Scaling up in Trentino-Alto Adige/Südtirol

By Wessel Vermeulen, Carlo Menon and Antonio Accetturo

A small group of small and medium-sized enterprises (SMEs) that grow fast over a short period of time, i.e. scalers, make an outsized contribution to job creation and economic growth. This paper provides a portrait of scalers in the Italian region of Trentino-Alto Adige/Südtirol, and its two autonomous provinces: Trentino and Bolzano-Bozen. The region hosts and attracts a dynamic population of scalers. Around one in nine SMEs in Trentino-Alto Adige/Südtirol is an employment scaler, and more than one in six is a turnover scaler. However, the contribution of the fastest-growing scalers is lower than in the rest of Centre and North Italy, which is in part due to the sectoral specialisation of scalers in the region.

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Executive summary

A small group of small and medium-sized enterprises (SMEs) that grow fast over a short period of time, i.e., scalers, make an outsized contribution to job creation and economic growth. Scalers are defined here as SMEs with at least 10 employees that grow in employment or turnover at an average annual rate of more than 10% over a three-year period. While the contribution of scalers to national economies has been established for several countries, within-country differences are underexplored, with a few notable exceptions (Coad et al., 2023[1]; OECD, 2023[2]). Differences in local demand, factors driving local productivity or the cost of inputs, such as the use of land and labour, can all affect the rate at which firms scale.

This paper focuses on the scaling-up dynamics of SMEs in the Italian region Trentino-Alto Adige/Südtirol and its two provinces. The region consists of the Autonomous Province of Trento (Trentino) and the Autonomous Province of Bolzano-Bozen (Alto Adige/Südtirol). The results for Trentino-Alto Adige/Südtirol and its two provinces are compared with those of other regions in the Centre and North of Italy. Trentino-Alto Adige/Südtirol is a mountainous and largely rural region, while the Centre, North and North-East of Italy host some of Italy’s largest and most industrial cities.

Trentino-Alto Adige/Südtirol hosts and attracts a dynamic population of scalers...

Around one in nine SMEs in Trentino-Alto Adige/Südtirol is an employment scaler, and more than one in six is a turnover scaler. SMEs in Trentino-Alto Adige/Südtirol are as likely to scale as SMEs in the Centre and North of Italy. Moreover, the shares of scalers across age and size groups are similar to other Italian regions. Scalers account for about one in two new jobs in Trentino-Alto Adige/Südtirol, which is also aligned with the rates observed in the Centre and North of Italy. Net job creation rates were also comparable between Trentino and the other regions.

Trentino-Alto Adige/Südtirol has a net inflow of scalers from other regions. More than 5% of firms that experience a scale up episode during the observed period were previously headquartered in another Italian region. In contrast, just under 3% of SMEs that experience a scale up episode relocate from Trentino-Alto Adige/Südtirol. Regions with large metropolitan centres, such as Milan (in the region of Lombardy), Turin (in Piedmont) and Rome (in Lazio), are the main origins and destinations for firms that scaled up in and moved from Trentino-Alto Adige/Südtirol.

Most scalers in Trentino-Alto Adige/Südtirol maintain their new scale. A larger size brings new challenges and not all scalers may be able to maintain the new scale but in Trentino-Alto Adige/Südtirol, two out of three scalers remain at their newly achieved scale or continue to grow further in the three years after scaling up.
...but job creation among the fastest growing firms remains behind other places

Trentino-Alto Adige/Südtirol is characterised by a lower job creation of high-growth scalers relative to Centre and North Italy. Across OECD countries, typically about one-third of employment scalers grow faster than 20% annually and are defined as high-growth scalers. High-growth scalers usually account for about two thirds of gross job creation by employment scalers, In Trentino, high-growth scalers created four jobs for every 100 employees, compared with 4.8 in Alto Adige/Südtirol and 6.7 in Centre and North Italy over the period 2010-18.

The share of scalers that scale again after the first scale up period is smaller in Trentino. So-called double scalers can contribute further to regional job creation by building on their first growth period. Among older (11 years or more) SMEs, 13% scale again in Trentino compared to 18% in Alto Adige/Südtirol and 17% Centre and North Italy.

The sectoral specialisation of Trentino and Alto Adige/Sudtirol partially explains the lower employment growth among scalers relative to those in Central and North Italy. Scalers in Trentino are concentrated in less knowledge intensive services, health, education and social activities and construction. In these sectors there are typically fewer high-growth scalers than in sectors such as knowledge intensive sectors or medium-high tech manufacturing. However, not all employment growth difference is explained by observed firm characteristics. Therefore, further unobserved firm and place specific factors likely play a role in the performance of scalers. Future analyses should try to identify some of those factors.
Why are scalers important for regions?

A small group small and medium-sized enterprises (SMEs) that grow fast over a short period of time, i.e., scalers, make an outsized contribution to job creation and economic growth. A widely used definition identifies scalers as SMEs with ten employees or more that grow in employment or turnover at an average annual rate of at least 10% per year over a three-year period. A recent OECD report (2021) provides a detailed portrait of scalers across five countries: Finland, Italy, Portugal, the Slovak Republic and Spain. The analysis shows that 13%-15% of SMEs with 10 to 249 employees scale up in employment in these countries. Between 2015 and 2017, these scalers accounted for 47% to 69% of all jobs added by SMEs with at least ten employees.

This paper provides a portrait of scalers in Trentino-Alto Adige/Südtirol, Italy. Trentino-Alto Adige/Südtirol is a mountainous region in Northern Italy. Administratively, it consists of the two Autonomous Provinces of Trento and Bolzano-Bozen. These two provinces will be referred to as Trentino and Alto Adige/Südtirol for the remainder of this paper. Relative to other Italian regions, Trentino-Alto Adige/Südtirol has higher average income levels and a more equal distribution of wealth. The region is home to a dynamic environment for innovative start-ups that is in part supported by national policy, such as the “Start-up Act”, and regional public policy (Menon et al., 2018; OECD, 2020; Accetturo, 2022). Less is known about the incidence of scaling up of SMEs in the region. This paper fills this gap, by presenting new statistics on the characteristics and the growth patterns of scalers in the region Trentino-Alto Adige/Südtirol and its two provinces.

The share of scalers can vary across regions, and both wealthier and poorer regions can have high shares of scalers. The share of scalers across regions ranges from 10% to 17% in Italy, 8% to 13% in Spain, 8% to 14% in Portugal, and 9% to 12% in Slovak Republic (OECD, 2021). The region with the highest share of employment scalers in Portugal is Algarve, a wealthy region in the south of Portugal with dynamic real estate and tourism sectors. In Spain, firms located in regions in the south of the country with a GDP per capita below the national average, such as Andalusia and Murcia, are more likely to scale than firms headquartered in more developed regions. In Italy, the three regions with the highest share – Basilicata, Puglia and Campania – 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 part (Accetturo, Albanese and Torrini, 2022).

The share of scalers may vary across regions because of differences in local demand, local productivity or the cost of inputs, such as wages and real estate. The opportunities for scaling may differ across regions. Several local factors may affect scaling, such as the size of the local pool of talents and skills, the possibility of doing business with other firms in the same region, or the access to local public goods, like transport infrastructure and universities. Institutional conditions like entrepreneurship culture, networks and regulations also affect the health of a local entrepreneurship ecosystem. Firms may choose their location depending on their specific needs. Some firms may prefer to be located in diverse and dynamic cities where they can more easily hire workers with specialised skills and where dealing with other businesses may be easier. Other firms may instead be attracted to be in cities or regions that are specialised in a specific economic activity. Firms may also relocate just before or during a high-growth
phase to reduce the costs of their core inputs (Duranton and Puga, 2001). For instance, a firm that plans to expand production may choose to relocate to a place with lower land and real estate prices or lower wages.

The remainder of the paper is structured as follows. Chapter 2 presents the data and the statistical method for identifying scalers. Chapter 3 provides an overview of the performance and characteristics of scalers in Trentino and Alto Adige/Südtirol in comparison with scalers in Centre and North Italy. Chapter 4 describes the ability of scalers to retain their size after scaling. Chapter 5 presents evidence on the mobility of firms that scale across regions, with specific attention to scalers that are moving in and out of Trentino and Alto Adige/Südtirol. The paper ends with a brief conclusion and suggestions for policy options.
The data in this paper includes all firms in the Company Accounts Data System (CADS) database that are observed for at least one year between 2010 and 2018. Around 650,000 firms in Italy are covered, which account for about 70% of the total revenues of the private non-financial sector. CADS contains detailed balance sheet information, but the number of employees is reported only for a small number of companies. CADS is therefore complemented with the Italian Social Security Institute (Istituto Nazionale per la Previdenza Sociale, INPS) data, which report the number of employees for all Italian firms, calculated as an average headcount per year.

The methodology for identifying scalers follows the Eurostat-OECD Manual on Business Demography Statistics (OECD-Eurostat, 2007[9]). Scalers are SMEs that have an average yearly growth rate of 10% over three consecutive years in either employment or turnover. Among those, scalers that grow more than 20% for three consecutive years in employment or turnover are defined “high-growth” scalers. Scalers are compared to other non-micro SMEs, i.e., firms with 10 to 249 employees. Box 1 discusses the definition of scalers in more detail. Chapter 3 presents statistics on employment and turnover scalers. However, the main analysis in Chapters 4 and 5 focuses on employment scalers only, considering that many employment scalers also meet the threshold of scaling in turnover.

Firms are assigned to regions based on the headquarter location, which might provide a misleading picture for companies that employ workers also in other regions. In this paper, the location of a firm is determined by the fiscal address of the headquarters of a firm. This may produce the so-called “headquarter bias”. All economic activity and employment are attributed to the headquarter region, which is not necessarily the region where all firm activity and employment takes place (see Box 2). The bias may be accentuated in this paper as there is evidence that high-growth scalers have a higher likelihood to have establishments in multiple locations than other SMEs, at least in the Nordic countries (OECD, 2023[2]). However, two other factors may mitigate the bias. First, in Italy the vast majority of firms has a single location (Cappariello, Federico and Zizza, 2012[10]). Second, large firms with more than 250 employees are more likely to be active in multiple regions, but these are excluded in the analysis of high-growth firms.
Box 1. Identifying scalers: The Eurostat-OECD definition of high-growth enterprises

The definition of scaling up adopted in this paper is based on previous work on high-growth firms (OECD, 2021[3]), which builds upon the Eurostat-OECD Manual on Business Demography Statistics (OECD-Eurostat, 2007[9]). “Scalers” are companies with at least ten employees in a given year that grow in employment or turnover at a yearly average rate of at least 10% for the following three years. Hence, companies that scale in employment are called employment scalers, and those that scale based on turnover are called turnover scalers. “High-growth scalers” are defined as firms with a yearly average growth rate of at least 20% for the following three years. The definition has been adopted widely in the economic and business literature; one of its advantages, therefore, is its comparability.

The Eurostat-OECD Manual on Business Demography Statistics recommends the following definition of high-growth enterprises: “All enterprises with average annualised growth greater than 20%, over a three-year period, and with ten or more employees at the beginning of the observation period. Growth is thus measured by the number of employees and by turnover” (OECD-Eurostat, 2007, p. 61[9]). The 20% threshold was set considering previous research from individual countries (Ahmad, 2008[11]). Further work by Eurostat focused on medium-growth firms, which include firms growing at an annualised growth rate of at least 10% for three consecutive years. The manual proposes a cut-off for firm size at the beginning of the high-growth period of ten employees for both the turnover and employment measures of high-growth. It does not define a minimum turnover cut-off to maintain consistency across countries.

High growth is calculated as the average growth rate over three years. Mathematically this can be expressed as

$$\sqrt[3]{\frac{X_{t+3}}{X_t}} - 1 > 0.2.$$

Where $X_t$ refers to employment or turnover at the beginning of the period $t$, and the subscript $t+3$ denotes values at the end of the three-year period. The 20% average yearly growth is equivalent to 72.8% growth if the growth is calculated between the starting period and end period. The 10% annual growth rate results in 33.1% growth over three years.


Trentino and Alto Adige/Südtirol are compared with regions in the Centre and North of Italy. The charts of this paper report separately Trentino, Alto Adige/Südtirol, Trentino-Alto Adige/Südtirol as the combination of the two, the rest of the North-East of Italy (Friuli-Venezia Giulia, Veneto and Emilia-Romagna), and the rest of the Centre and North of Italy (Aosta Valley, Piedmont, Lombardy, Liguria, Tuscany, Marche, Umbria, Lazio, Abruzzo). In the following, we refer to these latter groups of regions as “North-East” and “Centre and North”. The regions of the South of Italy are excluded from the comparison because of the large differences in many economic dimensions with Trentino and Alto Adige/Südtirol (OECD, 2020[12]).
Box 2. The “headquarter bias” in regional business demography

The share of scalers by TL2 region is calculated based on the location of the firm. Large, multi-plant firms may operate a substantial number of plants and employ workers outside of the region where the headquarters are located, which often tends to be in metropolitan cities. If all workers employed in multi-plant firms are attributed to the headquarters’ regions, 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 use of plant or establishment level information could eliminate the headquarter bias. However, 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.

SMEs in Trentino-Alto Adige/Südtirol are as likely to scale as SMEs elsewhere in Italy. One in nine (11%) of SMEs are employment scalers and more than one in six (17.5%) are turnover scalers in the Trentino-Alto Adige/Südtirol. These rates are similar to North and Centre Italy, where 11.4% of SMEs are employment scalers and 17.6% are turnover scalers. The higher prevalence of turnover scalers is also in line with evidence from countries (OECD, 2021[3]).

Trentino-Alto Adige/Südtirol lags in the share of high growth employment scalers. About one-third of employment scalers grow faster than 20% annually and are defined as high-growth scalers. In Trentino-Alto Adige/Südtirol, 3.3% of SMEs are high-growth employment scalers compared with 4.1% in North and Centre Italy. In Trentino, only 3% of SMEs are high growth employment scalers.

In Trentino, scalers create seven new jobs for every 100 existing jobs, compared with eight in Alto Adige and ten in Centre and North Italy. SMEs that scale up are a critical source of job creation in Trentino-Alto Adige/Südtirol, as well as in the rest of the country. However, the contribution of scalers to employment creation is lower in Trentino and in Alto Adige/Südtirol compared with the rest of the country (Figure 2). Where employment scalers contribute 8 jobs for every 100 existing jobs in Trentino-Alto Adige/Südtirol, employment scalers in the North and Centre of Italy create more than ten jobs. Turnover scalers make smaller contribution to job creation. This difference between employment and turnover scalers is due to their definition. Employment scalers must grow employment, while turnover scalers can increase sales without growing employment to the same extent. However, turnover scalers also make a larger employment contribution in the Centre and North of Italy relative to Trentino-Alto Adige/Südtirol.

The smaller share of fastest-growing scalers explain the lower job contribution of scalers in the region. Across Centre and North Italy, almost two-thirds of gross job creation by employment scalers are generated by high-growth scalers (Figure 2). In Trentino, the contribution of high-growth scalers is below the other areas. On average over the period 2010-18, high-growth scalers in Trentino contributed four jobs for every 100 employees, compared with 4.8 in Alto Adige/Südtirol and 6.7 in Centre and North Italy.
Figure 1. Scalers represent over 10% of all firms across Italian regions
Percentage of scalers in all SMEs by region, 2010-18.

Note: Employment (Sc. emp.) and turnover (Sc. trn.) scalers, by threshold of minimum annual growth rates (10% and 20%). North-East Italy includes firms from the regions Friuli-Venezia Giulia, Veneto and Emilia-Romagna. Centre and North Italy include Acosta Valley, Piedmont, Lombardy, Liguria, Tuscany, Marche, Umbria, Lazio, Abruzzo.
Source: OECD calculations.

Figure 2. Scalers create seven to ten jobs for every 100 jobs across Italian regions
Job creation over total employment, 2010-18.

Note: The ratio of new jobs created by scalers over a three-year period is calculated as a proportion the total employment in the area at the beginning of the period. This rate is then averaged over 2010-18. The sample is restricted to non-micro SMEs in the non-financial business sector. Employment (Sc. emp.) and turnover (Sc. trn.) scalers, by threshold of minimum annual growth rates (10% and 20%). North-East Italy includes firms from the regions Friuli-Venezia Giulia, Veneto and Emilia-Romagna. Centre and North Italy include Acosta Valley, Piedmont, Lombardy, Liguria, Tuscany, Marche, Umbria, Lazio, Abruzzo. Unweighted yearly average.
Source: OECD calculations.
In Centre and North Italy, employment scalers grow by 84% on average over three years, compared to 73% in Trentino-Alto Adige/Südtirol and North-East Italy. The difference in the employment contribution of scalers between regions is also observed in the average employment growth of scalers. Figure 3 presents the employment growth of employment and turnover scalers across regions. For example, a scaler of 20 employees in Trentino-Alto Adige/Südtirol employs 34 workers three years later. A similar scaler located in the Centre and North would have grown employment to more than 36 workers over the same period. This lower growth rate relative to the national average can account for the lower net job creation of scalers in the two regions relative to Centre and North, as shown in Figure 2. The difference in employment growth of turnover scalers between regions is smaller. Turnover scalers on average grow employment with 38% in Trentino-Alto Adige/Südtirol, compared with 41.2% in the Centre and North of 41.2%, and 35% in the North-East. Box 3 provides an alternative measurement of scalers contribution of job creation, which considers the job creation and destruction of other SMEs as well as the job creation and destruction from firms’ entry and exit. Using this measure, scalers account for 46% of total gross job creation by non-micro SMEs in Trentino-Alto Adige/Südtirol.

**Figure 3. Scalers grow their employment by at least 70% over a three-year period**

Three year growth rate of employment of scalers, average over 2010-18.

![Graph showing employment growth rates](image)

Note: Sc. emp for employment scalers, and Sc. trn for turnover scalers. North-East Italy includes firms from the regions Friuli-Venezia Giulia, Veneto and Emilia-Romagna. Centre and North Italy include Aosta Valley, Piedmont, Lombardy, Liguria, Tuscany, Marche, Umbria, Lazio, Abruzzo.

**Sectoral differences across regions partly explain the lower growth performance of scalers**

Regional difference in the composition of SMEs may play a role in their ability to scale and their total job creation. Regions may differ in the age, size and sectoral activities of its SMEs. Such differences may also help to explain regional differences in the prevalence of high growth scalers and their employment growth. For instance, younger and smaller firms may be more likely to scale but may have a more limited contribution to job creation relative to larger and more mature firms.

Scalers in Trentino are more likely to operate in less knowledge intensive services than in other regions. Almost half (46%) of employment scalers in Trentino-Alto Adige/Südtirol operate in less knowledge intensive services (Figure 6). Only one out of five scalers operate in either high or medium-high technology
Box 3. Measuring the contribution of different groups of firms to employment growth

Common metrics to quantify the contribution of a group of firms to employment growth are gross job creation, gross job destruction and net job creation. They all build upon the concept of net employment change at the firm level, i.e., the change in employment level for a given firm over a period. Gross job creation is equal to the sum of all positive net employment changes across a group of firms, i.e., the sum of employment gains of all firms with positive employment growth. Similarly, gross job destruction is equal to the sum of all negative net employment changes across a group of firms, i.e., the sum (in absolute values) of all employment losses of all firms with negative employment growth. Net job creation is the difference between gross job creation and gross job destruction.

An important limitation of these metrics is that they do not consider the amount of job “churning” inside the firm. Only the net balance between total hires and separations for each firm at the end of the period matters, irrespective of the volume of hires and separations. Figure 4 provides a breakdown of job creation and job churn from the entry and exit of firms, for scalers and other non-micro SMEs.

In Trentino-Alto Adige/Südtirol, scalers account for 46% of total gross job creation by non-micro SMEs. The share is almost identical to the value of North-East Italy but below the rest of Italy (54%). Compared with North-East Italy and the whole country, Trentino-Alto Adige/Südtirol – and Alto Adige/Südtirol especially – is characterised by a lower share of gross job creation added by new firms, and by a larger share of jobs added by SMEs that expand at slow pace (less than 33% over a 3-year period, and thus do not qualify as scalers). Alto Adige/Südtirol is also different from North-East Italy and Centre and North Italy because of a small share of surviving SMEs that contract in size.

Figure 4. Scalers account for more than one third of new jobs in the region


Note: North-East Italy includes firms from the regions Friuli-Venezia Giulia, Veneto and Emilia-Romagna. Centre and North Italy include Aosta Valley, Piedmont, Lombardy, Liguria, Tuscany, Marche, Umbria, Lazio, Abruzzo. See methodological notes in Box 1.
Source: OECD calculations
scalers than in the other regions (28%) are active in low and medium low technology manufacturing. For turnover scalers, 18% operate in the construction sector in Trentino-Alto Adige/Südtirol, which is substantially above North-East and Centre and North of Italy. In contrast, only 10% of turnover scalers in Trentino-Alto Adige/Südtirol are active in high and medium high technology manufacturing, which is below the 19% in North-East Italy and the 14% in the Centre and North of Italy.

**Half of scalers are small firms with less than 20 employees at the beginning of the three-year growth period.** Another 30% of scalers have 20 to 49 employees at the start of their scale up period. Therefore, combined, 80% of scalers have less than 50 employees at the time of scaling (Figure 5). There is little difference between these numbers for Trentino-Alto Adige/Südtirol and the other regions. Therefore, employment and turnover scalers are predominantly small firms.

**Figure 5. Around 80% of scalers have less than 50 employees before scaling**

Average size at the beginning of the scale up phase by region, 2010-18

![Bar chart showing average size at the beginning of the scale up phase by region, 2010-18](image)

Note: Sc. emp. for employment scalers, and Sc. trn. for turnover scalers. North-East Italy includes firms from the regions Friuli-Venezia Giulia, Veneto and Emilia-Romagna. Centre and North Italy include Aosta Valley, Piedmont, Lombardy, Liguria, Tuscany, Marche, Umbria, Lazio, Abruzzo.

Source: OECD calculations.

In Trentino-Alto Adige/Südtirol, over a quarter of scalers are young firms (Figure 7). Young scalers are firms that are less than five years old at the start of their scale up period. At the other end of the spectrum, old firms that are at least 21 years old represent a quarter of scalers in the North-East and around 30% in Trentino-Alto Adige/Südtirol. In general, while young firms are more likely to scale, their share across all firms is substantially smaller. Hence, across all scalers, firms that are at least five years old account for 70% of all scalers. The share of young scalers in Trentino-Alto Adige/Südtirol is aligned with evidence for Italy and for the four other countries analysed by the OECD (2021[3]).
Figure 6. Half of scalers in Trentino-Alto Adige/Südtirol operate in less knowledge-intensive services

Share of scalers across sectors, 2010-18. Note the differences of horizontal scales across panels.

Note: Sc. emp for employment scalers, and Sc. tm for turnover scalers. North-East Italy includes firms from the regions Friuli-Venezia Giulia, Veneto and Emilia-Romagna. Centre and North Italy include Aosta Valley, Piedmont, Lombardy, Liguria, Tuscany, Marche, Umbria, Lazio, Abruzzo. See https://www.oecd.org/sti/ind/2stanlist.pdf for the definitions of industry groups.
Source: OECD calculations.

Figure 7. The typical scaler in Trentino-Alto Adige/Südtirol is a mature firm

Shares of scalers across age groups, 2010-18

Note: Sc. emp. for employment scalers, and Sc. tm. for turnover scalers. North-East Italy includes firms from the regions Friuli-Venezia Giulia, Veneto and Emilia-Romagna. Centre and North Italy include Aosta Valley, Piedmont, Lombardy, Liguria, Tuscany, Marche, Umbria, Lazio, Abruzzo.
Source: OECD calculations.
The average size, sector and age explain more than half of the Trentino gap in the scaler’s growth rate. Regression models are used to estimate the regional effect on the employment growth of scalers while controlling for various firm characteristics (see Box 4 for further details). Figure 8 compares the average employment growth rate of scalers in Trentino, Alto Adige/Südtirol and North-East Italy relative to scalers in North and Central Italy. The model is estimated twice, once without and once with firm characteristics. The coefficient on Trentino, Alto Adige/Südtirol and North-East of Italy indicate lower employment growth rates for scalers in the base model, with a difference of 18.1 percentage point over the three-year period of Trentino scalers, relative to those in the Centre and North of Italy. This effect is reduced to 8.5 percentage points when firm characteristics are included in the model. For Alto Adige/Südtirol, the estimated regional growth difference reduces from 23.5 to 6.0 percentage points.

Figure 8. Firm size, sector or age do not fully explain the lower prevalence of scalers and their growth in Trentino

Dependent variable: Employment growth of a scaler. Point estimates and 95% confidence intervals.

![Graph showing employment growth rates for different regions](image)

Note: The estimates are from two regression on the employment growth of employment scalers. The base regression includes only year effects, while the expanded model controls for firm size class, sector and age class. See Box 4 for further details on the estimation models. The regression is estimated using 109,301 firm-year observations, 2010-2018. Standard errors are clustered by firm. The baseline category is Centre and North Italy. North-East Italy includes firms from the regions Friuli-Venezia Giulia, Veneto and Emilia-Romagna. Centre and North Italy include Aosta Valley, Piedmont, Lombardy, Liguria, Tuscany, Marche, Umbria, Lazio, Abruzzo.

Source: OECD calculations.

The regional factors that explain why scalers in Trentino-Alto Adige/Südtirol grow at slower rate deserve further investigation. The wide confidence bands around the estimated coefficients in Figure 8 also indicate that there is large variation in the growth of scalers in the region that is not due to regional differences in firm characteristics. Further regional factors that can affect scale up may include the inability of SMEs to link well with local public and private research institutes, difficulties in hiring in the local labour market, or access to capital. However, the precise regional factors are not identified in this paper and would require further study.
Box 4. Estimating the role of regional firm characteristics using regression analysis.

The difference in the average employment growth of scalers in Trentino may be explained partly by differences in the composition of SMEs and scalers in the province relative to Centre and North of Italy. The role of differences in firm characteristics in the growth rate of scalers can be investigated with regression analysis. The following model is estimated:

$$
\text{Employment growth}_{i,t} = \beta_1 \text{Trentino}_{i,t} + \beta_2 \text{Alto Adige}_{i,t} + \beta_3 \text{North East Italy}_{i,t} + \beta_\text{size}(\text{size class})_{i,t} + \beta_\text{sector}(\text{sector})_{i,t} + \beta_\text{age}(\text{age class})_{i,t} + \beta_\text{year}_{i,t} + \epsilon_{i,t}
$$

Equation 1

Equation 1 is estimated on all Italian scalers (excluding those in the South, Sicily and Sardinia). The dependent variable is the employment growth over the three year period of scaling. The coefficients $\beta_1$, $\beta_2$ and $\beta_3$ provide the average difference of firms located in Trentino, Alto Adige/Südtirol and North-East Italy respectively, relative to firms in Centre and North of Italy.

The model is estimated twice by OLS, first without controlling for firm specific size, sector and age class effects, and second with those included. Standard errors are clustered by firm. The change in the coefficients on the three regions between the two estimates provides evidence for the role of regional variation in of firm characteristics. If the remaining effect on the three regional coefficients are close to zero and statistically insignificant, then the regional difference in likelihood and growth of scalers is explained by the firm characteristics. If, instead, the regional coefficients remain statistically significant, then other regional factors potentially still play a role the likelihood of scaling and their growth. However, it may still be possible for other unobserved firm characteristics that are not controlled for to play a role in the regional differences.

The firm characteristics can vary by firm and year in the model. Estimates with firm characteristics held constant from the first observation, provide qualitatively the similar results.
A larger employment size brings new challenges and not all scalers may be able to maintain the new scale. Founders or owners may find it difficult to step back and delegate responsibilities. They may need to comply with new regulations and deal with fiercer competition. They may struggle to find enough workers with the skills that they need. Fast growth may be built on unsustainable investments that jeopardize a firm’s financial balance. To assess whether scaling up is a sustainable process in Trentino-Alto Adige/Südtirol this section analyses the growth pattern of scalers in the three years after the first scaling-up episode.

**Scaling up is a persistent transformation for most scalers in Trentino-Alto Adige/Südtirol.** Around two out of three scalers remain at their newly achieved scale or continue to grow further in the three years after the scaling in the region, on average during the period 2010-15 (Figure 9). The most common status of scalers after their growth period is to keep at a stable size or some growth. Typically, SMEs that manage to scaler again, so-called double scalers, represent a small share of all scalers.

**Figure 9. Most scalers maintain the new scale**

Status of scalers after three year high-growth period, by age groups, 2010-15.

Note: Scalers identified based on employment growth. North-East Italy includes firms from the regions Friuli-Venezia Giulia, Veneto and Emilia-Romagna. Centre and North Italy include Aosta Valley, Piedmont, Lombardy, Liguria, Tuscany, Marche, Umbria, Lazio, Abruzzo. Status after 3 years of scalers ending their high-growth period between 2010 and 2015.

Source: OECD calculations
Older firms in Trentino are less likely to scale again relative to Alto Adige/Südtirol and Centre and North Italy. 13% of SMEs in Trentino that are older than ten years scale again. This compares with 16% in Alto Adige/Südtirol, 17% in North-East and Centre and North of Italy. Such a difference is no observed for younger scalers. Of these, 23% scale again in Trentino and Alto Adige/Südtirol, compared with 20% in North-East Italy and 21% in Centre and North. SMEs that scale twice are particularly important for employment growth. These companies increase their employment level by more than 80% over a six-year period.

For around 10% of scalers, no information is available three years after scaling; in most cases, it is likely that the company ceased operations. The share of scalers for which no information is available is in Trentino and Alto Adige is below the national average of 17% for younger firms and 10% for older firms. The lack of information is due to the firm not being present in the firm-level repositories used for the analysis or being present with missing information on employment (or turnover, in the case of turnover scalers). The lack of information is open to different interpretations. First, the firm may be closed or about to close, which is typically associated with the business not being successful. Second, the company may have been acquired by another entity, which typically indicates success rather than failure. Third, the lack of information may simply be a “nuisance” in the data, e.g., due to reporting errors. It is not possible to know the exact incidence of each of the three alternatives. However, it is known that acquisitions are rare even for growth-oriented businesses (Breschi, Lassebie and Menon, 2018[14]). Conversely, around 8-10% of businesses close down each year and this percentage is not much lower for former scalers, at least based on evidence from the United Kingdom (Anyadike-Danes and Hart, 2019[15]). Therefore, it is likely that most former scalers with missing information have ceased operations.
The mobility of firms across regions within a country can have important implications for regional economies. Firms that move may bring along talent as well as provide opportunities in their new location, while reducing employment in the place of origin. A firm may move for various reasons. For instance, firms may choose to be closer to their immediate customers, take advantage of land price and wage differences between places, or locate near relevant business clusters. Finally, place specific business incentives may play a role.

Tax incentives are one of the tools used by Trentino to attract firms. Start-ups and firms moving to the Trentino can apply for a regional tax waiver. Apart from fiscal incentives, a region can increase its attractiveness for business by offering an efficient local administration, supporting research and development clusters, for instance in collaboration with private and public research institutes, and ensure that local education and training institutions contribute to a skilled local labour force. In Trentino this is facilitated by the regional development agency, Trentino Sviluppo, and through support for local research institutes.

Mobility of firms may also imply the expansion of firms towards new regions, although this is not observed in this paper. The data only allow to observe firm movement based on the location of headquarters within Italy. This limitation is part of the headquarter bias in the data, discussed in Box 2. Additionally, international movements are not observable in the data. International mobility can be an important mechanism for regional economies, both as firms move abroad and for non-Italian firms that expand in the country. For instance, Alto Adige/Südtirol, which borders Austria on the north and has a sizable German speaking population, may function as a bridge for the Austrian and German companies wishing to service the Italian market, as well as Italian firms intending to access these foreign markets without having to establish foreign affiliates. However, the small average size of Italian companies means that the share of multi-establishment firms and of international relocations is very small. Therefore, the data limitations are unlikely to affect the main findings of this paper.

Firms that scale are on average more than twice as likely to move to another region than non-scaling firms. Figure 10 indicates that for Centre and North Italy between 2008 and 2018 on average 1.9% of all non-scaling firms move to a new region. Of the firms that scale over the observed period, 4.1% move to a new region. While this indicates that few firms relocate, firms that scale are more than twice (115%) as likely to move. The higher mobility of high-growth firms is evident across most Italian regions, except Alto Adige/Südtirol, which attracts high growth scalers proportionate to Centre and North Italian average, but substantially more non-scaling firms (9.3% of SMEs). The regions with a relatively higher inward mobility rate of all firms also tend to have a higher inward mobility of scalers. Relative to Italy, Alto Adige/Südtirol and North-East Italy, Trentino has a higher rate of firms that move in, reaching 6.2% of all of its firms that scale. In contrasts, in Alto Adige/Südtirol 4.5% of firms that scale originate from other regions.
Figure 10. Firms that scale are more mobile than other firms, especially in Trentino.

Mobile firms as percentage of all firms at destination, by scale and other firms, 2010-18.

Firms that scale are most likely to move in the years following their scale up. Figure 11 shows that mobile scalers move mostly during the three year period following scale up. In Trentino, more than 80% of newly arrived scalers, and 70% of departing scalers, move in the three years following their scale up period. This compares with 91% for leavers and 58% for arrivals in Alto Adige/Südtirol. Three out of four mobile scalers move towards Centre and North regions in the three years following their scale up period. Mobile firms can scale at their place of origin or in their place of destination. The outward mobility of firms following their scale up period may not necessarily be a job loss for the region of origin. As the move is identified based on headquarters, it is possible that some firms keep some production facilities in the origin region, while moving headquarters to a different place. Additionally, while some firms that scale leave a region, others are moving into the region and can contribute to job creation at destination.

Mobility prior or during scaling is much more limited relative to the mobility that occurs in the three years after scale up. In Trentino, 0.5% of firms that scale (13% of all mobile scalers moving out of Trentino) move away prior to scaling, while 0.4% of firms that scale (6.5% of all mobile scalers moving to Trentino) move to Trentino prior to scaling. This compares with 0.2% for arriving and 0.1% of departing scalers in North-East Italy and 0.2% in Centre and North for both directions.
Figure 11. Most mobile firms that scale move in the years immediately after scaling

Firms that move region and scale by growth phase, as a percentage of all scalers, 2010-18.

Note: North-East Italy includes firms from the regions Friuli-Venezia Giulia, Veneto and Emilia-Romagna. Centre and North Italy include Aosta Valley, Piedmont, Lombardy, Liguria, Tuscany, Marche, Umbria, Lazio, Abruzzo. The period pre scaling includes the three years prior to the (first) scale up period, and post scaling the three years after the (first) scale up period. A firm’s origin region is the region in the first year that the firm is observed in the data. For arrivals the percentage are relative to destination scalers, for leavers the percentage are relative to origin scalers.

Source: OECD calculations

Trentino and Alto Adige show a positive net inflow of scalers. Figure 12 indicates that between 2008 and 2018, for every 100 SMEs in Trentino that scale, 3.8 move out of the province and 6.2 are moving into the province. For Alto Adige/Südtirol, the flows are slightly lower in relative terms, with an outflow of 2.1 scalers every 100 local scalers, and an inflow of 4.5 firms. The region Trentino-Alto Adige/Südtirol overall is therefore a net attracter of firms that scale. Few other regions attract more scalers than lose them, notably Lombardy, and Lazio. Lombardy attracts 4.1 and loses 3 scalers for every 100 local scalers, and Lazio attracts 7.3 firms and loses 3.3 firms.

Lombardy is among the biggest contributors to the net positive inflow of scalers in both Trentino and Alto Adige/Südtirol. Scalers moving from Lombardy contribute between 1.5 and 2 percentage points to the stock of firms that scale in Trentino and Alto Adige/Südtirol. Figure 13 indicates that other large economic regions, such as Lazio and Piedmont, are as likely to be the destinations for mobile scalers from Lombardy as Trentino and Alto Adige/Südtirol, relative to the number of scalers at the destination. Friuli-Venezia Giulia is the most important region of origin of mobile scalers for Trentino and the second most important for Alto Adige/Südtirol (Figure 14).
Figure 12. Trentino-Alto Adige/Südtirol attracts more scalers than leave the region

Percentage of scalers that move in and out of regions, 2010-18.

Note: Each dot represents a region. North-East Italy includes firms from the regions Friuli-Venezia Giulia, Veneto and Emilia-Romagna. Centre and North Italy include Aosta Valley, Piemonte, Lombardy, Liguria, Tuscany, Marche, Umbria, Lazio, Abruzzo. The line indicates the diagonal, x=y. Outliers are suppressed.
Source: OECD calculations.

 Scalars tend to move to nearby locations. For Trentino the second most important destination for scalers is neighbouring Alto Adige/Südtirol, while for Alto Adige/Südtirol Trentino is the third most important destination after Lombardy and Lazio. However, while there is some mobility between Trentino and Alto Adige/Südtirol, the percentages that each province contributes to the other are small relative to the larger regions such as Lombardy. For instance, 0.66% of Alto Adige/Südtirol scalers originate from Trentino and 0.33% of Alto Adige/Südtirol scalers move to Trentino.
Figure 13. Most scalers moving to Trentino-Alto Adige/Südtirol come from the largest economic regions

Scalers moving into regions (Vertical axis) from regions (legend), % of destination scalers, 2010-18.

Note: Each dot represents a region pair. The y-axis indicates the destination, the legend gives origin of a firm. The percentages are calculated as the number of high growth firm that move from origin to destination over the total number of high growth firms at destination.
Source: OECD calculations

Figure 14. Most mobile scalers move to the regions with the largest economic regions

Scalers moving out regions (vertical axis) to regions (legend), % of origin scalers, 2010-18.

Note: Each dot represents a region pair. The y-axis indicates the origin, the legend gives destination of a firm. The percentages are calculated as the number of high growth firm that move from origin to destination over the total number of high growth firms at origin.
Source: OECD calculations
Conclusions and policy options

Scalers are an important contributor to job creation across countries and that holds true also for the Italian Autonomous Provinces of Trento (Trentino) and Bolzano-Bozen (Alto Adige/Südtirol). The performance of scalers and their age and size is similar to other Italian regions. This finding is important because it indicates that sustained and fast firm growth is possible in different types of regions. Trentino-Alto Adige/Südtirol is a mountainous and largely rural region, while the Centre, North and North-East of Italy hosts some of Italy’s largest or industrial cities.

Scalers in Trentino-Alto Adige/Südtirol contribute less to employment in comparison with the Centre and North of Italy, which can be partly explained by the sectors in which they operate. The job contribution of scalers in the region is eight new jobs for each 100 existing jobs. This compares with ten new jobs for each 100 existing jobs created by scalers in Centre and North of Italy. Scalars in Trentino-Alto Adige/Südtirol are more likely to be active in low knowledge intensive services and in social, education and health relative to the Centre and North Italy. Conversely, the share of scalers in knowledge intensive services and medium to high technology manufacturing is lower than in the other regions, which may affect the job contribution of scalers in the region.

Scalers are more mobile across regions than the average firm, and Trentino-Alto Adige/ Südtirol is successful in attracting them. Scalars that move to Trentino-Alto Adige/Südtirol outnumber those who leave the region. Mobile firms that scale relocate mostly in the three-year period after scaling up. Regional and provincial policies that support the attractiveness of places may induce some firms to relocate. Financial and fiscal incentives, facilitated by the autonomous status of both provinces, may also play a role in attracting some firms. While mobility is observed through a change in the location of headquarters, it is possible that some production facilities remain in the region of origin. Further research and more disaggregated data will be required to understand the role of multi-region expansion of scalers and how firm mobility is related to firm, industry and location characteristics.

Policies that support further growth of existing scalers can be part of the economic policy toolbox. Scalars in Trentino-Alto Adige/Südtirol appear to fall short of their full potential, compared to other regions. The sectoral composition only explains part of the gap. There is therefore room for local policies to further support the growth ambitions of existing scalers. Supporting firms through their scaling phase can be potentially effective for employment growth, regional attractiveness and private sector dynamism. Regional policies are often focused on start-up firms, including in Trentino (OECD, 2020[5]). Start-ups, however, can struggle to enter maturity and to scale up their operations. Furthermore, the evidence shows that even mature businesses have the potential to undertake a phase of fast growth. This has important repercussions on the local economy in terms of job creation and economic growth.
Trentino-Alto Adige/Südtirol can explore what constrains entrepreneurs face, specifically in high technology intensive manufacturing and high knowledge intensive services. Identifying the constraints that SMEs in these sectors face can contribute to the objective of increasing the job contribution of high growth firms in the region. For instance, the technology developed in the region’s public and private research institutes may require better linkages with local industries. In addition, credit constraints may affect firms that have the potential to scale in sectors that are more capital intensive. Moreover, scalers are growing their workforce by 60-70% over a three-year period, on average. Previous research has indicated that difficulties in recruiting workers is increasingly mentioned as a critical obstacle by SMEs.
References


Notes

1 The authors affiliation and contact details are: Wessel Vermeulen (OECD, Wessel.Vermeulen@oecd.org); Carlo Menon (OECD, Carlo.Menon@oecd.org) and Antonio Accetturo (Banca d'Italia, Antonio.Accetturo@bancaditalia.it)

2 Innovative start-ups are a specifically defined set of start-ups, which among other criteria must own a patent or exceed a threshold of spending on R&D (OECD, 2020[5]).

3 OECD (2021[3]) documents that among Italian non-micro SMEs, 44% of turnover scalers are also employment scalers, and 62% of employment scalers are also revenue scalers.


5 In this section, a scaler is any firm that experiences an employment scale up phase between 2010-18. All such firms are referred to as “firms that scale”. Each firm is linked to an origin region based on its location in the first observed year. A firm is mobile if the place of its headquarters is in a different region (or province in the case of Trentino and Alto Adige/Südtirol) between two years. The analysis excludes firms that move multiple times within the period. For brevity, turnover scalers that are not also employment scalers are not considered in this chapter.