a size effect while the contribution of the remaining regions is mainly dominated by the dynamism of regions (*e.g.* a growth effect).

On the basis of the shape of the contributions to growth it is possible to identify four groups of regions (see Annex 1.A1). The first cohort of 2% of TL3 regions has the largest contribution to growth (Table 1.1). Not surprisingly, it corresponds to big urban centres (including Tokyo, Seoul, Madrid, Paris, London, Rome, Stockholm, Attiki, Milan,

Figure 1.11. **Contributions to aggregate OECD growth by TL3 regions, 1995-2005**



Note: There are no GDP data for TL3 regions in Australia, Canada, Mexico, Switzerland and the United States.
Source: OECD Regional Statistics Database.

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Barcelona, Miasto Warszawa and Munich). The next cohort accounts for about 51% of regions – contributing for almost two-thirds of aggregate OECD growth – and includes a wide variety of predominantly second-tier urban and intermediate regions. This highlights the importance of intermediate regions and non-hub urban regions for aggregate growth. The third group covers around 32% of regions, which contributes to close to 9% of growth. Finally, the remaining 15% of regions (Group 4), by contrast, contribute virtually nothing to aggregate growth.

Table 1.1. **Contributions to growth in four groups of OECD TL3 regions**

	Number of regions (%)	Population share (%)	Contributions to aggregate growth (%)	Predominantly urban (%)	Intermediate (%)	Predominantly rural (%)
Group 1	2.3	13.2	26.4	89	0	11
Group 2	51.1	66.0	64.5	35	51	15
Group 3	31.5	15.8	8.6	18	34	48
Group 4	15.1	5.0	0.5	15	16	69

Note: There are no GDP data for TL3 regions in Australia, Canada, Mexico, Switzerland and the United States.
Source: OECD Regional Statistics Database.

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For the first group, each person has roughly the double of the average contribution to growth (*i.e.* 13% of the population corresponds to 26% of the contributions to growth). The second group has roughly a one-to-one relationship (66% of population to 64% of the contributions). The third and fourth groups combine around 21% of the OECD population, but only contribute to 9% of growth. These proportions could be interpreted as increasing returns to population scale in Group 1, constant returns to scale in Group 2 and diminishing returns in Groups 3 and 4.

As one might expect, much of Groups 3 and 4 consists of very thinly populated, predominantly rural regions; their small growth contributions largely reflect their small size. However, a significant minority of these low-contributing groups are urban regions whose small growth contribution is chiefly the product of exceptionally poor growth performance over the period: altogether, some 5% of the population of the OECD area lives in predominantly urban areas that fall into Groups 3 and 4. These regions present a particular policy challenge.

Altogether, the 50 worst-performing regions in terms of growth of GDP per capita contribute virtually nothing to aggregate growth over the period and yet are home to 33 million people. Fifteen of these regions are predominantly urban, with a combined population of over 16 million; a further 18, with a population of 10 million, are intermediate regions. This group of slow-growing regions includes such important urban areas as Grande Porto (Portugal), Hainaut (Belgium), Hyogo (Japan) and Berlin (Germany). For policy makers, the performance of these and similar regions must be seen as both a huge challenge and tremendous untapped opportunity: enhancing the dynamism of such urban centres could, on its own, have a palpable effect on the aggregate performance of the countries concerned and might also generate positive spillovers for neighbouring regions.

Over the period 1995-2007, contributions to aggregate growth among TL2 regions became increasingly skewed over time: the contribution of the few regional hubs increased, as did the contributions of many regions well to the right in the "fat tail" of the

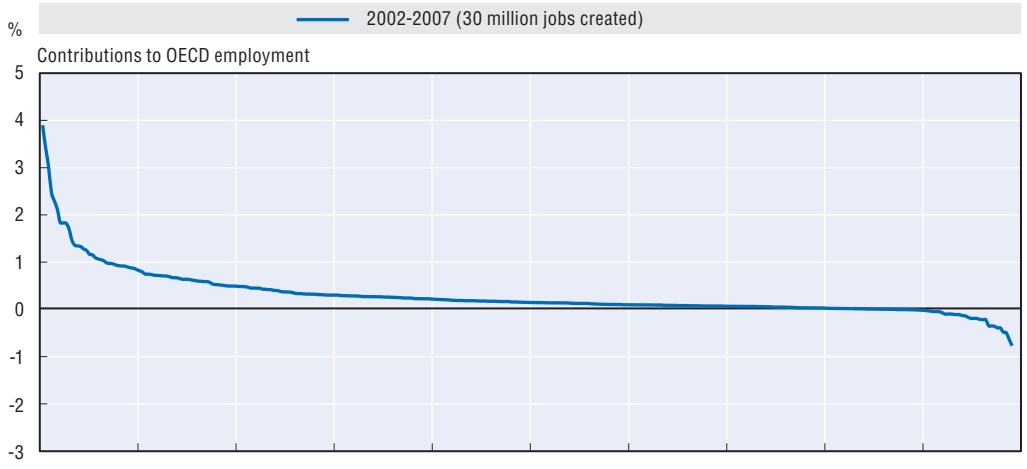
distribution, while the relative weight of the regions in between, around the bend in the curve, declined somewhat (see Annex 1.A1).[6]

Regional contributions to employment are also concentrated

Changes in OECD employment and unemployment flows, which have been quite pronounced in the context of the crisis, are also quite asymmetric and are highly concentrated in a small number of TL2 regions, as the rank distribution from the highest to the lowest employment creation shows (Figure 1.12). During the expansion preceding the crisis, 11 regions accounted for 26% of net job creation across the OECD, with 281 regions generating a further 80% and 40 experiencing a decline in employment equivalent to 6% of the total. While the available data do not yet permit a similar analysis for the period since 2007, data on US states provide a glimpse of what the turnaround has meant for employment generation/destruction (Figure 1.13). As is clear from the figure, the trends reflect the impact of regional dynamism as well as size – the positive and negative contributions shown are only imperfectly correlated with state populations.

This concentration picture has a number of implications. It seems clear that the labour-market performance of a handful of large hubs is critical to the overall outcome: these are generally rather large regions, but their contribution to total employment gains and losses is often disproportionate even to their size, and their ups and downs can have substantial knock-on effects on demand across the OECD, with reverberating effects in other regions. Policies that increase labour demand in hub regions could thus generate positive spillovers for others. This would suggest the potential for cascading effects from effective policies addressing unemployment in these hubs. Elsewhere, the focus should logically be on synchronising policies that boost employment growth in the large number of regions in the tail of the distribution.

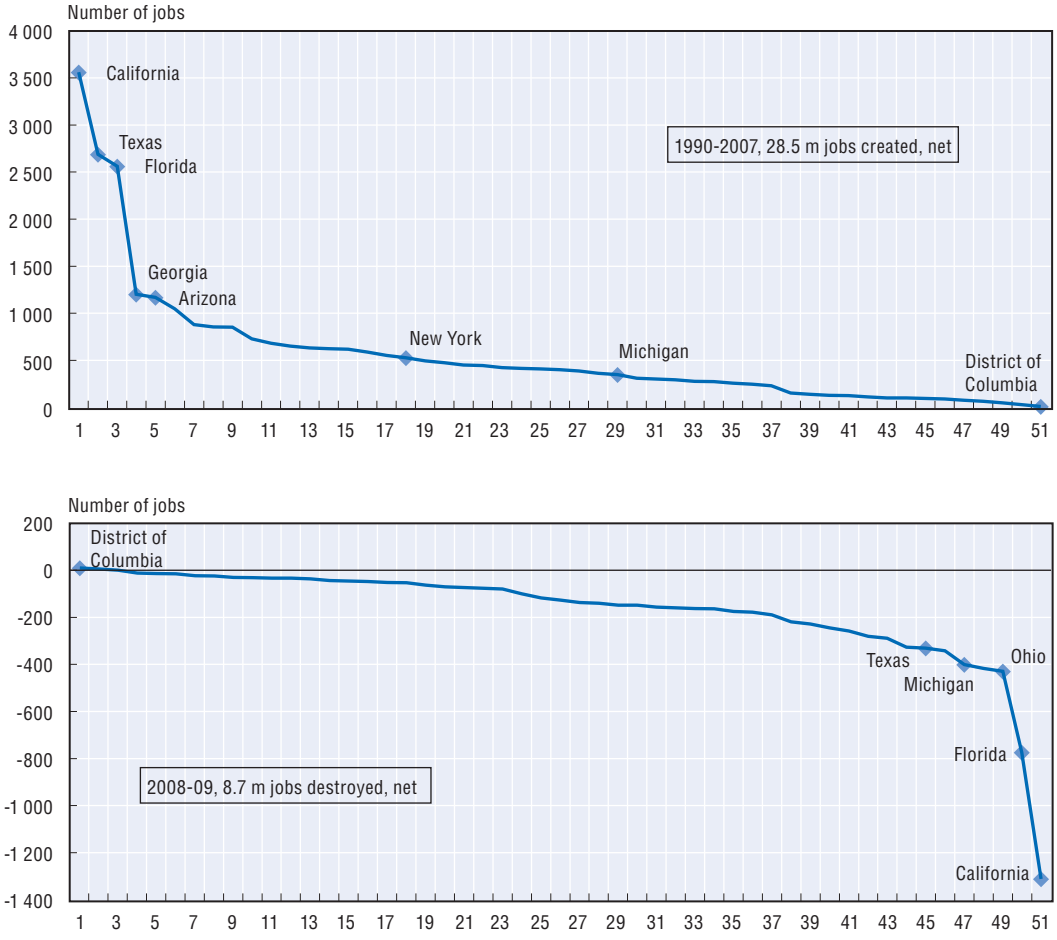
Figure 1.12. **Rank distribution of net employment creation across OECD TL2 regions, 2002-07**



Source: OECD calculations, *OECD Regional Statistics Database*.

StatLink http://dx.doi.org/10.1787/888932520289

Figure 1.13. **Rank distribution of net non-farm employment creation across US states, 1990-2007 and 2008-09**



Source: OECD calculations, US Bureau of Labor Statistics.

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These facts support the rationale for a differentiated policy approach

The empirical evidence observed above implies that the notion of an "average region" has little meaning – and, as the distribution grows more skewed over time, the "average" is ever less representative of the population. Yet policy debates often tend to be conducted in terms of averages. This, in turn, has important consequences for policy. While policy makers are right to be concerned with the performance of the hub regions that are the main engines of national growth, an exclusive focus on them neglects the very important contribution of second-tier cities and the remaining fat-tail regions. Yet the tail of the distribution still accounts for around two-thirds of aggregate growth. It would be a mistake to overlook the importance of non-core urban and intermediate regions. A policy neglecting this underlying heterogeneity and focusing on averages in a spatially-blind manner could miss its target. Moreover, an analysis of the drivers of growth in different types of regions suggests that they face different constraints on growth and thus require different policy interventions – in short, the challenges facing the hub regions close to the vertical axis of the distribution, dominated by scale effects, are very different from those facing regions in the fat tail, which themselves vary with the regions' level of development

and critically depend on endogenous growth factors. A "one-size-fits-all approach" is unlikely to yield good results.

Thus, policies need to focus on the challenges facing the big growth-driving hubs, on the one hand, and those that confront the remaining regions on the other. If well synchronised, this differentiated policy approach could have a significant impact on aggregate growth. To be sure, improving the performance of any one of the regions in the fat tail will not make much difference to overall growth, but policies that facilitate an improvement in their performance in a synchronised manner could have a substantial impact. The question is whether this synchronisation can be achieved by spatially-blind policies. This is unlikely, as regional growth has to make the most of specific assets and achieve a high degree of complementarities across different sectoral policies (Box 1.5). Among the critical factors determining regional growth are the amount of labour resources and their skill levels.

Box 1.5. **How regions grow**

Recent OECD analysis (OECD, 2009b) of the determinants of growth at the regional level identifies a number of critical growth drivers, including infrastructure, human capital, innovation and agglomeration. Perhaps the most important findings are, first, that the key factors are largely driven by policy actions (as opposed to natural endowments or physical geography) and, secondly, that that these factors tend to complement each other, suggesting that an integrated approach is needed:

- Improvements in infrastructure at the regional level do not automatically lead to higher growth. Such investments need to be combined with improvements in education and innovation. This suggests that it could be productive to co-ordinate policies for building human capital, enhancing innovation and providing physical infrastructure. The effects of infrastructure investment appear to last around three to five years.
- Human capital appears to be the most robust element supporting growth in all types of regions, both the presence of high-skilled workers in the regional workforce as well as the absence of low-skilled workers. The effects of improvements in human capital also appear to last around five years.
- The third critical element is innovation, insofar as it can be measured by focusing mainly on the science and technology components of innovation for which data are available. Innovation appears to produce positive effects over a longer time span, approximately ten years.
- Economies of agglomeration also have a positive impact on growth, although they are neither necessary nor sufficient conditions to assure sustained growth rates. The fact that only 45% of metro regions grew faster than the national average during 1995-2005 and the trend towards divergence among urban regions imply that agglomerations as complex systems are working more efficiently in some cases and less efficiently in others.

Source: OECD (2009b), *How Regions Grow: Trends and Analysis*, OECD Publishing, *http://dx.doi.org/10.1787/9789264039469-en*.

Ageing and migration: Long-term forces that shape regional labour resources

A region's capacity to innovate, its resilience to shocks, and efficiency in service delivery are all related to the human capital embodied in its workforce, making both the stock and quality of human capital critical for regions. In fact, it is hard to imagine a region engaging in a sustained path of technological upgrading without an abundant supply of skilled and trained labour. Resilience to external shocks and structural change require that this labour force also be easily adaptable, which implies a need for retraining and continuous learning. The capacity to provide essential services at sustainable costs could be compromised when old-age dependency rates (the ratio between the retired and working-age population) become too high. This section provides an overview of three key phenomena that tie regions together and contribute to continuous change in their relative endowments of human capital:

- *Population ageing* that is pervasive in all OECD countries, but affects regions in very different ways.
- *Interregional labour mobility,* which serves as an adjustment and a redistribution mechanism for human capital across regions.
- *International migration* that is becoming both a major challenge and is a great opportunity for regions.

These three channels of population change are highly interlinked. In particular, existing differences in the age composition of regions are greatly reinforced by selective labour mobility and foreign immigration.

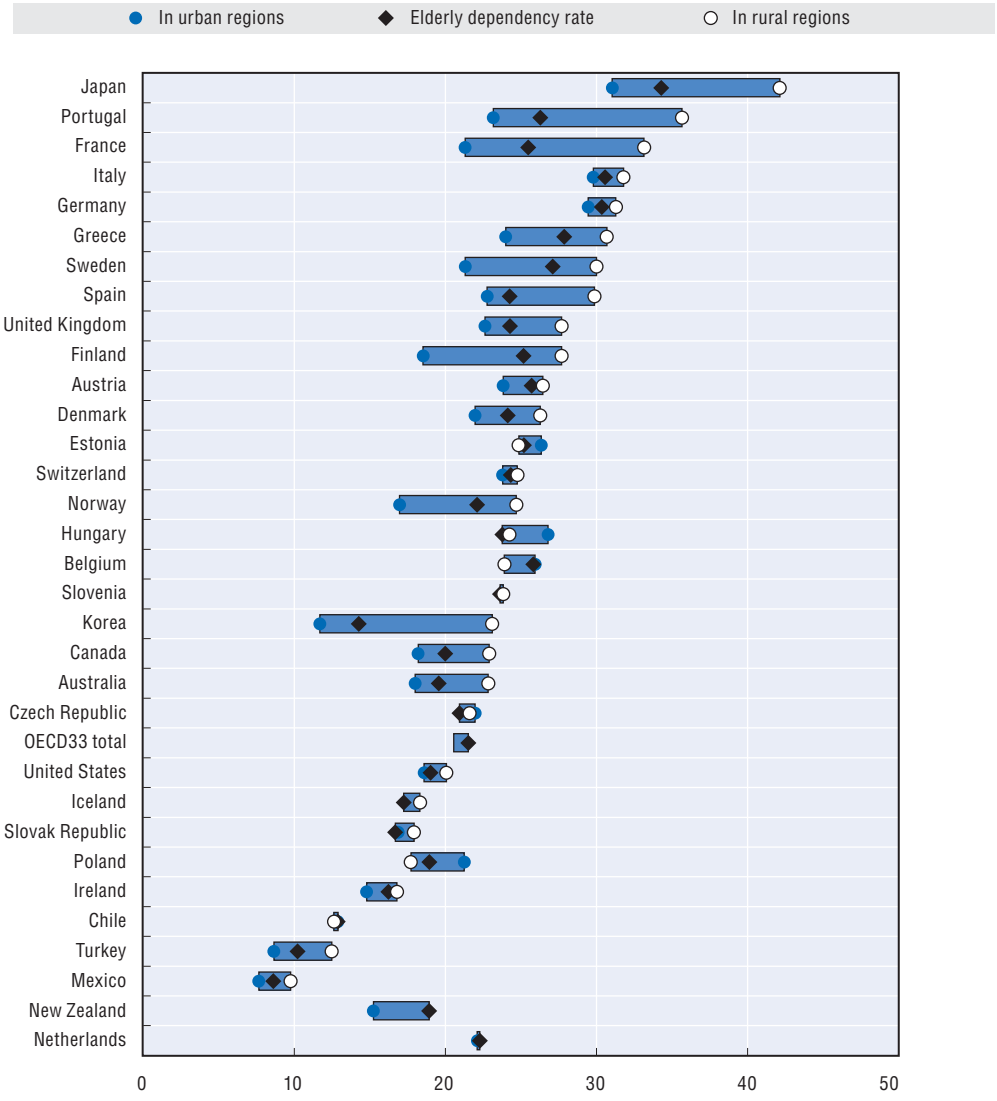
Population ageing will affect regions in very different ways

Sustained low fertility rates and increasing longevity are driving the ageing of the labour force in most OECD regions. Between 1995 and 2008, the elderly population (*e.g.* over 65 years) in OECD countries grew more than 1.5 times faster than the total population. Population ageing has been more pronounced in rural and intermediate regions than urban areas (Figure 1.14). This pattern is particularly pronounced in Japan, Portugal, France, Italy and Germany (OECD, 2011).

There is no clear-cut causal link between regional ageing and economic outcomes (ESPON, 2010). In general, one expects that a high share of working-aged people can be a driver of regional economic growth. The rapid pace of technological change increases the importance of being able to assimilate new techniques and adapt to new ways of working (Myerson *et al.*, 1990). Brunow and Hirte (2006) find that differences in age structure induce differences in per capita output growth across European regions. The most significant (positive) growth is generated by the 30-44 age group. Population ageing will also affect public spending, particularly expenditures on public pensions and healthcare provision. As the old-age dependency ratio rises, pressure is put on the provision of transfers and services. The financial burden per capita is rising in many areas because authorities find it difficult to adapt their supply of services (especially technical infrastructure facilities) at the same rate as the population ages or declines.

Some analysts take a more optimistic view of ageing, arguing that both policy responses and market forces will encourage older persons to continue to be competitive assets for regional development (Poot, 2008). One policy response is represented by measures meant to raise labour-force participation, particularly of older workers. However, increases in labour-force participation will be effective only if the labour market performs

Figure 1.14. **Elderly dependency rate: Country average and in predominantly urban and predominantly rural regions, 2008**



Source: OECD (2011), *OECD Regions at a Glance 2011*, OECD Publishing, *http://dx.doi.org/10.1787/reg_glance-2011-en.*
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well enough to absorb the increase in supply. Such dynamism might not be there in regions that have experienced a sustained out-migration of productive people. Other measures are incentives to enable people to innovate at older ages (*e.g.* through flatter organisational structures, in which older persons are not disproportionately required to take on managerial responsibilities). Finally, areas that are popular retirement destinations are taking advantage of the increased spending power of older age groups – the so-called "silver economy".[7]

Internal migration flows redistribute human capital across regions

Migration produces individual benefits, as it allows people to select the places where they can express their full potential as workers and enjoy a higher quality of life. Migration also fills local demand shortages and provides a relief mechanism for regions with high

unemployment. However, these benefits have to be evaluated against the possible risk of a sustained deterioration of the human capital base of sending regions, since migrants tend to be selected among the young and more productive segments of the population.

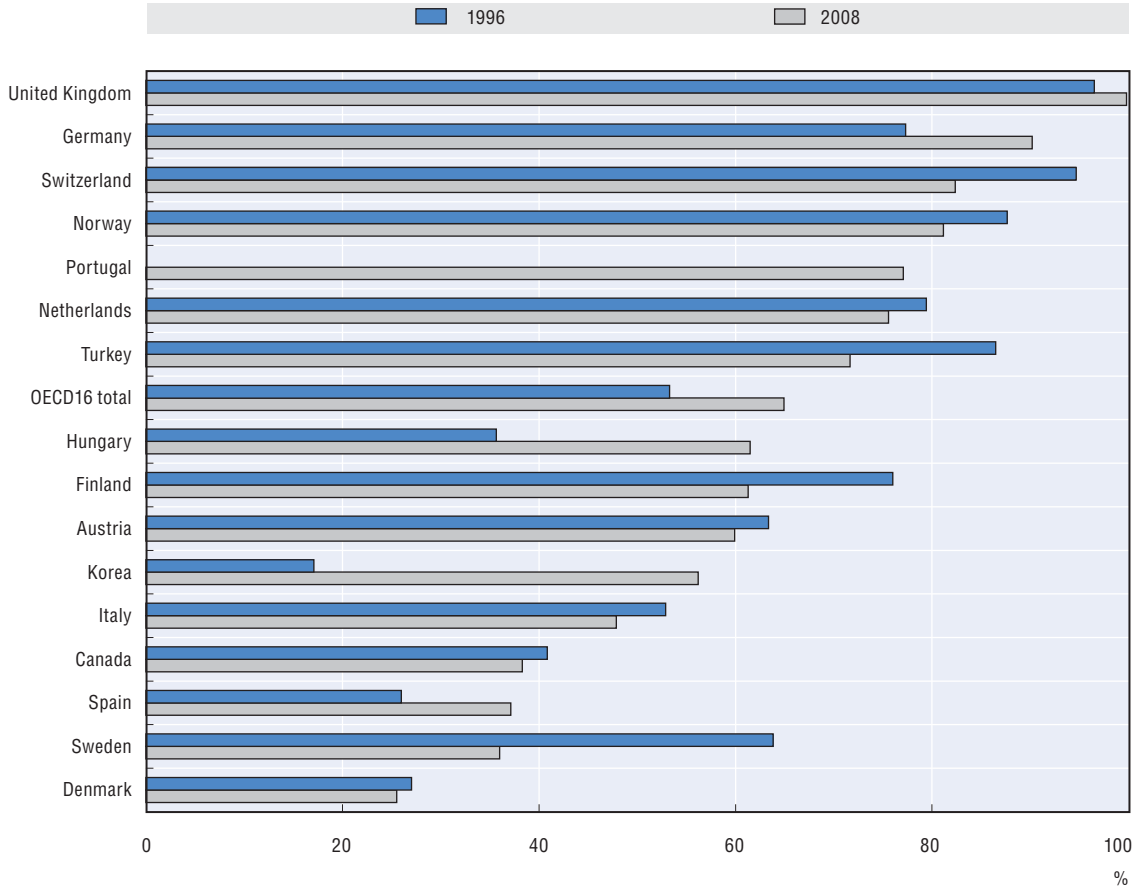
This selectivity of labour mobility implies that migration changes not only the quantity, but also the quality of regional labour forces. Observed individual characteristics, such as age, education and employment status, as well as unobserved ones, such as risk preferences or entrepreneurial spirit, all affect the decision to migrate. Migration movements are generally concentrated in specific age ranges (*e.g.* 17-19 year-olds migrating to cities to pursue tertiary education). There is also evidence of distinct propensities to migrate according to levels of education and sectors of employment. A natural outcome of such a pattern is that more attractive regions see their endowments of productive labour increase, while fragile regions can fall further behind. In the extreme case, the outflow of the most productive workers from a region in response to a negative shock can magnify and extend the downturn rather than facilitating a smooth adjustment and allowing wages to recover, as neoclassical theory might suggest. The erosion of the region's human capital may then become self-reinforcing, as promising individuals leave because they see that the departure of others with high human capital reduces the opportunities available locally. This, in turn, can have a knock-on effect on asset prices. This redistribution mechanism has evident effects on the generation of fiscal revenues and thus on the investment capacities of local authorities, which further augment the risk of a sustained downward spiral.

People "vote with their feet", and take into account in their residential choices not only economic opportunities but also the real costs of living, amenities and intangible assets of places. Urban regions retain a competitive advantage for the attraction of young people. Predominantly urban regions are the main recipients of young internal migrants (those aged 16-24 years). In the United Kingdom, Germany, Switzerland and Norway, more than 80% of young migrants move to urban regions (Figure 1.15). Thus, the scope of medium-sized cities to be growth poles, as discussed above, can also be assessed by looking at their capacity to attract young and skilled labour from larger cities or rural areas.

Regions exposed to persistent negative migration are particularly fragile. Accordingly, the use of demographic criteria to target regional policy is increasingly common. Several US federal and state programmes consider out-migration as an indicator of distress (Feser and Sweeney, 2003). In France, the main determinant for the attribution of package stimulus measures for rural areas is the ZRR (*zone de revitalisation rurale*) designation, mostly based on demographic criteria (falling active population and falling density). In Germany, regional support funding has been used to fund infrastructure in those regions experiencing demographic decline (Ferry and Vironen, 2010).

Data on interregional migration in OECD countries show that most regions experiencing sustained net out-migration also display other indicators of economic distress. Around 37% of OECD regions have experienced persistent out-migration over the last 15 years (*i.e.* net negative flows for at least 80% of the years observed in the data). These regions are characterised by higher shares of employment in agriculture and lower productivity in the same sector, very low public sector productivity, higher unemployment rates and lower GDP per capita (Figure 1.16). This reinforces the idea that regions may struggle to improve local labour conditions and productivity if those leaving are the most talented, educated and entrepreneurial (Feser and Sweeney, 2003).

Figure 1.15. **Young immigrants in large urban regions as a % of young immigrants by country, 1996 and 2008**



Source: OECD (2009c), *OECD Regions at a Glance 2009*, OECD Publishing, *http://dx.doi.org/10.1787/reg_glance-2009-en.*

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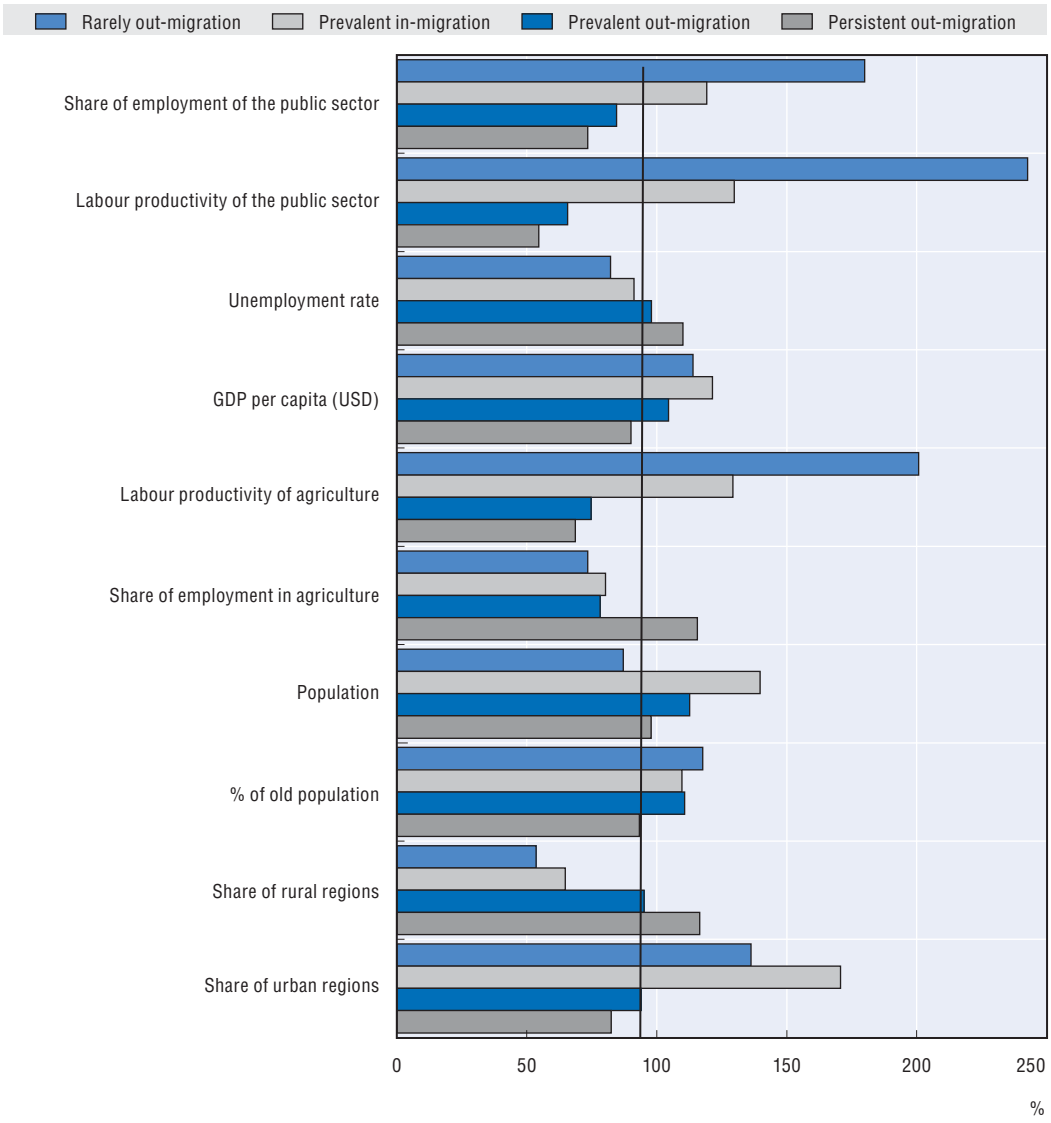
However, the "rurality" of a region (measured by population density) is not necessarily associated with migration-induced population losses. In fact, there is great heterogeneity among rural regions. Quality of life advantages linked to climate, natural amenities, lower living costs or healthy lifestyle, as well as economic opportunities in different sectors (tourism, renewable energy, etc.) explain why many rural regions manage to preserve a competitive edge in retaining or attracting population.

Evidence of the competitive edge of many rural regions emerges from a simple analysis of interregional net-migration data. In the first column of Table 1.2, net interregional migration (migration inflows to a region minus migration outflows from the region) is regressed against the "rurality" of the region according to the OECD territorial typology, its size and its unemployment rate relative to the country average. Rurality seems significantly associated with the likelihood of losing population to other, non-rural regions. However, this mainly derives from the relatively higher importance of the agricultural sector in rural regions. If one controls for the relative employment shares of different sectors (second column), the negative correlation between rurality and out-migration loses significance (Brezzi and Piacentini, 2010).

Figure 1.16. **Regional characteristics by degree of persistent loss of population, 1996-2008**

Average for all regions = 100



Source: OECD (2011), *OECD Regions at a Glance 2011*, OECD Publishing, *http://dx.doi.org/10.1787/reg_glance-2011-en.*
StatLink http://dx.doi.org/10.1787/888932520365

Net population losses of rural areas (the negative correlation in column 1) are also related to problems of remoteness. This is clearly shown by column 3, when the dummy variable for rural areas is replaced by a binary variable taking the value of 1 if the region is rural remote. This specification shows that rural regions that are far (in driving distance) from urban agglomerations experience significant drains on their labour force. This exposure of remote rural regions to population losses holds true even when controlling for their employment specialisation.

Identifying the effects of interregional migration on GDP per capita is complex, because causality runs in both directions – increases in productivity might lead to higher inflows of people, while selective migration can affect productivity. In Table 1.3, regions' relative output

Table 1.2. **Determinants of net-migration among OECD TL3 regions, 1996-2008**

Dependent variable	Net migration (1)	Net migration (2)	Net migration (3)
Rurality of the region	–1.075	–0.676	
	(2.47)[1]	(1.14)	
Employment share in agriculture		–2.775	–2.709
		(8.01)[2]	(7.71)[2]
Remote			–1.184
			(4.19)[2]
Constant	5.242	22.133	21.720
	(1.95)	(4.19)[2]	(4.19)[2]
Number of observations	7 856	4 518	4 518
R-squared	0.04	0.17	0.17

Note: Robust *t* statistics in parentheses: 1 = significant at 5%; 2 = significant at 1%. Estimation is by Ordinary Least Squares (OLS). The sample refers to all TL3 regions in 22 OECD countries. Other controls in all the specification are the relative (with respect to country average) unemployment rate of the region, year and country-fixed effects. In specification (2) and (3), other controls not shown are the relative employment shares in four other main sectors (manufacturing, construction, financial and public sector).
Source: OECD (2011), *OECD Regions at a Glance 2011*, OECD Publishing, *http://dx.doi.org/10.1787/reg_glance-2011-en*.
StatLink http://dx.doi.org/10.1787/888932521638

Table 1.3. **GDP per capita and net interregional migration, 1996-2008**

Dependent variable	All regions	Remote rural regions
	Relative GDP per head	Relative GDP per head
Lagged net migration	0.0001	0.012
	(0.34)	(1.98)[1]
Relative unemployment	–0.038	–0.049
	(1.76)	(2.36)[1]
Constant	1.216	1.324
	(43.29)[2]	(6.67)[2]
Observations	6 548	677
Number of regional fixed effects	848	90
R-squared	0.02	0.12

Note: Robust *t* statistics in parentheses: 1 = significant at 5%; 2 = significant at 1%. Year fixed effects included in all specifications. Estimation is by Ordinary Least Squares (OLS). The sample refers to all TL3 regions in 22 OECD countries. The net migration regressor is included with a one-year lag to reduce simultaneity problems.
Source: OECD (2011), *OECD Regions at a Glance 2011*, OECD Publishing, *http://dx.doi.org/10.1787/reg_glance-2011-en*.
StatLink http://dx.doi.org/10.1787/888932521657

per capita (*i.e.* the ratio between GDP per head in the region and GDP per head in the country) is regressed against a lagged value of net migration to the region, regional fixed effects and additional control variables.[8] The regression simply shows to what extent internal migration is a factor of convergence or divergence of regions in GDP per capita. Interestingly, while no clear effect is identifiable for the whole sample of regions, a significant positive relationship between inflows and GDP per capita emerges when the analysis is confined to remote rural regions (column 2). This suggests that regions suffering from remoteness are less able to adjust to a sustained drain of their labour force. The impact of unemployment is also stronger for remote regions.

Can countries afford to leave some regions – those characterised by continuous depopulation with outmigration of the young – in underdevelopment spirals? In the current phase of redefinition of the goals of regional policy, it is very important to take a stand on how "unfavourable" demographic changes are defined, how regions suffering from it are identified

and whether it is feasible and desirable to counter it. The question is particularly challenging for geographically large OECD countries, with several scarcely inhabited spaces located far from sizable urban centres. Before concluding that marginal and severely depopulating regions have no option but to downgrade their development ambitions (moving towards "decline strategies"), it is worthwhile to explore in greater depth the strongest determinants of depopulation and the cost-efficient solutions that might be advanced.[9]

International migration flows are strongly related to local and regional factors

Debates over international migration tend to be seen and fed from national perspectives, despite evidence that migrants tend to concentrate in some geographic areas, so that international migration means very different things in different regions. Successful immigration and integration policies must recognise the highly differentiated spatial effects of the international mobility of labour. International migration trends have both intensified and diversified in terms of countries and regions of destination. Recent migration trends have been marked by a rapid increase in inflows, notably in southern European countries and in the United Kingdom and Ireland in the context of European Union (EU) enlargement. In four Spanish regions, recent migrants represent more than 7% of the total population and the same four regions are among the top 20 TL2 regions in absolute value of recent immigrants (those who arrived in the country within the previous five years) (Table 1.4). Brussels and London emerge as major destinations for recent immigrants. In 2005, more than 13% of the population of these city regions were recent immigrants (OECD, 2011). Network effects tend to generate inertia in the settlement choices of recent immigrants.

Table 1.4. **Top 20 TL2 regions of recent immigrants, 2005**

	Number of immigrants		In % population of the region
USA – California	1 206 993	BEL – Reg.-Bruxelles-Cap.	13.1
GBR – London	795 159	GBR – London	13.1
USA – Florida	594 924	ESP – Murcia	9.5
USA – Texas	588 990	ESP – Baleares	9.4
USA – New York	552 552	ESP – Comunidad Valenciana	8.8
CAN – Ontario	464 865	ESP – Madrid	8.8
ESP – Madrid	435 013	NZL – North Island	8.3
ESP – Cataluña	410 406	ESP – Rioja	7.4
ESP – Comunidad Valenciana	339 421	CHE – Region Lemanique	7.3
USA – New Jersey	270 102	ESP – Cataluña	7.1
USA – Illinois	255 878	LUX – Luxembourg	6.7
FRA – Île-de-France	239 206	ESP – Canarias	6.3
GBR – South East	237 578	AUT – Wien	6.2
ESP – Andalucía	229 289	ESP – Navarra	5.6
NDL – West-Nederland	224 355	CHE – Zürich	5.5
DEU – Nordrhein-Westfalen	216 854	NZL – South Island	5.2
AUS – New South Wales	214 612	ESP – Aragon	5.2
NZL – North Island	197 496	IRL – Southern and Eastern	5.0
USA – Georgia	191 683	CAN – Ontario	4.7
USA – Arizona	178 263	CHE – Ticino	4.7

Source: OECD (2011), *OECD Regions at a Glance 2011*, OECD Publishing, *http://dx.doi.org/10.1787/reg_glance-2011-en*, and based on census data.

StatLink http://dx.doi.org/10.1787/888932521676

The skill and demographic composition of immigrant populations generally varies more across space than that of natives. This heterogeneous distribution of immigrant "types" across the national territory produces spatially differentiated effects on the age, sex, language, and educational composition of the local population and workforce. Information at the regional level on the skill composition of migrants is particularly important to better inform the heated policy debate over the effects of immigration on local labour markets. Moreover, this spatially disaggregated information can inform policy reforms in key sectors. For example, more and differentiated resources could be allocated to schools in regions experiencing sudden surges in the number of migrant children (either foreign-born or second-generation migrants).

The past decade has seen a substantial increase in the employment of immigrants with tertiary educational attainment, partly as a result of changes in migration policies to favour admission of highly qualified workers. Regional differences in the distribution of highly skilled foreign-born individuals are particularly marked in Canada, Germany, Mexico, Spain and the United States. In Canada, the population of foreign-born individuals is on average highly educated. This is partly explained by the large weight given to formal education in Canadian immigration policies. Despite large increases in recent inflows of low-skilled migrants from South America, Spanish regions have on average a similar proportion of highly skilled people, which is higher than that typically found in Italy and Portugal (OECD, 2011).

There is evidence that registered or regular migrants increase the average education level of many OECD regions, although very different effects can be observed across and within countries. In Ireland, Portugal, the Slovak Republic and the United Kingdom, the higher education level of foreign-born individuals with respect to the native-born is particularly evident (OECD, 2011). Higher rates of tertiary education among natives are observed in Nordic countries that have traditionally hosted larger numbers of refugees. In absolute numbers, highly skilled foreign-born individuals contribute greatly to the human capital endowments of large regions in Australia, Canada and the United States. Paris and London are other poles for skilled immigrants. Weighting these numbers by the size of the host region results in a broadly similar picture, even if their rank changes significantly. Ontario, London and British Columbia are the regions that benefit most from skilled migration, the tertiary educated, foreign-born population being over 15% of the surveyed labour force.

An important issue is whether regions that already host highly educated migrants have a competitive advantage in the competition for global talent, given the relevance of network effects for the location choices of migrants. It is interesting to note that the location of skilled recent immigrants is affected by the regional distribution of established immigrants. In fact, the correlation between skilled recent immigrants (having lived in the region for less than five years) and skilled established immigrants (with more than five years of residence in the region) is much higher than the one between skilled recent and unskilled established immigrants. This might be explained by network effects that are specific to the highly skilled (*e.g.* skilled immigrants passing information on job openings or creating jobs for other skilled immigrants). Such a finding suggests that it will be more difficult to boost skill endowments through immigration for those regions that are not traditional destinations for skilled immigration. A tighter co-ordination of migration policies and regional development policies might be needed to "take advantage" of migration as a lever for skill upgrading (OECD, 2011).

Besides changing the relative endowments of skilled labour across regions, the relatively young age structure of foreign migrants is also countering the rise of dependency rates in many OECD regions. Migrants can also help make the ageing process more sustainable. In particular, migrants have a very relevant social impact through day and night care of the elderly and disabled, reducing the social costs from the lack of structures and shortage of service workers. It is thus not surprising that the demand for foreign elderly carers among regional authorities in several OECD countries is rising.[10] When foreign workers perform services previously done within households, such as cooking, cleaning, and care for children, the sick, and the elderly, they free up native labour for market production, particularly women's labour that had been devoted to household production (see Cortes and Tessada, 2007 and Kremer and Watt, 2009 for a discussion of the implications for national welfare).

One of the intriguing aspects of immigration policy is that, although it is set nationally, many of its effects are felt most strongly at the state and local levels (Friedberg and Jaeger, 2009). This calls for partnership solutions among levels of governments to make the distribution of migrants closer to regional needs. Policy experiments to adjust national policy to regional needs are well established in Canada.[11] In other countries, calls for a regional or local approach to immigration policies have been raised frequently, given the need to relieve labour shortages in key sectors (from nursing to highly knowledge-intensive industries). In regional labour markets, making extensive use of seasonal labour, facilitation schemes can be put in place to connect temporary labour migration to local labour needs. This is the case in the Italian region of *Trentino Alto Adige*, where the bulk of the seasonal labour quotas are assigned to the two autonomous provinces of Trento and Bolzano.

Regional policies have a key role to play in migrant integration. Regional and municipal governments have significant responsibilities in the management of migration. They provide labour-market training, deliver immigrant settlement programmes, enact legislation governing regulated professions, and provide language services for children and youth through the education system. They help with social and economic integration (job searching and matching); fund anti-discrimination and cultural diversity programmes; and provide referrals to social, health, cultural, education and counselling services for newcomers. The effectiveness of these policy efforts is still under-monitored and under-studied.

Conclusion

The effectiveness of regional policies is still much debated. Agglomeration is often seen as an inherent feature of economic development, so the policy agenda linking geography and economics is often limited to managing the urbanisation process in the best possible way. This is too narrow a view; as the foregoing has demonstrated, there is far more to regional development than agglomeration, a process that, while undeniably important, is neither necessary nor sufficient for strong aggregate growth. Yet while growth is possible in all sorts of regions, it is by no means assured. The fact that the constraints on growth appear to vary across different levels of development and different types of region points to the need for a differentiated approach – for policies that take "place" seriously. That does not mean that all policies could or should be "place-based", but it certainly suggests that place-based approaches have a key role to play. This conclusion is reinforced by the analysis in this chapter concerning trends in demography and migration, which are highly differentiated geographically and which will have a major influence on the development of OECD economies in the decades to come.

The role and potential of regional policies is further explored in the chapters that follow, which focus on a range of policy domains – including labour markets, public investment, innovation and "green growth" – where the regional dimension is particularly important. These are, moreover, spheres in which well-crafted policies can do much to manage the trade-offs and complementarities among the three dimensions of social progress with which this chapter began – efficiency, equity and environmental sustainability. Regions are the locus where complementarities among them are most visible and most effectively managed. Regional policy, then, is not simply another line of policy running in parallel to sectoral policies, still less a "compensatory" mechanism using fiscal transfers to counteract the natural "lumpiness" of economic activity. Rather, it is about co-ordinating and optimising the mix of sectoral policies where they interact – in particular places – with a view to enhancing the lives of people living in those places.

Notes

1. For a descriptive discussion of these productivity and innovation trends, see Dupont, Guellec and Oliveira Martins (2011). See also OECD (2011d) for a comprehensive analysis of innovation trends in the OECD.
2. For a discussion about reform complementarities, see Braga de Macedo and Oliveira Martins (2008).
3. The relationship between two quantities is said to conform to a "power law" when the frequency of a value occurring in a distribution varies as a power of some attribute of that value (*e.g.* its size). Many man-made and naturally occurring phenomena are distributed according to power-law distributions. A power law implies that small occurrences are extremely common, whereas large instances are very rare. The power-law relationships often also exhibit a further important property: scale invariance. In other words, the relationship tends to be replicated at different scales or within sub-samples of the distribution. The scaling property means that if we zoom in on each level of the scale, we will find the same statistical features.
4. This is a fundamental difference from a normal distribution or an exponential distribution, where the decay to zero is so rapid that the contribution of the tail can be neglected without any significant loss of information.
5. There are no TL3 GDP data for Australia, Canada, Mexico and the United States.
6. This finding is consistent with previous studies documenting a global trend characterised by two opposing trends, namely the trends towards both globalisation and localisation (McCann, 2007).
7. Certain regions, such as Kainuu in Finland, have responded to demographic ageing by developing specialist facilities for older people. Kainuu branded itself as a "Seniorpolis", aiming to attract other older people to migrate to the municipality (Ferry and Vironen, 2010). Similarly "sunbelt" states in the United States have become a destination for retirees.
8. The inclusion of regional fixed effects in the regression partly controls for the simultaneity problem between GDP per head and net-migration, by controlling for fixed unobserved characteristics of the regions.
9. The Territorial Agenda of the European Union emphasises the need for new forms of urban-rural partnerships and promotion of regional clusters of innovation as goals for the European territory. Regional policy instruments such as the Structural Funds, Cohesion Funds and the Territorial Co-operation objective have also among their objectives the retention of younger persons in depopulating areas and redressing the exodus from shrinking areas.
10. For example in Veneto (Italy), more than 50 000 demands were filed in 2007 to sponsor the immigration of foreign service workers; only 10 000 of these demands will be allocated according to migration quotas in "Decreto Flussi 2007".
11. In Canada, a number of federal-provincial agreements have been signed and renewed within the framework of the "Citizenship Immigration Canada" programme that gives the provinces the right to nominate immigrants specifically destined for settlement in their jurisdiction. The number of provincial nominees increased by 66% in 2006 compared to 2005 and, as a result, the total for the whole country reached 13 336. Manitoba accounted for one-half of Canada's provincial nominees,

with 6 661 in 2006. A number of other provinces also significantly increased their intake of provincial nominees in 2006, including Nova Scotia, British Columbia, New Brunswick, Prince Edward Island, Saskatchewan, and Alberta. The province of Québec has one of the largest and most developed programmes to link migration to regional development objectives – "Regionalization of Immigration in Quebec", which started in 1992.

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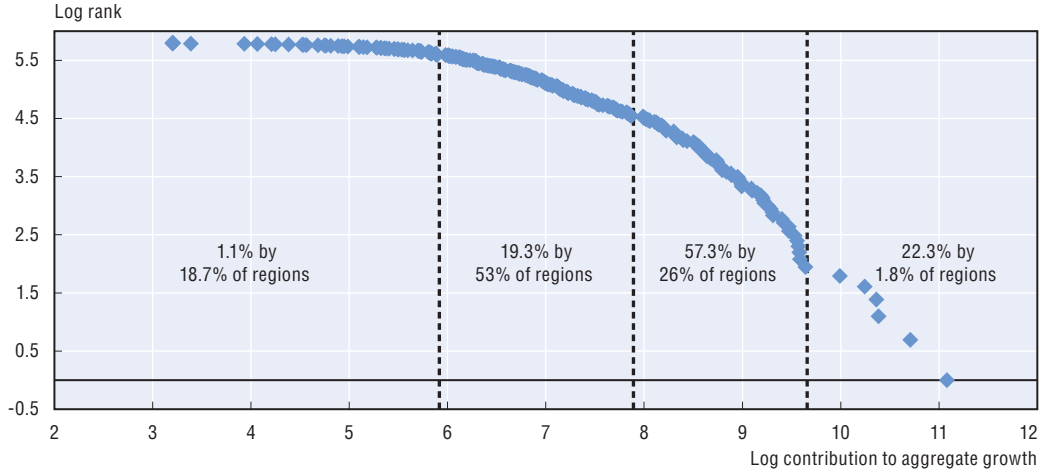
ANNEX 1.A1

Evidence on Different Regional Growth Regimes

The distribution characterising the relation between the regional contribution to growth and their respective log rank in the sequence can be easily visualised by plotting the logarithms of both variables. When the distribution follows a strict power law, the log-log chart should display a linear relationship with a constant negative slope. Departures from the linear relation or changes in the slope can be used to identify break points between groups of regions in terms of their contributions. Among the 335 OECD TL2 regions, the log-log relation reveals a negative downward line with a concave curvature, confirming that several regimes are at work (Figure 1.A1.1). In the first group, around 2% of OECD TL2 regions account for roughly 22% of aggregate growth; the next quarter contribute 57%; the 53% which follow them account for close to 20% of growth and the remaining 20% or so contribute next to only 1%.

Figure 1.A1.1. **Log rank and log contributions to growth, TL2 regions**



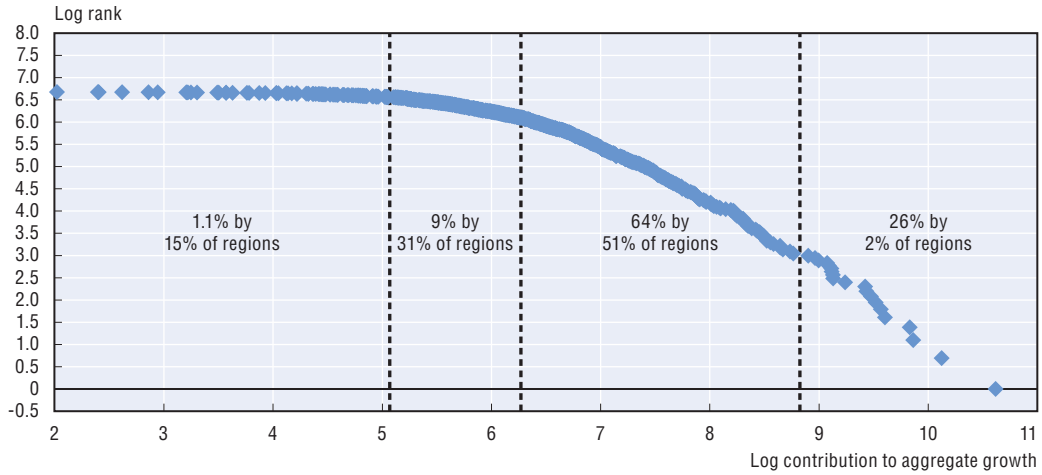
Note: The four groups of regions are portioned when there are breaks in log-log relationship, reflecting common proportional contributions in regions from each of the four groups.

Source: OECD Regional Statistics Database.

StatLink http://dx.doi.org/10.1787/888932520384

Figure 1.A1.2 plots the same type of graph for the TL3 regions. The log-log relationship among TL3 regions is more linear than that among TL2 regions, especially for regions in the latter part of the sequence, implying that the same power-law regime prevails for a larger part of the TL3 distribution.

Figure 1.A1.2. **Log rank and log contributions to growth, TL3 regions**



Note: The four groups of regions are portioned when there are breaks in log-log relationship, reflecting thus common proportional contributions in regions from each of the four groups. There are no GDP data for TL3 regions in Australia, Canada, Mexico, Switzerland and the United States.

Source: OECD Regional Statistics Database.

StatLink http://dx.doi.org/10.1787/888932520403

An interesting feature is that the distribution of the contributions to aggregate growth among TL2 regions became increasingly skewed over time. Over the period 1995-2007, the contribution of the few regional hubs increased, as did the contributions of many regions well to the right in the "fat tail" of the distribution, while the relative weight of the regions in between, around the bend in the curve, declined somewhat. In other words, the asymmetries between the large hubs and the many small and intermediate regions continued to increase. In other words, the concept of an "average region" has become even less meaningful over time.