

# 3 Which SMEs scale up?

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The chapter presents evidence on the incidence of scaling among small- and medium-sized enterprises (SMEs) of different sizes, ages, sectors of activity and locations. The analysis leverages firm-level data from five OECD countries (Finland, Italy, Portugal, the Slovak Republic and Spain).

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# In Brief

## The typical scaler is a mature firm operating in low-technology services

**One in 4 SMEs with 10 to 249 employees is an employment or a turnover scaler.** Scalers are firms with at least 10 employees (non-micro SMEs) that grow at an average yearly rate of 10% or more in either employment or turnover for 3 consecutive years. Across the 5 countries analysed over the period 2015-17, 13% to 15% of non-micro SMEs scale in employment and 20% to 26% scale in turnover. Scaling in turnover happens more often than scaling in employment because turnover is an output of the production process, while employment is one of several possible inputs: not every firm that grows does so along the employment margin. Furthermore, employment may take some time to adjust to positive or negative trends in sales as firms face fixed costs in both hiring and dismissing workers.

**The majority of employment scalers also scale in turnover at the same time.** The share of these “double scalers” ranges between 9% (in Italy and Spain) to 12% (in Finland), which means that around two-thirds of employment scalers are also scaling in turnover over the same period (2015-17). The fact that scaling in employment and turnover tend to happen at the same time suggests that, for the majority of employment scalers, the increase in workforce does not lead to lower labour productivity.

**Young firms are more likely to scale up than older firms.** Young firms, defined as businesses founded no more than 5 years before they start scaling, are 2.5 to 3.5 times more likely to scale in employment and 1.8 to 2.3 times more likely to scale in turnover than old firms (defined as having been active for more than 20 years) in the 5 countries considered. Young firms are also 1.3 to 2.1 times more likely to scale in employment compared to firms of intermediate age (6 to 20 years old) as well as 1.2 to 1.7 in terms of turnover.

**Most scalers are mature firms as young firms have a higher probability of scaling but are fewer in number:** only one in five SMEs is a young firm. Therefore, even with their significantly higher propensity to scale, young firms still represent a minority of all scalers. About three-quarters of employment scalers have been established at least six years before the beginning of the high-growth phase. Young firms account for the remaining one-quarter of scalers.

**Firms of all sizes are equally likely to scale in Italy, Portugal and Spain. The probability of scaling is lower for larger firms in Finland and the Slovak Republic.** In Italy, Portugal and Spain, SMEs have a similar propensity to scale across size classes, while in Finland and the Slovak Republic the probability decreases with firm size. Firms with 10 to 19 employees have a 16% probability of scaling in employment in Finland and 11% in the Slovak Republic, compared to 8% for large firms with more than 250 employees in both countries. The propensity to scale in turnover follows a similar pattern.

**The typical employment scaler is not a high-technology (high-tech) firm.** The propensity to scale in employment across sector groups is highest in knowledge-intensive services, which account for around 9% to 20% of SMEs across the 5 countries in the sample. Larger sector groups such as less knowledge-intensive services represent 38% to 46% of all non-micro SMEs and, therefore, account for a higher number of scalers, even if they are characterised by a lower propensity to scale.

**Construction and manufacturing firms have the highest probability of scaling in turnover.** One in four firms scale up in turnover in construction and manufacturing, on average across the five countries analysed. The share in other sectors is slightly lower. About one in five SMEs in less knowledge-intensive services and education, social care and health services become a turnover scaler. There are,

however, differences across countries. For example, SMEs in the education, social and healthcare sectors have a higher probability of scaling up in Finland and Italy than in the other countries.

**All types of regions produce scalers.** Across regions, the share of scalers in employment in all non-micro SMEs ranges from 10% to 17% in Italy, 8% to 13% in Spain, and 8% to 14% in Portugal. In Italy and Spain, several regions in the south of the country with a gross domestic product (GDP) per capita lower than the national average, such as Basilicata, Campania and Puglia in Italy and Andalusia and Murcia in Spain, are characterised by a higher incidence of scaling than wealthier regions in the same country.

## Introduction

**Available evidence on the distinctive characteristics of SMEs that are scaling up – or “scalers” – is limited.** Most of it relates to a few national studies with limited comparability of results due to differences in methodologies and data sources. This chapter provides new harmonised evidence on the characteristics of scalers in Finland, Italy, Portugal, the Slovak Republic and Spain. The analysis can be expanded to several other OECD countries for which similar firm-level data sources are available.

**Both pre-existing “structural” characteristics of a firm – such as age, size, sector and location – and dynamic factors that change as a firm transforms – such as integration in global markets or workforce composition – may explain why some SMEs scale up and others do not.** Previous research has proposed different views on the role of structural (or *ex ante*) factors and dynamic (or time-variant) factors in explaining the propensity to scale up. Some studies maintain that most of the difference between high-growth and other firms is determined at the moment the company is created and is due to characteristics that do not change over time, e.g. the founders’ skills and their motivation to become entrepreneurs.<sup>1</sup> Other studies argue that this view contrasts with evidence that firm growth is very volatile over time and point to the importance of dynamic factors that change over time to explore the nature of fast growth episodes.<sup>2</sup> By covering both structural and dynamic factors, the analysis in this report reconciles these different views and show that both sets of factors matter. This chapter focuses on structural differences, while the dynamic factors are considered in Chapter 4.

## One out of four non-micro SMEs is an employment or turnover scaler

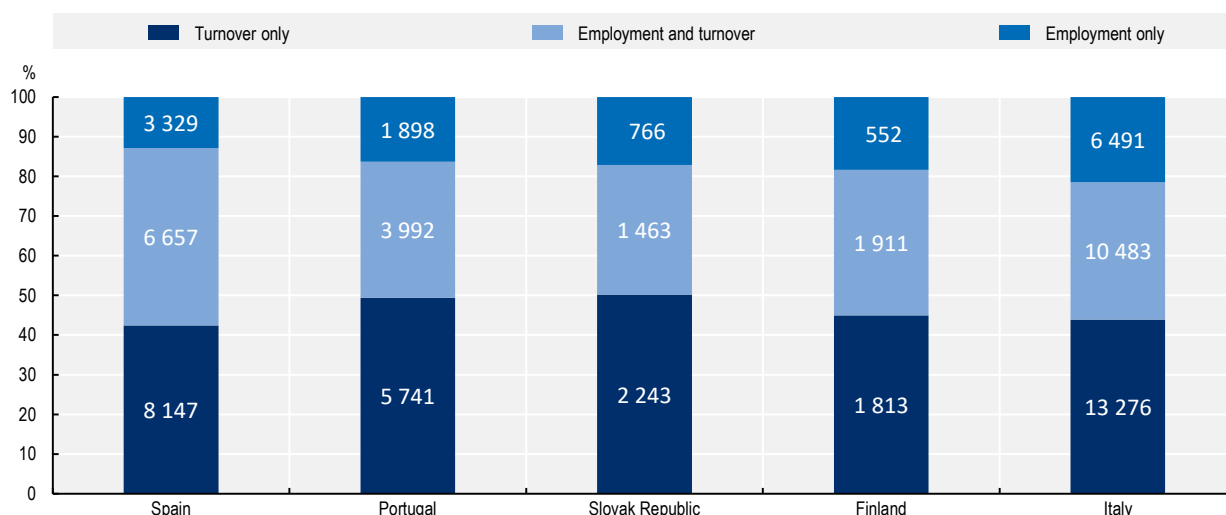
**Most employment scalers also scale in turnover at the same time.** Across the 5 pilot countries in the 2015-17 period, 13% to 15% of non-micro SMEs are employment scalers and 20% to 26% are turnover scalers. Around 10% to 14% of all non-micro SMEs are “double scalers”, i.e. scale in both employment and turnover at the same time. Overall, 24% to 31% of non-micro SMEs are scaling along at least 1 of the 2 margins, i.e. at least 1 in 4 non-micro SMEs is an employment or turnover scaler in the 2015-17 period. Scalers in employment are more likely to be double scalers than scalers in turnover. Between 65% and 77% of employment scalers also scale in turnover, compared to 39% to 51% of turnover scalers that also scale in employment (Figure 3.1). The fact that scaling in employment and turnover tend to happen at the same time suggests that for the majority of employment scalers the increase in workforce does not come at the cost of productivity. Chapter 4 looks at productivity trends in scalers more closely, to find that employment scalers often experience an increase in labour productivity (revenue over employment) in the two years before the scaling phase. Higher productivity in turn can translate into higher wages for workers and support the “sustainability” of the larger scale over time.

**There are at least three reasons why scaling in turnover is more frequent than scaling in employment.** First, turnover is an output of the production process, while employment is one of several possible inputs. Not every firm that grows does so along the employment margin, as production can grow by adding other inputs – e.g., a firm may increase its sales by investing more in capital goods such as machinery or equipment, rather than in employment. Second, turnover is typically measured in nominal value and in domestic currency, thus the inflation rate translates into spurious growth. In the countries and periods under analysis, the yearly inflation rate was around 1-2%. Third, employment may take some time to adjust to positive or negative trends in sales, as firms face fixed costs in both hiring and dismissing workers. E.g., firms may struggle to find the staff with the right skills and, symmetrically, if they need to resize they may incur additional costs, due to e.g. severance pay. Firms may also decide to expand their workforce by subcontracting or outsourcing employment services in the short term. The comparison of scaling in employment with scaling in turnover points to the different ways in which firms can scale up, depending on the factors that trigger the fast growth. For instance, a sudden surge in demand due to external factors has very different implications for the company than a disruptive innovation developed inside the firm, even if both events may result in a similar fast growth in market share in the short term. The different scaling models that SMEs can follow are discussed in depth in Chapter 4 of this report.

**Whether firms scale partly depends on the general performance of the economy.** For example, following the 2007-08 global financial crisis, only around 5% of Spanish firms and about 10% of Italian SMEs scaled up over the 2009-11 period. By 2017, 13% of SMEs were at the end of the scaling phase in Spain and 14% in Italy. Similar to employment scaling, the share of turnover scalers in all non-micro SMEs has increased in the past decade, growing by around 50% from 2011 to 2017 in Finland and Italy, almost tripling in Spain.

**Figure 3.1. Scaling in turnover is more frequent than scaling in employment**

Share of scalers by type (employment, turnover or both) among all scalers



Note: Employment scalers are firms with 10 employees or more that grow in employment and turnover scalers grow in turnover by at least 10% per year over 3 consecutive years on average over the period 2015-17, as defined in Box 1.2. Turnover and employment scalers grow at the same time in both dimensions by at least 10% per year over 3 consecutive years on average.

Source: Calculations based on microdata sources from five countries. See Annex B for more information.

## Younger firms are more likely to scale but most scalers are mature firms

**Across all five countries analysed, young firms are two to three times more likely to scale up in employment than old firms.** More than 20% of young firms with less than 6 years of activity scale in employment, compared to 7% of firms with more than 20 years of activity (Figure 3.2). The share of scalers for intermediate age classes – 6-10 and 11-20 years of activity – sits in the middle. “Up or out” dynamics characterise the growth and survival pattern of young firms and explain their disproportionate contribution to job creation. Young firms enter small because entrepreneurs are uncertain about the potential of their business in the market. Those who happen to be viable grow quickly to reach the same scale as their competitors, while those who do not succeed exit (Box 3.1).

### Box 3.1. Young firms and “up or out” dynamics

The empirical evidence of the disproportionate contribution to employment growth of young small firms is extensive and covers the United States (US) (Haltiwanger, Jarmin and Miranda, 2011<sup>[1]</sup>), several OECD countries (Criscuolo, Gal and Menon, 2014<sup>[2]</sup>) as well as emerging economies (Grover Goswami, Medvedev and Olafsen, 2019<sup>[3]</sup>). Young firms can contribute to aggregate employment growth in their entry year by generating a new business entity and, in their post-entry year, by expanding the initial employment level. When disentangling the role of entry from the role of expansion, the evidence from the studies listed above shows that entry explains most of the contribution to job creation. Young firms also have very high job destruction rates from exit. However, young firms that survive grow more rapidly than mature firms.

Why do young firms grow faster but also show a higher mortality rate? Young firms are characterised by “up or out” dynamics (Haltiwanger, Jarmin and Miranda, 2011<sup>[1]</sup>; Jovanovic, 1982<sup>[4]</sup>). New entrants learn about their market potential as they operate in the industry. The successful ones survive and grow to reach the same scale as competitors; the unsuccessful decline and fail. The “up or out” dynamics are broadly confirmed by empirical evidence. This implies that the contribution to the economy of the group of young firms as a whole is not necessarily larger than the contribution of older firms.

Source: Haltiwanger, J., R. Jarmin and J. Miranda (2011<sup>[1]</sup>), “Who creates jobs? Small vs. large vs. young”, [http://econweb.umd.edu/~haltiwan/size\\_age\\_paper\\_R&R\\_Aug\\_16\\_2011.pdf](http://econweb.umd.edu/~haltiwan/size_age_paper_R&R_Aug_16_2011.pdf) (accessed on 11 October 2019); Criscuolo, C., P. Gal and C. Menon (2014<sup>[2]</sup>), “The Dynamics of Employment Growth: New Evidence from 18 Countries”, <https://doi.org/10.1787/5jz417hj6hg6-en>; Grover Goswami, A., D. Medvedev and E. Olafsen (2019<sup>[3]</sup>), “High-growth firms: Facts, fiction, and policy options for emerging economies”, World Bank, Washington, DC; Jovanovic, B. (1982<sup>[4]</sup>), “Selection and the evolution of industry”, <http://dx.doi.org/10.2307/1912606>.

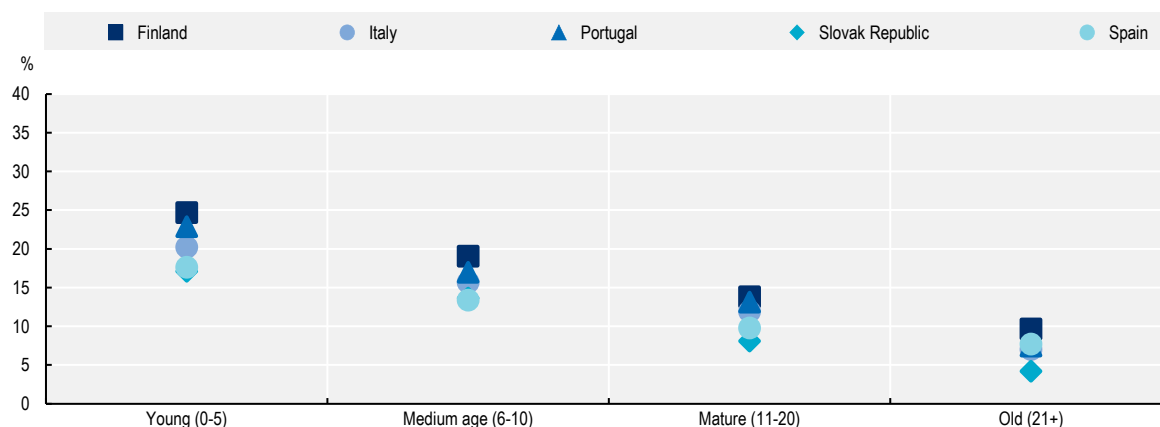
**Young firms scale more frequently but account for a small share of firms.** Only one in five non-micro SMEs is a young firm. Therefore, even if they have a higher propensity to scale, young firms still represent a minority of all scalers: only about one-quarter of employment scalers are young, at the beginning of the high-growth phase. Mature scalers that have existed for at least six years make up the remaining three-quarters of employment scalers (Figure 3.4). Among them, the oldest firms, aged at least 21 years when they start scaling up, represent about one-fifth of scalers.

**Firms are more likely to scale in turnover than in employment and more so as they age.** About one-third of young firms are turnover scalers on average across countries. The probability of scaling falls to 16% for firms that are more than 20 years old (Figure 3.3). Thus, the decline in the probability of scaling with firm age mirrors the trend observed for scaling in employment. However, the younger the firm, the smaller the difference in the probability of scaling in turnover as compared to scaling in employment. Old firms are more than twice as likely to scale in turnover as in employment,<sup>3</sup> while young (0-5 years of activity) and medium-aged firms (6-10) are around 1.5 times more likely. One possible explanation of this finding

is that, for some young firms, scaling in employment is a prerequisite to survive, as they need to quickly hire the necessary workforce that allows operating at a viable scale (Box 3.1). Later in their lifecycle, once firms have consolidated their workforce and reached a viable scale, firms may be able to accommodate an increase in demand without large adjustments to their employment level.

**Figure 3.2. Younger firms are more likely than older firms to scale in employment**

Share of non-micro firms that scale in employment, by age category

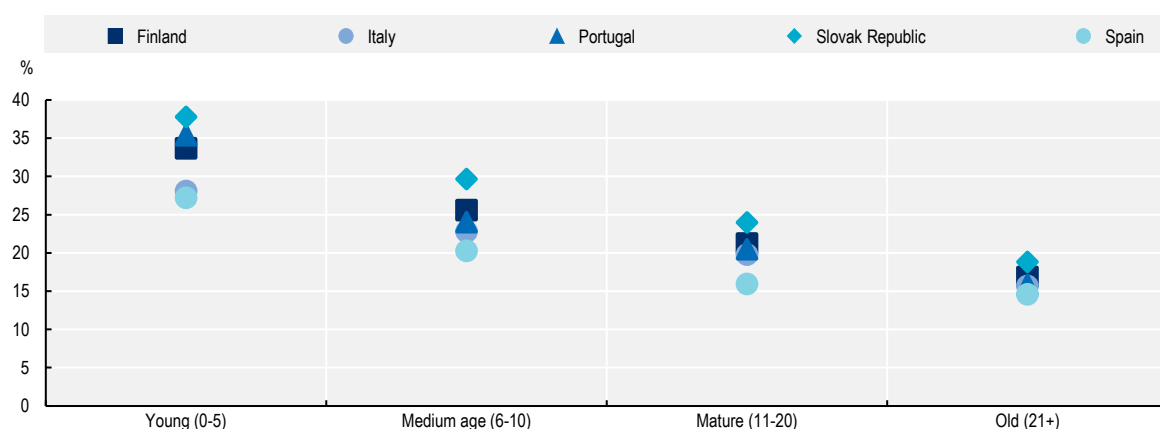


Note: Employment scalars are firms with 10 employees or more that grow in employment by at least 10% per year over 3 consecutive years on average, as defined in Box 1.2. The chart reports the share of scalars in the total number of firms with more than 10 employees in the same age category at the beginning of the period. The shares are calculated yearly and reported on average across the full period, weighted by the number of firms active in each year. The averages are computed on scalars that end their scaling-up period from 2011 to 2018 in Finland, 2004 to 2018 in Italy, 2013 to 2016 in Portugal, 2017 to 2018 in the Slovak Republic and 2006 to 2018 in Spain.

Source: Calculations based on microdata sources from five countries. See Annex B for more information.

**Figure 3.3. The probability of scaling in turnover still falls with age but the difference between groups diminishes**

Share of non-micro firms that scale in turnover by age category

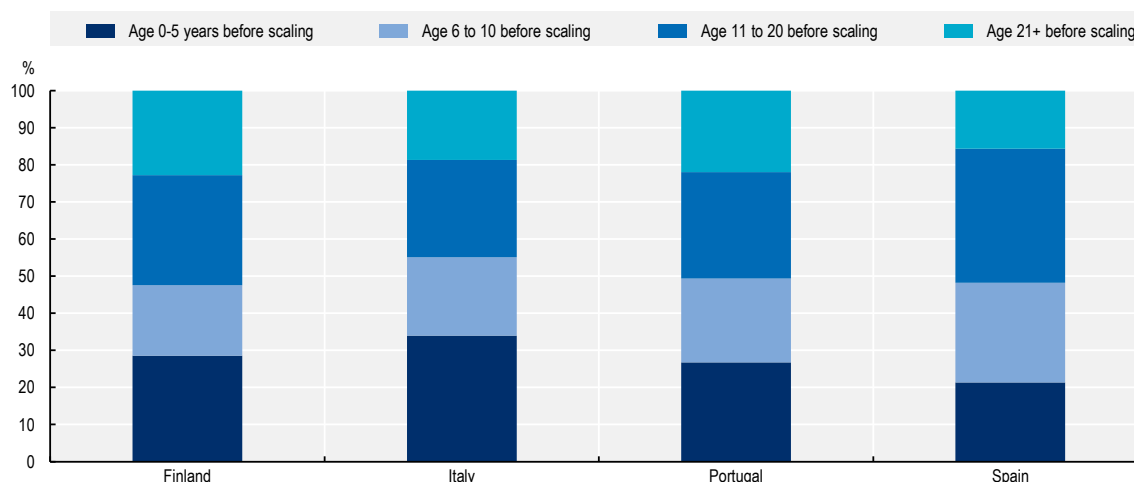


Note: Turnover scalars are firms with 10 employees or more that grow in turnover by at least 10% per year over 3 consecutive years on average, as defined in Box 1.2. The chart reports the share of scalars in the total number of firms with more than 10 employees in the same age category at the beginning of the period. The shares are calculated yearly and reported on average across the full period, weighted by the number of firms active in each year. The averages are computed on scalars that end their scaling-up period from 2011 to 2018 in Finland, 2004 to 2018 in Italy, 2013 to 2016 in Portugal, 2017 to 2018 in the Slovak Republic and 2006 to 2018 in Spain.

Source: Calculations based on microdata sources from five countries. See Annex B for more information.

**Figure 3.4. The majority of scalers are older firms that have operated for more than 11 years**

Share of employment scalers in all scalers by age category



Note: Employment scalers are firms with 10 employees or more that grow in employment by at least 10% per year as defined in Box 1.2. The sample includes scalers that end their first 3-year scaling period between 2011 and 2015 in Finland, 2004 to 2015 in Italy, 2013 to 2014 in Portugal and 2006 to 2015 in Spain.

Source: Calculations based on microdata sources from five countries. See Annex B for more information.

## Firms of different sizes are similarly likely to scale

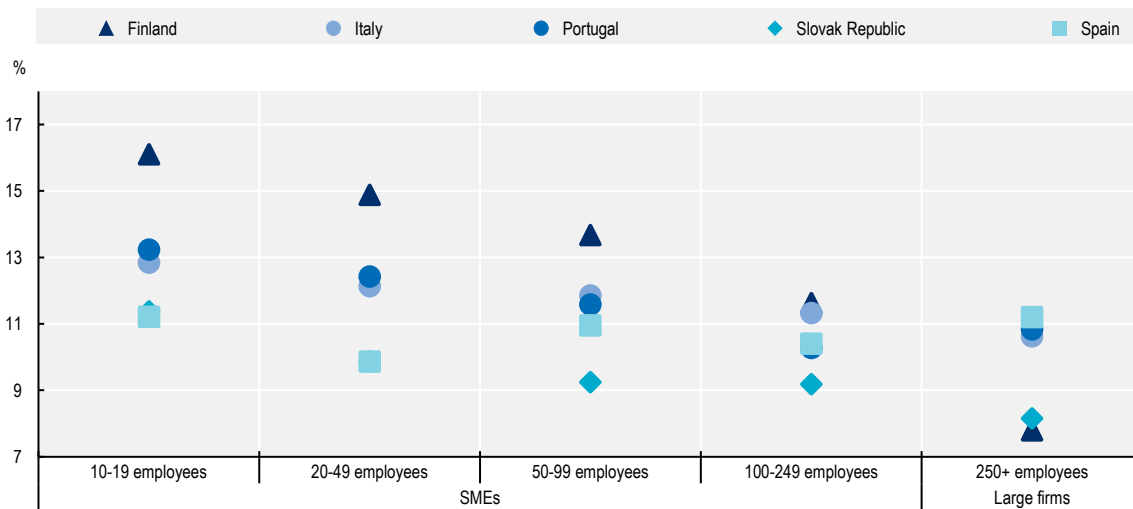
**Firms of different sizes tend to have similar propensities to scale in employment in Italy, Portugal and Spain.** Across the 3 countries, the probability of firms to scale up is very similar across size classes, with differences amounting for about 1-2 percentage points, compared to a baseline probability of scaling up of around 11-12% (Figure 3.5).

**In Finland and the Slovak Republic, larger firms are instead less likely to scale up.** In the Slovak Republic, SMEs with 10 to 19 employees are around 2-3 percentage points more likely to scale than larger SMEs with 20 employees or more. In Finland, the differences across size classes are even more pronounced, with up to 16% of SMEs scaling up in the 10-19 employees size class, compared to 12% for SMEs in the 100-249 size class. As larger firms are also older and older firms scale less often as mentioned above, the declining pattern in the share of scalers for larger firms could actually be driven by age differences. However, the differences across size classes hold also in a more advanced analysis that takes into account firm age as well as the different sectoral composition across size classes.

**Turnover scalers also show a similar pattern in the propensity to scale across size classes.** In Italy and Spain, SMEs of different sizes have a similar probability of scaling up (around 20% in Italy, 18% in Spain). Large firms have the same (in Spain) or about two percentage points lower (in Italy) probability of scaling up than small firms within these countries. In Portugal, medium-sized firms with at least 100 and at most 249 employees have a 2-4 percentage-point lower probability of scaling up compared to the 20-22% share among small firms. In Finland and the Slovak Republic, the probability of scaling up in turnover decreases more rapidly with firm size. About 23% of firms between 10 and 49 employees in Finland scale up, compared to 15% of large firms. In the Slovak Republic, 29% of firms with 10-19 employees and around 26% of firms with 20-249 employees scale up, in contrast with 18% of large firms (Figure 3.6).

**Figure 3.5. Firms of different sizes have a similar probability of scaling in employment in Italy, Portugal and Spain**

Share of firms scaling in employment in the total number of non-micro firms, by size category

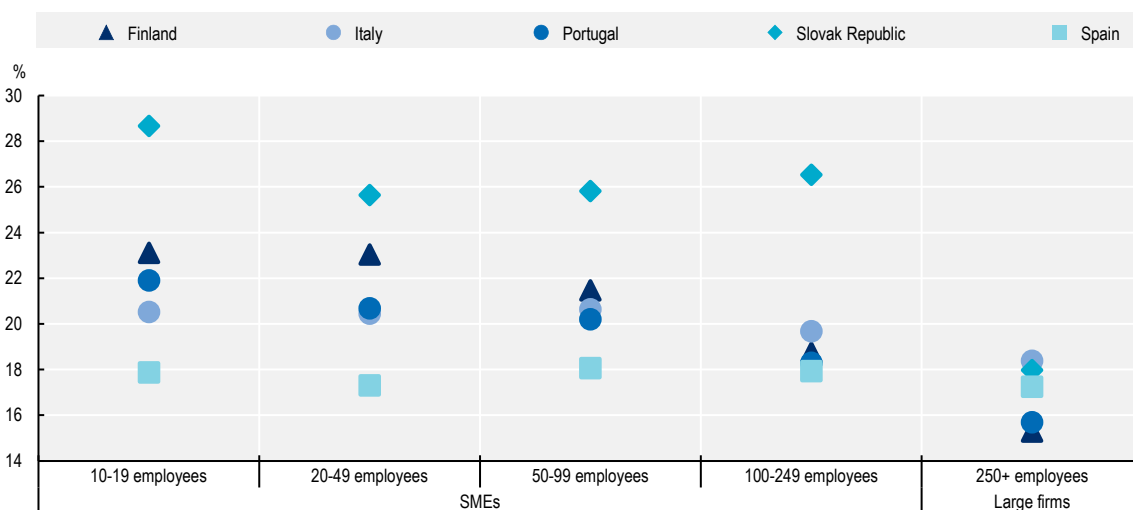


Note: Employment scalars are firms with 10 employees or more that grow in employment by at least 10% per year on average, as defined in Box 1.2. The chart reports the share of scalars in the total number of firms with more than 10 employees in the same age category at the beginning of the period. The shares are calculated yearly and reported on average across the full period, weighted by the number of firms active in each year. The averages are computed on scalars that end their scaling-up period in 2011 to 2018 in Finland, 2004 to 2018 in Italy, 2013 to 2017 in Portugal, 2017 to 2018 in the Slovak Republic and 2006 to 2018 in Spain.

Source: Calculations based on microdata sources from five countries. See Annex B for more information.

**Figure 3.6. Probability of scaling in turnover falls for the largest firms across all countries**

Share of non-micro firms that scale in turnover by size category



Note: Turnover scalars are firms with 10 employees or more that grow in turnover by at least 10% per year on average, as defined in Box 1.2. The chart reports the share of scalars in the total number of firms with more than 10 employees in the same age category at the beginning of the period. The shares are calculated yearly and reported on average across the full period, weighted by the number of firms active in each year. The averages are computed on scalars that end their scaling-up period in 2011 to 2018 in Finland, 2004 to 2018 in Italy, 2013 to 2017 in Portugal, 2017 to 2018 in the Slovak Republic and 2006 to 2018 in Spain.

Source: Calculations based on microdata sources from five countries. See Annex B for more information.



**Small SMEs exploit lower co-ordination costs in the early stages of their growth, while large firms may be better at integrating in global markets and at innovating.** The evidence presented above shows that there is not a conclusive answer on whether small firms grow faster and scale up more often, as the pattern differs across countries. Such debate has a long history in economic research (Gibrat, 1931<sup>[5]</sup>).<sup>4</sup> Small firms may, at least initially, grow faster as they face fewer internal co-ordination costs between managers and workers, which may hamper the growth of large(r) firms. However, in a knowledge-based economy, large firms may be advantaged in introducing innovations that have an increasing codified component that requires larger research teams (Jones, 2009<sup>[6]</sup>). Larger firms may also be better positioned to reach foreign markets with fixed entry costs, due to different regulations or the need to partner with a local distributor for example (Melitz, 2003<sup>[7]</sup>; OECD, 2019<sup>[8]</sup>).

## Most scalers are in less knowledge-intensive services

**The typical scaler is neither a knowledge-intensive nor a high-tech firm.** The propensity to scale up across sectors is highest in knowledge-intensive services but firms in this sector account for only a small share of all firms with at least 10 employees, i.e. 9% of firms in Italy and Portugal, up to 20% in Finland. Larger sectors such as less knowledge-intensive services represent 38% to 46% of all non-micro SMEs and, therefore, account for a higher number of scalers even if they are characterised by a lower propensity to scale. For instance, more than one-third of employment scalers in Portugal and 46% of employment scalers in Spain operate in less knowledge-intensive services (Figure 3.7).<sup>5</sup>

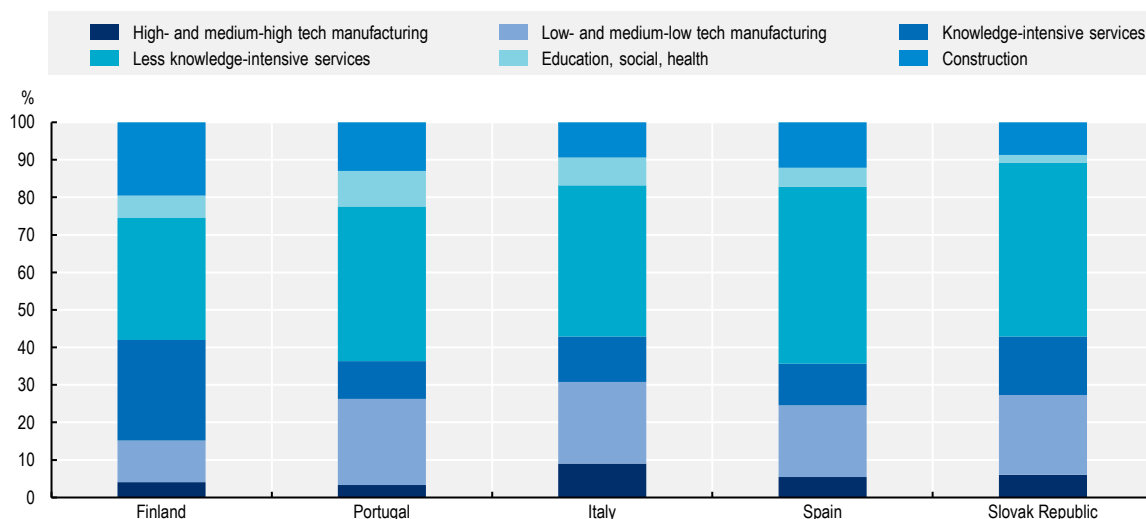
**SMEs in knowledge-intensive services have a high propensity to scale up in employment.** In Finland, Portugal and Spain, 15% to 23% of firms in knowledge-intensive services are employment scalers – more than in any of the other five sectoral groups (high- and medium-high tech manufacturing; low- and medium-low tech manufacturing; less knowledge-intensive services; education, social, and health; and construction) (Figure 3.8). In Italy and the Slovak Republic, the share of employment scalers in knowledge-intensive services is the second-highest, with 18% and 12% respectively. Knowledge-intensive services include activities with high digital content, such as telecommunications and computer programming, consultancy and related activities, that have been able to grab the productivity benefits of information technologies over the last decade (OECD, 2021<sup>[9]</sup>). Knowledge-intensive services also include business service activities, such as management consultancy, advertising and employment activities, which employ many highly educated workers. Previous research shows that education and investments in human capital, such as training, play an important role in explaining firm growth and the probability of scaling (Daunfeldt, Elert and Johansson, 2016<sup>[10]</sup>).

**The shares of scalers in other sector groups differ across countries and no common pattern emerges.** For instance, the education, social and health service sectors are the group with the highest incidence of employment scalers in Italy and the lowest share in Portugal and the Slovak Republic. Given that these sectors are mainly producing non-tradable services (OECD, 2018<sup>[11]</sup>), these differences may reflect the orientation toward the local internal market of Italian scalers and a stronger specialisation in tradable goods and services for Portuguese and Slovak scalers.

**Construction and manufacturing firms have the highest probability of scaling in turnover.** One in four non-micro SMEs operating in construction or in high- and medium-high tech manufacturing scale up, on average across the five countries analysed. The share of turnover scalers in other sectors is slightly lower: about one in five SMEs in less-knowledge intensive services or education, social care and health services become a turnover scaler. There are, however, differences across countries. For example, SMEs in less-knowledge intensive services have a higher probability of scaling up in Portugal and the Slovak Republic than in the other countries (Figure 3.9).

**Figure 3.7. Most scalers are in less knowledge-intensive services**

Share of employment scalers by their main sector of activity

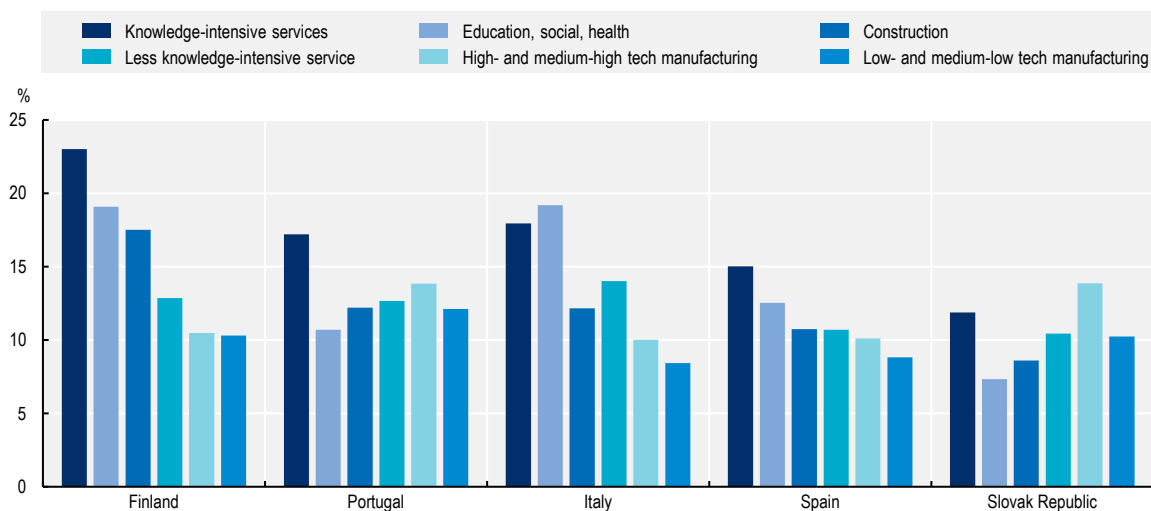


Note: For each country, the chart reports the average share of scalers of a given sector group among all scalers. Employment and turnover scalers are firms with 10 employees or more that grow in employment or in turnover respectively, by at least 10% per year over 3 consecutive years on average over the period 2015-17, as defined in Box 1.2. See Annex C for a detailed list of the two-digit sectors included in each sector group.

Source: Calculations based on microdata sources from five countries. See Annex B for more information.

**Figure 3.8. SMEs in knowledge-intensive services have a high probability of scaling up in employment**

Share of firms scaling in employment in all non-micro firms in the same sector



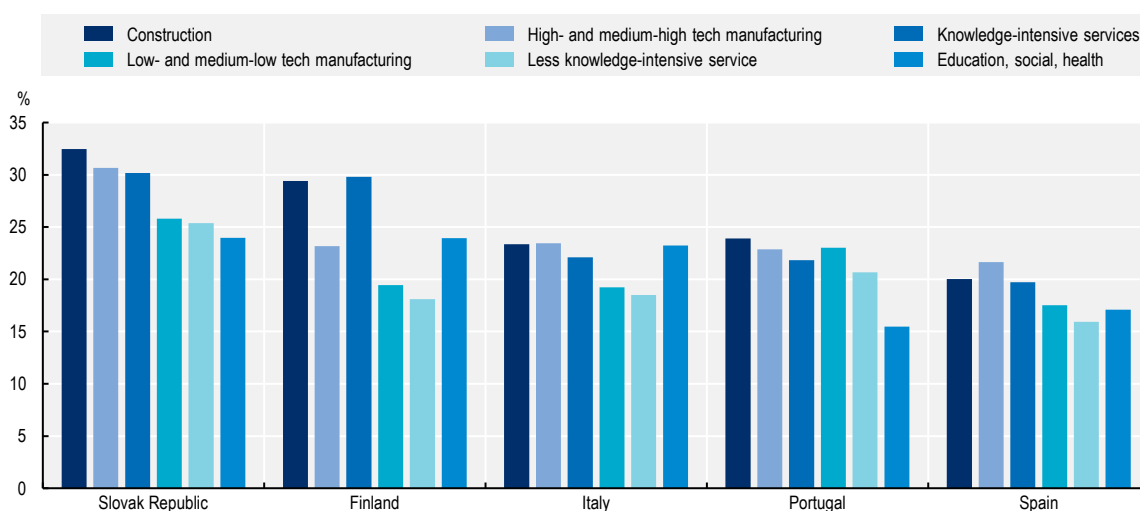
Note: The chart reports the share of scalers in the total number of firms in the same size category with more than 10 employees at the beginning of the period. Employment scalers are firms with 10 employees or more that grow in employment by at least 10% per year, as defined in Box 1.2. The shares are calculated yearly and reported on average across the full period, weighted by the number of firms active in each year. The averages are computed on scalers that end their scaling-up period in 2011 to 2018 in Finland, 2004 to 2018 in Italy, 2013 to 2017 in Portugal, 2017 to 2018 in the Slovak Republic and 2006 to 2018 in Spain. The sector groups are defined in Annex C.

Source: Calculations based on microdata sources from five countries. See Annex B for more information.

**Technological factors and a high incidence of subcontracting may explain the higher probability of scaling in turnover than in employment in high-tech manufacturing and construction.** The disconnect between scaling in turnover and scaling in employment in medium-high tech manufacturing is likely to be driven by the higher capital intensity of the production process and a lower reliance on labour. High-medium tech manufacturing firms can expand production and gain market shares by investing in machinery and equipment to increase labour productivity for example, without necessarily expanding the workforce. This explanation, however, is less likely to hold in the construction sector, which is typically more labour-intensive. Rather, the higher share of scalers in turnover than in employment may be explained by the high incidence of subcontracting and outsourcing of employment services in this sector (Fellini, Ferro and Fullin, 2016<sup>[12]</sup>).<sup>6</sup> Turnover scalers in construction may still result in new jobs, which may not fully appear in the statistics, as they are not employed directly by the scaling company.

**Figure 3.9. Construction and manufacturing firms are more likely to scale in turnover than employment**

Share of firms scaling in turnover in all non-micro firms in the same sector



Note: Turnover scalers are firms with 10 employees or more that grow in turnover by at least 10% per year on average, as defined in Box 1.2. The shares are calculated yearly and reported on average across the full period, weighted by the number of firms active in each year. The averages are computed on scalers that end their scaling-up period in 2011 to 2018 in Finland, 2004 to 2018 in Italy, 2013 to 2017 in Portugal, 2017 to 2018 in the Slovak Republic and 2006 to 2018 in Spain. The sector groups are defined in Annex C.

Source: Calculations based on microdata sources from five countries. See Annex B for more information.

## All types of regions can produce scalers

**All regions have a sizeable share of scalers, with some variation in the propensity to scale across regions.** The share of scalers in employment in all non-micro SMEs in the region ranges from 10% to 17% in Italy, 8% to 13% in Spain, 8% to 14% in Portugal and 9% to 12% in the Slovak Republic (where differences are not statistically significant when the sectoral and size compositions are also taken into account). The differences in propensity to scale in turnover across regions are similar in magnitude. The regional shares range from 19% to 25% in Italy, 15% to 19% in Spain, 18% to 25% in Portugal and 24% to 28% in the Slovak Republic.<sup>7</sup>

**The share of scalers may vary across regions because of differences in local demand, factors affecting local productivity or the cost of inputs.** The opportunities for scaling may differ regionally, due to the local pool of talents and skills, the possibility of interacting closely with other firms or the access

to local public goods – such as transport infrastructure and universities – that affect local productivity. Institutional conditions like entrepreneurship culture, networks and regulations also affect the health of a local entrepreneurship ecosystem (OECD, 2021<sup>[13]</sup>). Firms choose their location depending on their specific needs. Some firms may prefer to be located in diverse and dynamic urban agglomerations where they can access a large variety of different skills in the labour force and where interactions with other businesses are easier and more frequent. Other firms may instead find it more suitable to be located in cities or regions that are specialised in a specific activity (OECD, 2017<sup>[14]</sup>). Firms may also relocate just before or during a high-growth phase to reduce the costs of their core inputs (Duranton and Puga, 2001<sup>[15]</sup>). For instance, a firm that plans to expand production may need to open a new establishment in a locality with lower real estate prices or lower wages. Although places are different, market prices can compensate for attractiveness, which means that, often, there is a little observable linkage between attractiveness factors such as local tax rate or local civil justice efficiency for example and firm location choices (Duranton, Gobillon and Overman, 2011<sup>[16]</sup>; Giacomelli and Menon, 2017<sup>[17]</sup>). Despite a large body of research on the location determinants of firms, there is a dearth of evidence looking at the case of scalers.<sup>8</sup>

**Both wealthy and less-developed regions can have a high share of scalers.** The firm-level data sources allow calculating the share of scalers in each TL2 region<sup>9</sup> across the four countries (the regional breakdown is not available for Finland; see Box 3.2 for a discussion of a possible “headquarter bias” that may affect the interpretation of the results). The region with the highest share of both employment (14%) and turnover (25%) scalers in Portugal is the Algarve, a wealthy region<sup>10</sup> in the south of Portugal with dynamic real estate and tourism sectors. The capital city region Lisbon and the northern region of Norte are also characterised by higher values (12% and 13% for employment scalers and 19% and 22% for turnover scalers respectively) than Alentejo, Azores, Centro and Madeira (see Figure 3.10 reporting the share of scalers in employment in all firms with at least 10 employees). In Spain, firms located in regions in the south of the country with a GDP per capita lower than the national average, such as Andalusia and Murcia, are more likely to scale than firms headquartered in more developed regions (the share of scalers in employment is equal to 12% in both regions, compared to e.g. 10% in Catalonia; see Figure 3.11). However, the capital region Madrid also has a relatively high share (12%) of scalers in employment. In Italy, the 3 regions with the highest share – Basilicata (17%), Puglia (15%) and Campania (15%) – are all part of the Mezzogiorno, the southern part of the country in which income and productivity levels are substantially lower than in the northern regions (see Figure 3.12).<sup>11</sup> Low factor prices in lagging regions may therefore play a relatively more important role for scaling than the competitive advantages of wealthier regions access, such as a larger local market, a pool of skilled workers, etc.

**Differences in the propensity of local firms to scale may be more evident at a different geography.** Differences in the share of scalers may depend on factors that vary within large (TL2) regions rather than across them. For instance, wages and housing costs differ widely between prime urban locations and rural areas. Local labour markets, as defined by areas within which workers can commute on a daily basis, are often smaller than TL2 regions, which means that differences in access to skills and educated workforce tend to vary significantly also within regions. The analysis of local differences in scaling at different spatial scales and using different definitions of spatial units is an interesting avenue for future research.

### Box 3.2. The “headquarter bias” in regional business demography

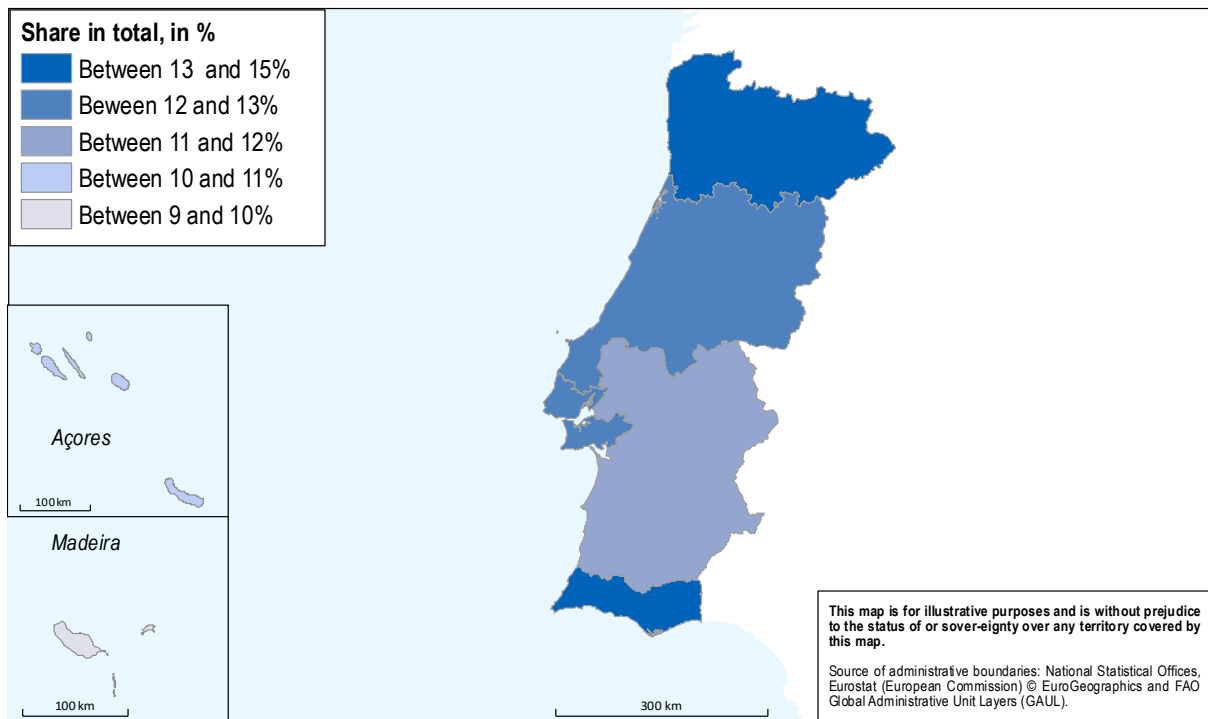
The share of scalers by TL2 region is calculated based on the location of the firm (or the enterprise). Large, multi-plant firms (which tend to have headquarters in cities) may operate a substantial number of plants (and employ workers) outside of the region where the headquarters are located. If all workers employed in multi-plant firms are attributed to the headquarters’ regions (as is the case with firm-level indicators), the regional scale-up indicators suffer from a “headquarter bias”. In fact, employment indicators based on the enterprise approach do not reflect regional employment but rather the

employment controlled by firms with headquarters in a given region. The headquarter bias could be eliminated by using plant or establishment-level information. Establishment-level data were not available for the current analysis but are collected in some OECD countries and are a promising avenue of future research.

Source: OECD (2017<sup>[14]</sup>), *The Geography of Firm Dynamics: Measuring Business Demography for Regional Development*, <https://dx.doi.org/10.1787/9789264286764-en>; Ahmad N. (2008<sup>[18]</sup>), *A Proposed Framework for Business Demography Statistics*. In: Congregado E. (eds) *Measuring Entrepreneurship. International Studies In Entrepreneurship*, vol 16. Springer, Boston, MA. [https://doi.org/10.1007/978-0-387-72288-7\\_7](https://doi.org/10.1007/978-0-387-72288-7_7).

**Figure 3.10. The Algarve and Lisbon are the regions with the highest share of scalars in Portugal**

Share of employment scalars in all non-micro SMEs by large regions

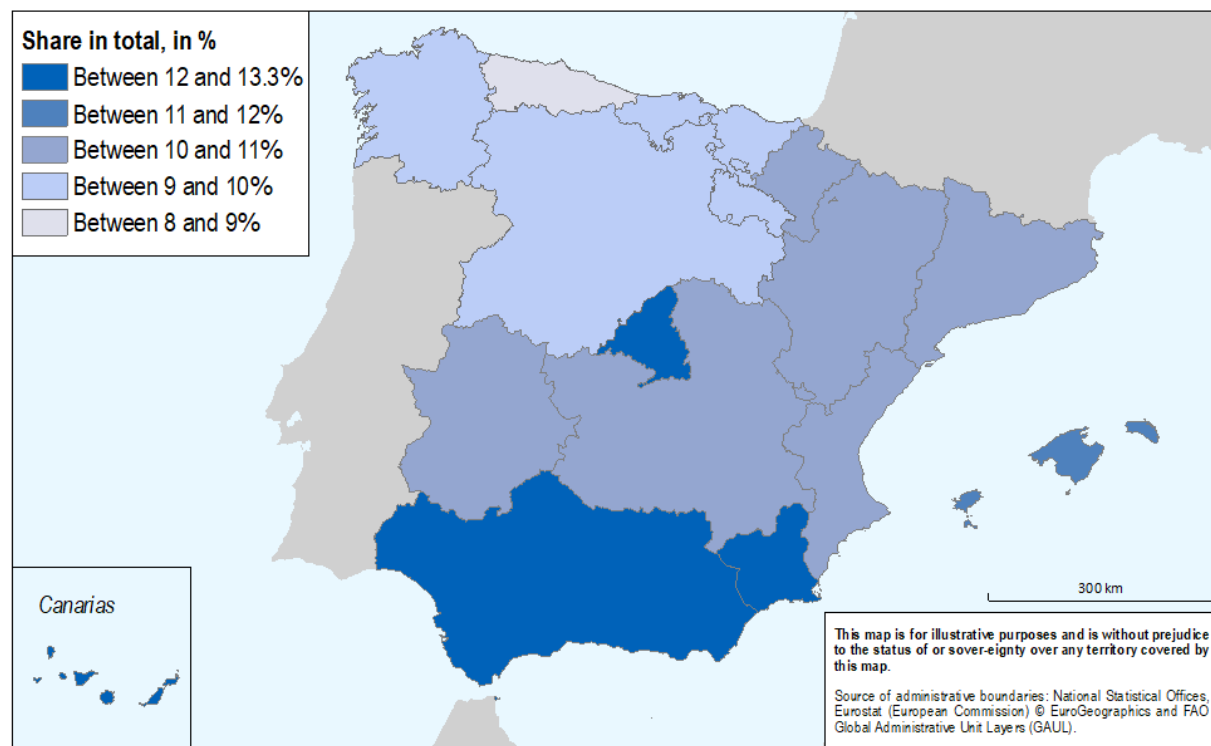


Note: Large regions are TL2 regions – see OECD (2020<sup>[19]</sup>) for more details. Employment scalars are firms with 10 employees or more that grow in employment by at least 10% per year on average over 3 consecutive years, as defined in Box 1.2. Non-micro SMEs are businesses with total employment of between 10 and 249 employees. The shares are calculated yearly and reported on average across the full period, weighted by the number of firms active in each year. The averages are computed on scalars that end their scaling-up period in 2006 to 2018.

Source: Calculations based on microdata sources. See Annex B for more information.

**Figure 3.11. Both wealthy and less-developed regions have a high share of scalers in Spain**

Share of employment scalers in all non-micro SMEs by large regions

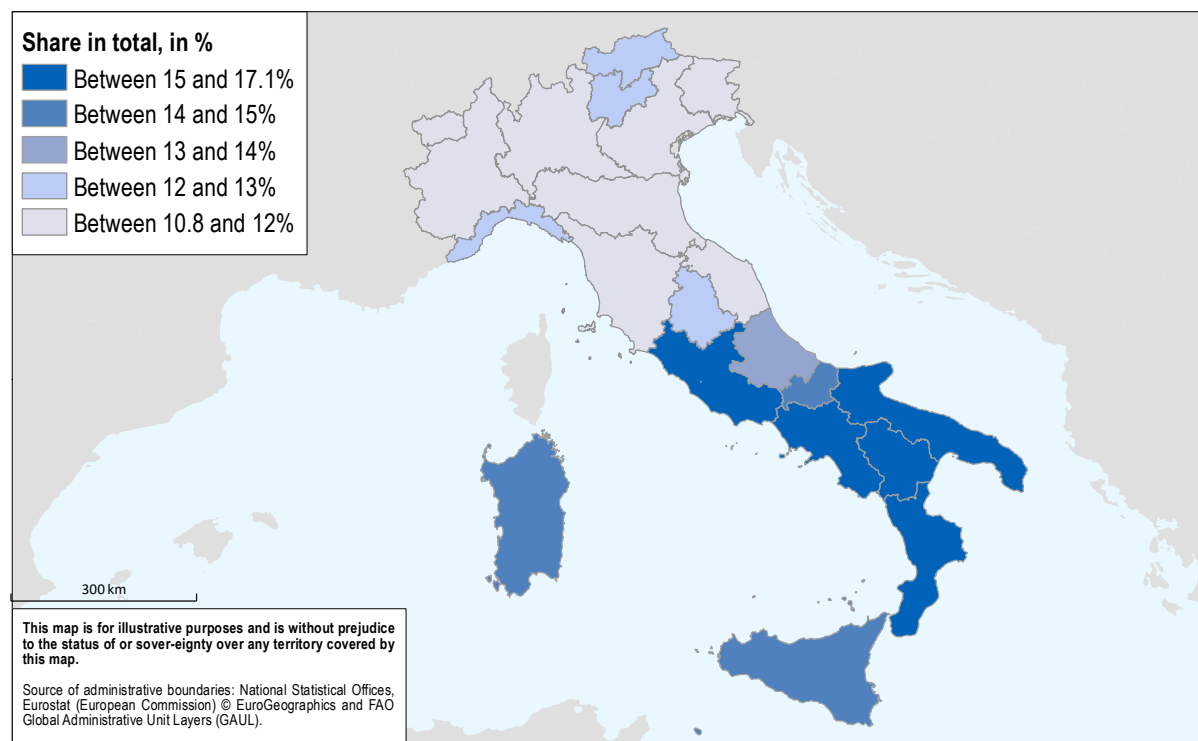


Note: Large regions are TL2 regions – see OECD (2020<sup>[19]</sup>) for more details. Employment scalers are firms with 10 employees or more that grow in employment by at least 10% per year on average over 3 consecutive years, as defined in Box 1.2. Non-micro SMEs are businesses with total employment of between 10 and 249 employees. The shares are calculated yearly and reported on average across the full period, weighted by the number of firms active in each year. The averages are computed on scalers that end their scaling-up period in 2006 to 2018.

Source: Calculations based on microdata sources. See Annex B for more information.

**Figure 3.12. Italian southern regions have a higher share of scalers**

Share of employment scalers in all non-micro SMEs by large regions



Note: Large regions are TL2 regions – see OECD (2020<sup>[19]</sup>) for more details. Employment scalers are firms with 10 employees or more that grow in employment by at least 10% per year on average over 3 consecutive years, as defined in Box 1.2. The period of analysis is 2004-18. Non-micro SMEs are businesses with total employment between 10 and 249 employees. The shares are calculated yearly and reported on average across the full period, weighted by the number of firms active in each year. The averages are computed on scalers that end their scaling-up period in 2004 to 2018.

Source: Calculations based on microdata sources. See Annex B for more information.

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## Notes

<sup>1</sup> Recent studies that investigate the decline of the high-growth start-ups rate in the US conclude that the characteristics and the environment of firms at inception explain how they react to external conditions and shocks during their life and this accounts for most of the subsequent growth. It follows that the growth potential of a firm is mainly determined by its structural characteristics at birth and posterior internal

transformations only play a negligible role in the growth rate (Sedláček and Sterk, 2017<sup>[29]</sup>; Sterk, Petr and Pugsley, 2021<sup>[30]</sup>).

<sup>2</sup> See, for example, Daunfeldt and Halvarsson (2015<sup>[24]</sup>), Grover Goswami, Medvedev and Olafsen (2019<sup>[31]</sup>), Coad and Srhoj (2019<sup>[23]</sup>) and Geroski and Gugler (2004<sup>[21]</sup>).

<sup>3</sup> Sixteen percent of old firms scale in turnover, 7% scale in employment. Among young firms, 32% scale in turnover and 20% scale in employment. The probability of scaling among other age groups is between these two extremes.

<sup>4</sup> The initial studies focused on the growth of firms being independent of their initial size but several more recent studies contradicted the finding, with most of the studies focusing on individual countries and industries often finding that smaller firms grow faster. For example, Gibrat's Law holds for a sample of firms of greater than minimum efficient size (Santarelli, Klomp and Thurik, 2006<sup>[28]</sup>). Studies across countries and focused on different industries often find that growth slows in large firms (Cabral and Mata, 2003<sup>[22]</sup>; Lotti and Santarelli, 2001<sup>[20]</sup>).

<sup>5</sup> This evidence is aligned with some of the “known facts” on scalers discussed in Chapter 1.

<sup>6</sup> The finding that the construction sector has a particularly high output share accounted for by scalers also applies to the US (Haltiwanger et al., 2017<sup>[26]</sup>).

<sup>7</sup> Data on the regional breakdown are not available for Finland.

<sup>8</sup> A study on Spanish firms show that scalers are more likely to be found in technological clusters and urban areas (Giner, Santa-María and Fuster, 2017<sup>[25]</sup>). Evidence from US shows that scalers are located in countries with larger average establishment size, higher educational attainment and more natural amenities (Li et al., 2015<sup>[27]</sup>).

<sup>9</sup> Territorial Level 2 (TL2) is a sub-national classification of large regions representing the first administrative tier of subnational government (<https://www.oecd.org/regional/regional-policy/regionalstatisticsandindicators.htm>).

<sup>10</sup> In 2017, the GDP per capita of the Algarve is the second highest after the metropolitan area of Lisbon (OECD.stats, 2021<sup>[31]</sup>).

<sup>11</sup> These values are based on enterprise-level indicators, which can be a source of bias when used to assess the location of the employment generated by existing firms. Large, multi-plant firms (which tend to have headquarters in cities) may operate a substantial number of plants (and employ workers) outside of the region where the headquarters are located. If all workers employed in multi-plant firms are attributed to the headquarters' regions (as is the case with enterprise-level indicators), the real geographical distribution of employment presents a “headquarter bias”. In fact, employment indicators based on the enterprise approach do not reflect regional employment but rather the employment controlled by firms with headquarters in a given region (OECD, 2017<sup>[14]</sup>).



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