4 Rural entrepreneurship and start-ups

This chapter focusing on characteristics of entrepreneurs and start-ups as a key component to promoting innovation in rural regions. It then focuses its analysis down to understanding characteristics of one class of innovative entrepreneur, young founders that may hinder or encourage start-up activity. Finally, it explores a counter-factual exercise that attempts to address whether differences in entrepreneurship rates among young founders are driven by individual socio-economic characteristics.

The traditional view of innovation is that it occurs in high-technology (high-tech) sectors but, as this report argues, that it comes in many forms. Some of the most relevant forms of innovations come from entrepreneurs that are considered "unicorns" (entrants that become high-growth firms), conduct disruptive activities (entrants that radically change incumbent competitor's business models) or build and innovate through marginal changes (entrants or incumbents that practice slow innovation). These types of new ("entrant") firms have tended to adopt best practices in product and process innovation to be competitive on the market.

According to research from the Future of Business Survey (OECD, n.d.[1]), start-ups in OECD countries account for approximately 14% of firms with a digital presence.[1] Entrepreneurs starting new endeavours have incentives to develop business models based on relatively new products and processes. While carving their place in the market, start-up entrepreneurs often need to find new and innovative ways of producing services and products for consumers. Understanding the conditions under which entrepreneurship occurs across regions is important for expanding our understanding of how to support innovation through entrepreneurship in rural regions.

What does innovative entrepreneurship look like in rural regions? The following section explores the basic characteristics of entrepreneurs and firms that innovate.

Firm dynamics and innovation potential for firms in rural regions

There is a strong potential for innovation through encouraging new entrepreneurship. In OECD countries, there is ample evidence suggesting that start-up entrepreneurs and small- and medium-sized enterprises (SMEs) tend to be innovative. A portion of start-ups are also highly productive (Freshwater et al., 2019[2]; Hall, 2011[3]; OECD, 2013[4]; 2019[5]). In addition, some evidence suggests that young founders are relatively innovative (Breschi, Lassébie and Menon, 2018[6]),[2] even if older entrepreneurs are prone to establishing high-growth firms (Azoulay et al., 2020[7]).

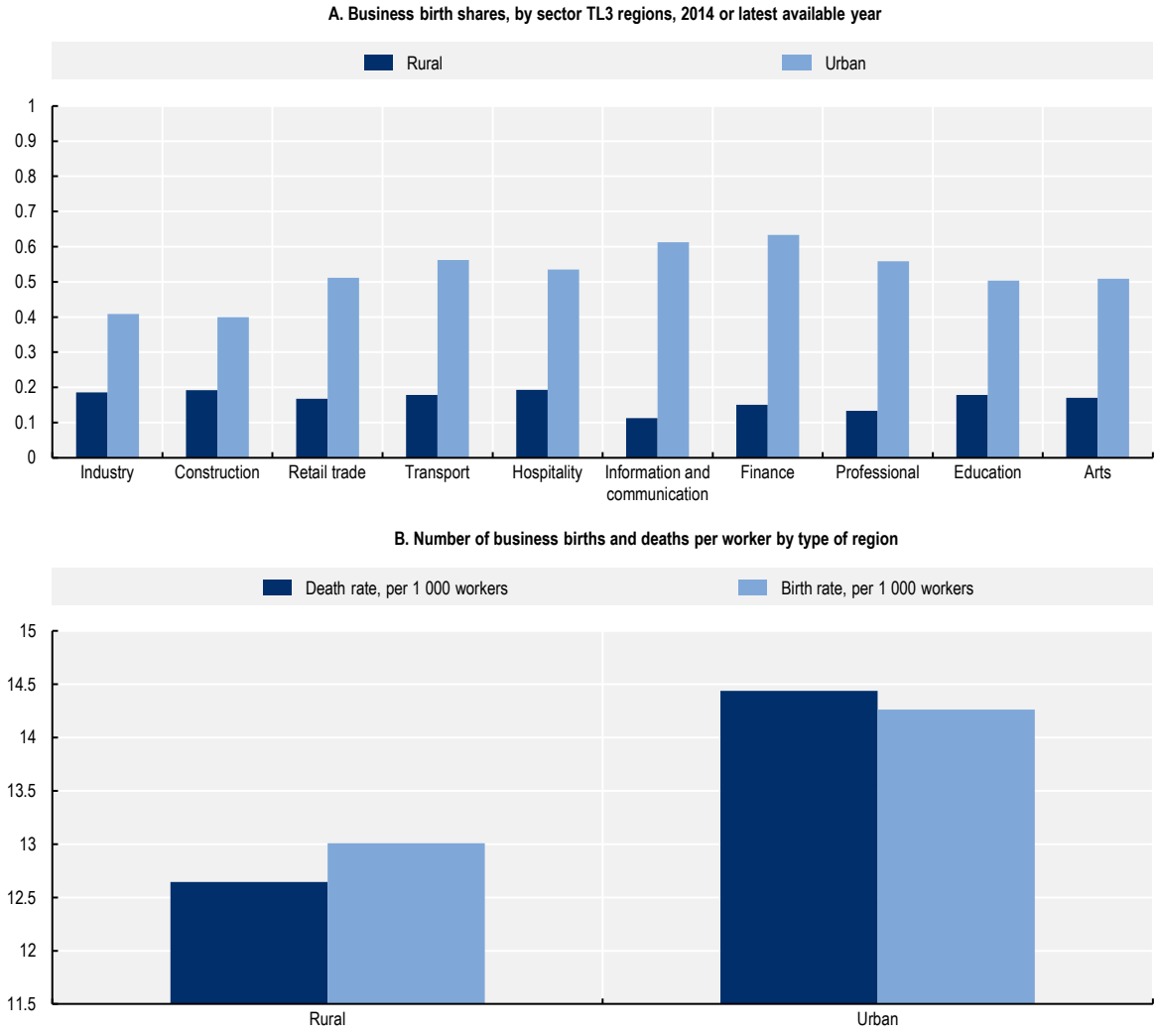
Higher start-up rates and creative destruction (firm churning, or firm birth and death rates), is often an indicator of healthy, evolving and innovative economies. In an OECD report (2017[8]) classifying regions into predominantly urban, intermediate or predominantly rural regions, firm dynamics are less active in predominantly rural regions as compared to predominantly urban regions. From the firm perspective, start-up rates are lower in predominantly rural regions (Figure 4.1).[3] One more firm per 1 000 workers is created in predominantly urban regions, as compared to predominantly rural regions. Low start-up rates in predominantly rural regions are symptomatic of barriers associated with framework conditions such as access to finance, supply chain and other resources and administrative burdens but may also reflect the sectoral or family-owned business characteristics that characterise rural economies.

A larger share of start-ups in predominantly rural regions operates in hospitality, industry and construction sectors than in predominantly urban regions (Figure 4.1).[4] These differences in sectors are not surprising. A relatively large hospitality sector is often associated with tourism and is often a feature of predominantly rural regions. For predominantly rural regions with access to natural resources and ecotourism, this is a substantial part of the economy.[5]

In predominantly rural regions, there are more new firm entrants (firm births) than closures (firm deaths). The opposite is true in predominantly urban regions, where more firms closed than started. In predominantly rural regions, 2 fewer firms per 1 000 workers closed, as compared to predominantly urban regions (Figure 4.1). While we cannot determine firm longevity with these statistics, lower firm death rates than births suggest relatively higher chances of firm survival. However, low firm death rates are an indicator of the market control of ageing firms, in particular for large firms in traditional sectors or sectors involving substantial investments. For instance, in Scotland (United Kingdom), there is evidence of ageing firms in rural areas distant from urban areas (OECD, forthcoming[9]). For rural regions, the fact that firms do not

close as quickly signals longevity, which may be explained by less competition but also the size and sector of firms that dominate rural economies.

Figure 4.1. Birth and deaths of firms by sector and type of TL3 region



Note: Business births refer to the entrant of a new firm into the market. Business deaths refer to firm closures. The first figure displays the composition of business birth and death rates by type of region and by sector of economic activity of the firm (share of births and deaths in a sector as a proportion of total births in a region). The figures by regional typology are computed as averages across countries: Austria, the Czech Republic, Denmark, Estonia, Finland, France, Hungary, Ireland, Italy, Korea, the Netherlands, Norway, Poland, Portugal and the Slovak Republic. The data refer to 2014 or the last available year. All size classes are included. The second figure depicts the firm birth and death rates (births as a proportion of the number of employees in a region in the same year) by type of region. The typology used in the 3-tier urban/rural typology. The intermediate category is excluded to increase ease of interpretation. Averages are across all firms. The agricultural sector is not included.

Source: OECD (2017[8]), *The Geography of Firm Dynamics: Measuring Business Demography for Regional Development*, https://dx.doi.org/10.1787/9789264286764-en.

In sum, there are a number of takeaways. First, rates for starting new businesses in predominantly rural regions are lower. There is more than one missing start-up in predominantly rural regions as compared to predominantly urban regions. Second, firms and individuals in predominantly rural regions do not equally participate in the same sectors as those in predominantly urban areas. Predominantly rural regions tend to have a relatively higher share of the hospitality, manufacturing industry and construction sectors.[6] Last, there is lower dynamism in predominantly rural regions, as compared to predominantly urban regions, with lower birth and death rates of firms.

Young entrepreneurs and the potential for innovation in rural regions

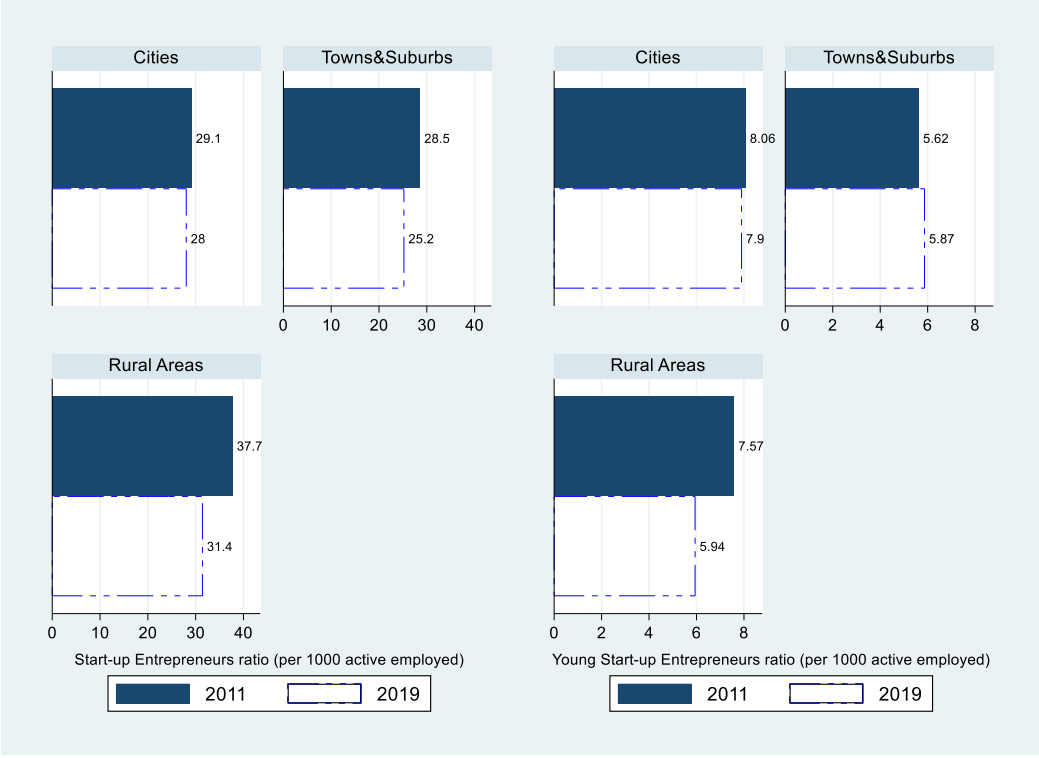
Understanding drivers of innovation in rural regions involves understanding the conditions under which individuals decide to undertake a new endeavour. To understand entrepreneurship trends, the two sections below use microdata available in the European Union Labour Force Survey (EU-LFS). The analysis of firm dynamics uses a three-tiered typology on the degree of urbanisation from the European Commission that allows for some disaggregation but does not account for many of the heterogeneities between areas. To identify entrepreneurship, we used the question asking survey respondents whether they own their own firm. To determine start-up rates, we used both the questions of whether they own their own firm and whether they were also a firm owner in the previous year.[7] The data included is cross-sectional for 2011 and 2019, with recall variables to understand trends from the previous year. When all variables are available, the data cover OECD European countries including Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Latvia, Luxembourg, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Slovenia, the Slovak Republic and the United Kingdom. There are over 5 million observations distributed with over 2.7 million in 2011 and 2.4 million in 2019.

Supporting start-ups and entrepreneurship is often one of the objectives of innovation policy. Yet, there are missing entrepreneurs across all OECD countries. This is particularly a problem for youth and women (OECD/EU, 2019[10]; OECD, 2021[11]; OECD/EC, 2020[12]), where there is still substantial room to encourage the next generation of entrepreneurs. Using European Labour Force Survey data (EU-LFS) (Eurostat[13]) from 2019, the following section highlights determinants of young start-up entrepreneurship as a subset of highly innovative firms. The EU-LFS includes responses with available data from European countries[8] and is representative of activities in large economic sectors. The dataset contains a classification of large regions (TL2) and the degree of urbanisation classification including categories for rural areas, towns and suburbs and cities.[9] While not perfectly aligned, it allows for some level of analysis on a territorial level. For the purpose of this report, we consider a start-up entrepreneur as someone who reported owning their own firm in the current year but did not own a firm in the previous year. Following the literature review (Breschi, Lassébie and Menon, 2018[6]) and available characteristics of respondents, we consider the category of workers identified within the age groups 25-29 and 30-34 as young.

In 2019, there are 3 to 6 more entrepreneurs per 1 000 active individuals in rural areas as compared to cities, and towns and suburbs respectively.[10] This number indicates the relative importance of entrepreneurship in rural regions. However, the number of new entrepreneurs fell across all types of areas from 2011 to 2019. The relative decline was much stronger for rural areas. Rural areas lost 6 entrepreneurs per 1 000 active workers, while cities only 1 and towns and suburbs 3 (Figure 4.2). In context, these changes happen in European OECD countries that are still observing regional variation in growth rates following the global financial crisis. For rural and metropolitan regions, some of the challenges from the global financial crisis meant that they were systematically being left behind.

For understanding innovative entrepreneurship, one angle governments can take is to focus on the age category of entrepreneurs that are associated with relatively higher levels of innovation and growth. As elaborated previously, young start-up entrepreneurs have an increased probability of innovative activities. However, youth often make up a lower share of the rural and non-metropolitan regional economies. This is primarily due to regional migration factors that may encourage students to take up education opportunities in other regions. Bringing opportunities to rural regions for young start-up entrepreneurs can create a mechanism through which regional governments try to address depopulation issues related to youth migration patterns.

Figure 4.2. Young start-up entrepreneurs in 2011 and 2019



Note: Ratio of young (25-34 year-old) start-up entrepreneurs to active workforce (15-64) and degree of urbanisation categories. The sample includes Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Latvia, Luxembourg, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Slovenia, the Slovak Republic and the United Kingdom. There are over 5 million observations distributed with over 2.7 million in 2011 and 2.4 million in 2019. The analysis only includes individuals aged 15-64 who are actively employed. Weights for observations are based on yearly weighting factors in thousands of observations. $Startup\ ratios_{a,d,t} := Startup_{a,d,t} / Active\ Labour\ Force_{a,d,t}$

Source: Eurostat (n.d.[13]), *European Union Labour Force Survey (EU-LFS)*, https://ec.europa.eu/eurostat/web/microdata/european-union-labour-force-survey.

Young start-up entrepreneurs are struggling in rural regions. There are 2 missing young start-up entrepreneurs per 1 000 inhabitants in rural areas than in cities. There were 8 young start-up entrepreneurs in cities and only 6 in rural areas per 1 000 actively employed individuals in 2019, resulting in 25% fewer young start-up entrepreneurs. One in 125 young working-age individuals started firms in cities, whereas rural areas 1 in 133 young individuals create firms in 2019 (Figure 4.2). This is consistent with the trend of age-based demographic changes between territories. Combined with high levels of firm churning (start-ups and closures) observed in Figure 4.1, dense areas have a larger share of young entrepreneurs, which are more likely to use newer products and processes (Breschi, Lassébie and Menon, 2018[6]). As such the

age-based distribution of the active labour force population and more specifically, entrepreneurs, sheds some light on the probability of innovating and the capacity for firms to innovate across different geographies.

There are close to 2 fewer young entrepreneurs per 1 000 active workers in European rural areas in 2019, as compared to 2011. This finding is temporally and spatially disproportionate since the share of young entrepreneurs stayed the same or grew marginally in cities and towns and suburbs (Figure 4.2). Rural areas lost close to 1 young entrepreneur per 500 active young individuals, the equivalent of the difference between rural areas and cities that is observed in 2019 (Figures 4.2 and 4.3). This comes in surprising contrast to the relatively high ratio of entrepreneurs in 2011. The change was similar for entrepreneurs between the ages of 30-34.[11] It is difficult to determine the cause of the trend. In addition to demographic change and migration, young working-age individuals move out of rural areas and there may be several other causes for this change including counter-cyclical policies and job scarcity.[12] For governments now addressing the impact of the COVID-19 pandemic, understanding start-up ecosystems for young entrepreneurs requires a territorial lens (OECD, 2021[14]).

Figure 4.3. Start-up entrepreneurs by age group, 2011 and 2019

Share of start-up entrepreneurs in the active labour force, by age category

Note: Ratio of start-up entrepreneurs to active labour (15-64 years old) within age and degree of urbanisation categories. Averages exclude depicted young categories. The sample includes Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Latvia, Luxembourg, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Slovenia, the Slovak Republic and the United Kingdom. There are over 5 million observations: over 2.7 million in 2011 and 2.4 million in 2019. The analysis only includes individuals aged 15-64 who are actively employed. Observation weightings are based on yearly weighting factors in thousands of observations. $Startup\ ratios_{a,d,t} \coloneqq Startup_{a,d,t} / Active\ Labour\ Force_{a,d,t}$
Source: Eurostat (n.d.[13]), *European Union Labour Force Survey (EU-LFS)*, https://ec.europa.eu/eurostat/web/microdata/european-union-labour-force-survey.

While entrepreneurship was growing in towns and suburbs and cities from 2011 to 2019, rural regions saw a 20% fall in entrepreneurs aged 25-29 and an 8% fall in entrepreneurs aged 30-34 (Figure 4.3). This is equivalent to a loss of 7 young entrepreneurs per 1 000 actively employed workers 25-29 years old as

compared to cities, and 8 young entrepreneurs per 1 000 actively employed workers 25-29 years old as compared to towns and suburbs. Furthermore, there are 3 missing entrepreneurs per 1 000 actively employed workers between the ages of 30-34 as compared to cities and 6 missing entrepreneurs between the ages of 30-34 per 1 000 actively employed workers as compared to towns and suburbs. The decrease in young start-up entrepreneurship in rural areas is not observed in other areas. Focusing on building opportunities for young entrepreneurs who stay in rural regions is an important avenue for distributing the benefits of innovation. The sharp fall in the share of the youngest category of entrepreneurs in rural regions suggests that there may be room for improvement to focus on policies targeted at young entrepreneurs in rural areas and interlinkages between young entrepreneurs in rural areas and those in towns and suburbs.

On a regional level, regions with a higher degree of rurality tend to have higher ratios of young start-up entrepreneurs but there is no clear pattern between the size of the active labour force and young start-up entrepreneurship (TL2 regions, Figure 4.4). For the most part, the relationship between young start-up entrepreneurship and rurality is not clearly associated with the overall size of the regional active labour market.[13] Nevertheless, several regions demonstrate both high degrees of rurality and relatively high start-up entrepreneurship among young business owners.

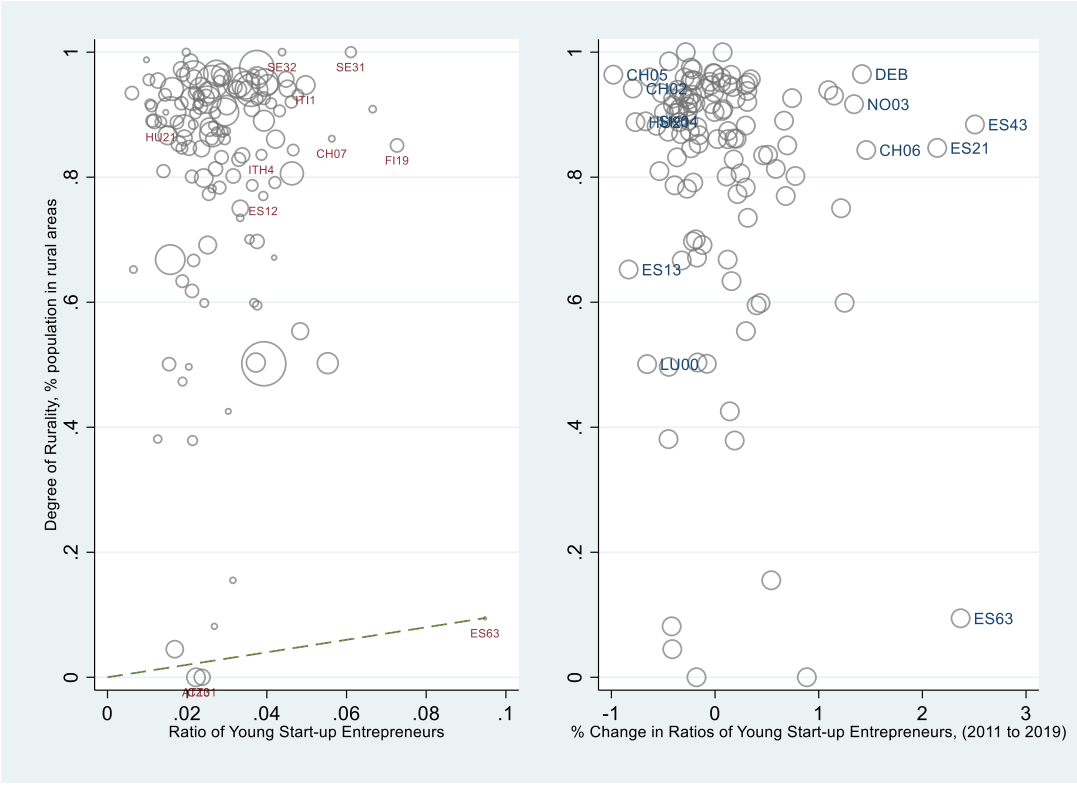
- For example, Basilicata (ITF5) in Italy, with a relatively high degree of rurality, has a government that has taken steps to provide financial grants for SMEs to support innovative projects and technological adoption.
- In the Central Transdanubia (HU21) region of Hungary, innovative activities are diffused through foreign direct investment activities and structural funds to support R&D infrastructure building and investment in new technology.
- Other notable regions with high rates of young entrepreneurship and supportive framework conditions include the Friuli-Venezia Giulia region of Italy (ITH4), which contains incubators and a science park, and the Asturias in Spain (ES12), which was awarded the European Entrepreneurial Region award for its actions to support business entrepreneurship and growth, as well as access to finance and entrepreneurship education.

In sum, the findings from this section reflect trends in firm dynamics, entrepreneurship and young entrepreneurs in rural regions. While starting a new firm occurs more frequently in rural areas, there is still a relative decline in this activity. In rural areas, the drop in start-up entrepreneurship in the younger age categories is particularly exacerbated and outpaces the changes observed in other areas. Understanding the challenges of young entrepreneurs can help bring solutions for those interested in promoting rural and regional innovation and well-being.

Characteristics of young start-up entrepreneurs in rural areas

Socio-economic backgrounds matter for understanding entrepreneurship (Aghion et al., 2017[15]). Our analysis in this section debunks the conventional wisdom that start-up entrepreneurship is typically low in rural regions. There is evidence to suggest that lower start-up entrepreneurship rates in rural regions are primarily driven by socio-economic characteristics. The analysis initially draws its findings through regression analysis, followed by the application of a decomposition procedure that provides readers with a counterfactual exercise comparing rural areas and towns and suburbs to cities (see Annex B). It primarily uses labour force survey statistics from OECD countries in Europe. While the level of analysis is on an individual basis with over 5 million observations, the geographical typology of the analysis below is based on the degree of urbanisation. Geographies are grouped together to create two groups for the exercise.

Figure 4.4. Young start-up entrepreneurs in rural regions



Note: The degree of rurality measures the share of the population that is identified as living in a non-metropolitan area within each TL2. Bubbles are weighed by the size of the active labour force.
Source: Eurostat (n.d.[13]), *European Union Labour Force Survey (EU-LFS)*, https://ec.europa.eu/eurostat/web/microdata/european-union-labour-force-survey, 2011 and 2019.

The counterfactual exercise first groups rural areas with towns and suburbs as the main group of interest, against those in cities. With these groupings, it helps us understand if all of the observable variables would be the same and whether the likelihood of a young person starting a firm would still be the same. To do this, the decomposition procedure:

- Provides an estimate of the differences in probability of becoming entrepreneurs between the two groups.
- Demonstrates what part of the probabilities are explained by observable variables (age, gender, education level, etc).
- Demonstrates whether the remaining differences between the two groups are statistically significant or simply false. To start this analysis, the rest of this section first runs simple linear probability regressions and then proceeds to the decomposition counterfactual.

As compared to young people living in cities, a young individual was 8.6% less likely to start a firm if they lived in a rural area (Figure 4.5, Panel A, and Table A B.1 in Annex B). While accounting for socio-economic, sector and country fixed effects, young individuals are significantly less likely to start firms if they live in rural areas. Comparatively, while young individuals in towns and cities may have also started fewer new firms, the data do not suggest the probability of young entrepreneurs starting new firms is significantly different from young entrepreneurs in cities. However, education levels and indicators of socio-economic welfare are important determinants of whether young individuals start firms and these characteristics often vary by territory (Figure 4.5).[14]

The main results of the regression analysis revealed a number of findings:

- **Unemployment is a major predictor of starting a firm for young entrepreneurs.** In the previous year, it is equally as important a determinant for start-up entrepreneurship in rural as in urban areas. However, this is driven by different factors in rural areas and more densely populated areas. Recent work by Navaretti and Markovic (2021[16]) suggests that firm-worker matches are less stable for younger employees in denser regions, suggesting that employee-firm sorting may have more longevity in rural regions (OECD, forthcoming[17]). Notwithstanding socio-economic characteristics of young entrepreneurs, unemployment in the previous year is a large and significant determinant of whether or not young entrepreneurs start a firm. Prior to controlling for socio-economic and territorial characteristics, young entrepreneurs were close to 60% likely to start a firm if they were not employed in the previous years. However, if we considered the likelihoods associated with other socio-economic factors such as education levels and living conditions, this probability jumped to close to the unitary value, meaning that young entrepreneurs in all types of regions do not leave jobs to start a company but rather start them after unemployment spells. Descriptively, young entrepreneurs in towns and suburbs may have a lower likelihood of starting a firm after unemployment than in other regions (Figure 4.5, Panel B) but, from the current evidence, it is not clear that the situation for young entrepreneurs is different from those in other areas.
- **Young rural entrepreneurs who start firms are more likely to still be looking for alternative sources of income and employment.** Indeed, rural entrepreneurs are more likely to simultaneously look for alternative jobs (although the significance of the correlation is weak). One explanation for this difference may be due to the expected returns from investing in entrepreneurship. If we assume that working nights and weekends is a proxy for motivation, then a positive correlation between starting a firm and working odd hours is indicative of strong incentives. Indeed, in Figure 4.5, working nights and weekends is positively associated with starting a firm as a young entrepreneur, and more so in rural regions. Young start-up entrepreneurs are more motivated in rural areas than in towns, suburbs and cities.
- **Young rural entrepreneurs have less access to training activities in the year prior to starting a firm.** Indeed, young entrepreneurs participating in training activities in the previous year are 43% more likely to start new firms. In cities, this probability increases to over 57%, while it drops to close to 26% in rural areas, towns and suburbs. While it is not possible to know the type of training a young entrepreneur receives with the available data, gaining skills in a variety of areas is nevertheless more likely to prepare entrepreneurs for the challenges of being a business owner.
- **Young rural start-up entrepreneurs tend to be more highly educated than their counterparts in cities, towns and suburbs.** Young rural individuals have a 44% higher chance of starting a firm if they have a post-secondary level of education as compared to those with primary levels of education and 30% more likely to start a firm if they have a secondary level of education. In comparison, in cities, young entrepreneurs only have a 30% higher likelihood of starting a firm given that they have a tertiary level of education and a 14% higher likelihood if they have a secondary level of education. As demonstrated in Figure 4.5, Panel B, as the education of the entrepreneur increases, so does the likelihood that they start a firm and the effect is greater if entrepreneurs live outside of cities. This trend could be either due to expected returns from entrepreneurship for highly educated individuals, limited opportunities for highly educated individuals in rural regions, or a mixture of both. To clarify this, we can look at unemployment and training trends that may indicate preparedness (Figure 4.5, Panel B).

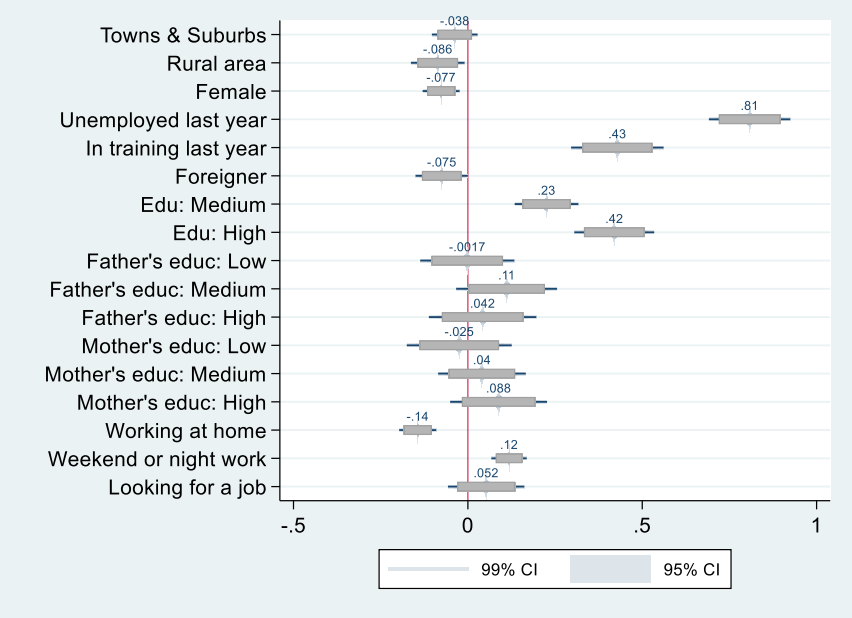
- **Young rural individuals are motivated to start new firms,** by necessity, ingenuity, or a mix of the two (Baumol, 1990[18]). A large factor in the decision to become entrepreneurs may be necessity-based rather than choice-based or as a response to local labour market mismatch. Finding the motivations for such decisions is difficult. In one thought experiment, if this type of entrepreneurship was due to necessity, we would expect a positive and significant association between working at home and starting a company. This, however, is not clearly the case. There is a negative association between working at home and starting a company in cities, towns and suburbs, and rural areas. There is no clear evidence suggesting that the majority of young entrepreneurs are starting companies out of necessity (Figure 4.5, Panel B). Entrepreneurs in different geographical areas are not measurably different from each other in their likelihood to start firms after a year of unemployment.[15] The debate on this issue is not yet closed and there may be other interpretations of whether young entrepreneurs are creating firms out of necessity or out of ingenuity. However, it is important to consider that both types of entrepreneurship can lead to innovative outcomes, as long as one creates the correct opportunities for entrepreneurship.

  The evidence on training, education and motivation suggests that young start-up entrepreneurship in rural areas is in part due to a lack of alternative opportunities, in particular for the more highly educated cohorts. This is the case even if rural start-up entrepreneurs are more motivated than counterparts in other areas. For governments, the message from this analysis is that there is still a high demand for entrepreneurship opportunities in rural regions, whether it is due to a lack of alternatives or due to entrepreneurial motivation. To close the territorial gap, governments should support young entrepreneurs in their efforts to create opportunities in rural regions by removing barriers to opening firms and support for continued growth and development. Resources may be better allocated to reducing barriers to entrepreneurial growth and development in the local areas, while simultaneously focusing on providing skills and training to support entrepreneurs in rural regions.
- **Socio-economic backgrounds matter across territories.** Understanding parental education as a predictor of socio-economic background may help shed light on the household and socio-economic context of entrepreneurs. Parental education can be interpreted as a proxy for household socio-economic status, in particular when the young entrepreneur lives within the same household as the parents. In Figure 4.5, Panel B, we find that young entrepreneurs tend to have fathers with secondary education. If we assess this correlation by territorial type, we find that the relationship between fathers' education and entrepreneurship is only statistically significant for entrepreneurs in cities.

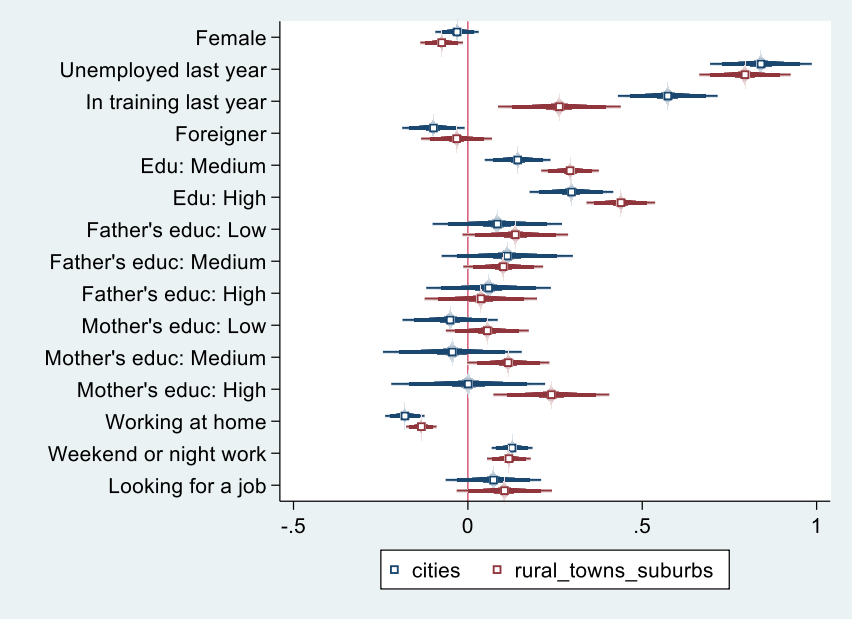
  A mother's education level, as a proxy for household socio-economic background, is particularly important for entrepreneurship in rural areas, towns and suburbs. In these areas, a young individual is 25% more likely to start a firm if they come from a household with a highly educated mother. Trends in the role of parents' education align with the assessment that entrepreneurship in rural areas is relatively more deliberate than in cities, and not out of necessity. If the father's education levels are closely tied to income and capital, as the literature suggests, then young entrepreneurs with family-based capital stock may be more deliberate in their entrepreneurial endeavours simply because they have relatively better access to resources, in particular if they start the company while living in the family household. Having a more educated mother (and, by proxy, with higher socio-economic status) may encourage children to pursue entrepreneurship in towns and suburbs.[16] Making public services more suitable for women entrepreneurs (including highly educated ones), for example by encouraging the adequate provision of quality childcare, adequate employment and entrepreneurship activities, safe neighbourhoods, affordable housing and better schools, increases entrepreneurial opportunities in rural areas, towns and suburbs. For governments, gender-blind territorial planning is a missed opportunity to reap the gains from the decades' worth of advances in gender equality.

Figure 4.5. Young start-up entrepreneurship probabilities, 2011 and 2019

A. Probability of starting a firm as a young entrepreneur, all areas, 2019



B. Probability of starting a firm as a young entrepreneur by area, 2011 and 2019



Note: Unreported controls include occupation (ISCO - International Standard Classification of Occupations), sector (NACE - Nomenclature of Economic Activities) and country fixed effects. The base groups for each categorical variable are as follows: cities for territorial indicators; low education for education level; and father or mother not living in the same household for the educational level of parents. Standard errors are clustered at the regional level (TL2). Confidence Intervals are reported at the 95% and 99% levels.

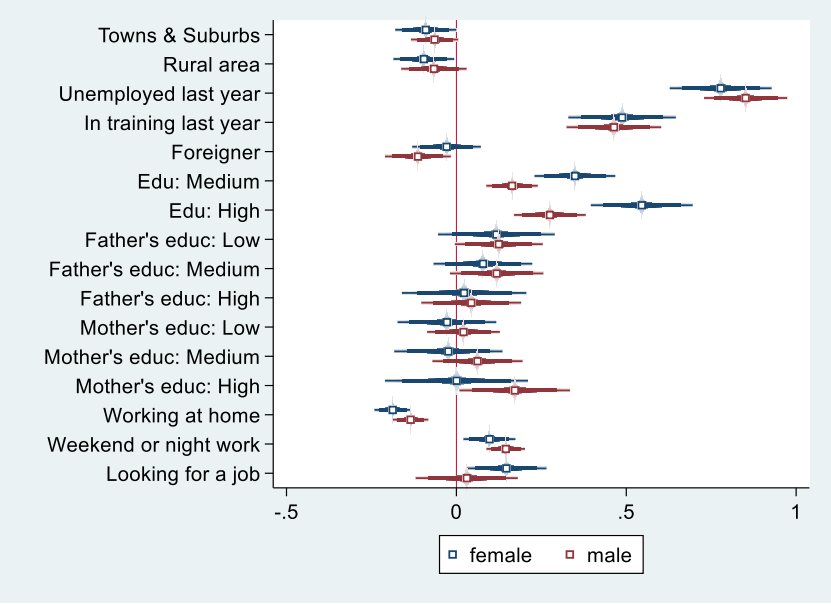
Source: Eurostat (n.d.[13]), *European Union Labour Force Survey (EU-LFS)*, https://ec.europa.eu/eurostat/web/microdata/european-union-labour-force-survey.

- **Young foreigners are less likely to start firms in cities, as compared to rural areas, towns and suburbs.** While the likelihood of becoming a young entrepreneur is 7.5% lower for foreigners as compared to natives, this is mostly driven by foreigners in cities. In rural areas, towns and suburbs, this difference is negligible. Evidence from the perspective of the United States suggests that there are strong hubs of immigrant entrepreneurship (in some cases with over 40% of new firms being started by migrants) in some densely populated areas, such as California, New York and New Jersey. These are often also associated with high levels of innovation (Pekkala Kerr and Kerr, 2020[19]). The academic literature on innovation, entrepreneurship and migration often finds that foreigners positively contribute to innovation and the transfer of new knowledge and expertise (Azoulay et al., 2020[20]; OECD, forthcoming[21]). Increasing the flow of migrant entrepreneurs and opportunities for entrepreneurship among foreigners can provide an avenue for improving dynamism and innovation diffusion in local markets. While further analysis is needed to understand the type of migrants that are most prone to innovative entrepreneurship in rural areas, migrant integration and assimilation policies that encourage foreign settlement in less dense areas are likely to bring a variety of skills and capital that encourages entrepreneurship and innovation ecosystem.
- **Last, young female entrepreneurship is lagging, particularly in towns, suburbs and rural regions**. Many factors impact young female entrepreneurship, including access to formal and informal networks, financial capital, human capital and government resources (OECD, 2021[11]). The qualitative findings align with quantitative findings that suggest that young women are less likely to start companies in particular in towns and suburbs (Figure 4.5 and Table A B.1 in Annex B).

Young women in rural areas, towns and suburbs tend to start more firms when they are more highly educated (Figure 4.6). While young men also tend to start firms when they are more educated, education is less of a predictor of starting a firm for men than it is for women. In rural areas, towns and suburbs, women tend to have higher levels of education than their male counterparts. The higher her educational attainment, the more likely she is to become an entrepreneur in rural areas. If women in rural areas, towns and suburbs have a tertiary level of education, they are 55% more likely to start a firm than if they had a low level of education. For men, this number is lower at 27.5%. Women are more likely to start a firm while working from home and anecdotally tend to have a different sectoral focus in business endeavours, for instance in service and hospitality sectors that have a higher share of rural economies and lower wages. Female entrepreneurship, like male entrepreneurship, is dependent on access to capital and labour resources, in addition to the quality of public services and welfare policies. Focusing on levelling the playing field in the opportunities for men and women, by providing adequate public sector support for female entrepreneurship and encouraging entrepreneurship across all sectors, is an important step in encouraging female entrepreneurship in productive and transitioning sectors.

In sum, young entrepreneurs are 8.5% less likely to start a firm if they live in rural areas. This penalty is majorly determined by training and education opportunities, as well as socio-economic characteristics of young people, including with migrant status, and their parents. Women are at a particular disadvantage as having a higher (post-secondary) level of education is a stronger determinant than for men. Last, unemployment may be a high motivator for starting a new firm and those that set up a business in cities, often have better access to education and training, providing them with an advantage in their entrepreneurial journey.

Figure 4.6. Gender differences in young entrepreneurship rates, towns, suburbs and rural areas, 2011 and 2019



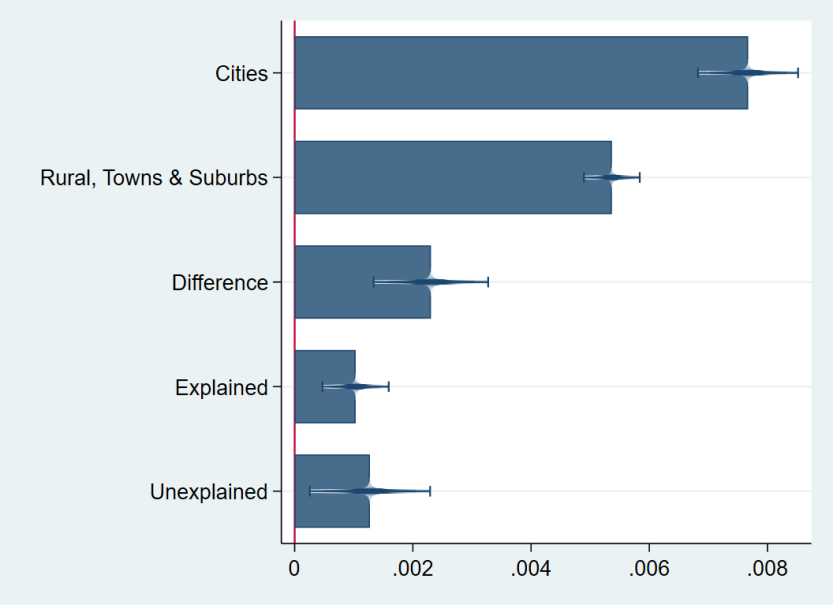
Note: Unreported controls include occupation (ISCO), sector (NACE), year and country fixed effects. The base groups for each categorical variable are as follows: cities for territorial indicators; low education for education level; and father or mother not living in the same household for the educational level of parents. Standard errors are clustered at the regional level (TL2). Confidence Intervals are reported at the 95% and 99% levels. Observations in cities are excluded from these regressions. This table excludes individuals living in cities.
Source: Eurostat (n.d.[13]), *European Union Labour Force Survey (EU-LFS)*, https://ec.europa.eu/eurostat/web/microdata/european-union-labour-force-survey.

Understanding alternative scenarios for young entrepreneurs in rural areas

It is important to understand the degree to which differences in entrepreneurship rates are due to individual characteristics or the general ecosystem of the entrepreneurial environment. This section of the report examines this question through a counterfactual exercise by separating the part of the analysis that contributes to observable differences versus those that are attributed to unknown factors. These unknown factors may be related to different framework conditions outside of the control of the young individuals. To counterbalance this, we can generate a counterfactual analysis that projects scenarios where observable characteristics are equivalent. One such method is the Oaxaca-Blinder decomposition, further explained in Annex 3.A, which decomposes differences in outcome variables between two groups as belonging to observable and non-observable characteristics. For the purpose of measurement and statistical power, and in line with the counterfactual model, the analysis needs to be split into two groups. While rural areas are often more remote than towns and suburbs, much of the policy literature assesses parts of towns and cities as being relatively more akin to rural areas than to cities. Therefore, for this part of the analysis, rural areas are grouped with towns and suburbs.

The decomposition analysis in Figure 4.7 demonstrates that, when controlling for observable factors, the difference between entrepreneurship probability in cities versus rural areas, towns and suburbs is small and close to 0.2% (meaning rural areas have a 0.2% lower chance). The difference between the two groups is significant. Around half of the difference is explained by observable characteristics like education, gender, training, parents' education (and by proxy socio-economic status), migration status and whether they are working from home or the office, or if they work nights and weekends. Once we control for these characteristics, there remains a large share of unexplained factors that impact the decision to start new firms.

Figure 4.7. Decomposition of the probability of becoming a young start-up entrepreneur



Note: Controls include sector, occupation and country fixed effects. All standard errors are clustered at the regional (TL2) level. Confidence intervals are reported at the 95% and 99% levels. The coefficients are the following: cities 0.0077; rural areas, towns and suburbs 0.0053665; difference 0.0023; explained 0.0010; and unexplained 0.0013. All estimates are significant at the 95% confidence level. All coefficients are also significant at the 99% confidence interval.
Source: Eurostat (n.d.[13]), *European Union Labour Force Survey (EU-LFS)*, https://ec.europa.eu/eurostat/web/microdata/european-union-labour-force-survey.

Socio-economic factors explain half of the territorial disparity. If entrepreneurs in rural areas and towns and suburbs had the same socio-economic profiles and sectoral and regional attributes,[17] the gap between the probability of becoming a start-up entrepreneur would drop by close to 50%.

The message from this analysis is twofold. First, individuals in less dense areas are hindered by having a different set of opportunities than those in cities. Second, ensuring equal access to public services including educational opportunities or other regional framework conditions is an important aspect of encouraging entrepreneurial dynamism associated with innovation, but there is still more to be done to level the playing field.

The explained portion of the analysis is useful for targeting a few key policy areas where governments can begin to address how to reduce the gaps between less dense areas and cities. However, half of the difference between entrepreneurial rates for young people remains unexplained and is likely attributed to rural-specific factors or challenges. These can include, among others, barriers to entrepreneurship due to access to finance, labour, physical and digital markets and government services and linkages within and between the local economy and other areas, as well as regional attributes.[18]

Access to education and access to digital infrastructure are two increasingly important framework conditions for rural innovation. For example, expanding access to quality education from a young age, vocational education opportunities and entrepreneurial training services are particularly relevant to ensure equal opportunities to participate and benefit from rural innovation. Furthermore, enabling access to quality and affordable digital infrastructure is increasingly important in a digitalised economy both for economic growth but also for access to digital education and health services (OECD, 2021[22]; forthcoming[23]).

In sum, the penalty associated with young entrepreneurs in rural areas, towns and suburbs, exists and is statistically significant. However, for the large part, it is explained by socio-economic differences and sectoral and regional attributes. What remains is likely explained by various framework conditions, networking spill-overs and regional aspects that are not easily captured in the model.

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Notes

[1] This refers to the unweighted average of shares of companies that have been incorporated less than one year ago and have a media presence (Facebook page). The statistic is the average of four months including December 2017, January, February and April 2018. The survey was not conducted in March 2018. The data were collected on a monthly basis from 2016 to 2018 as part of the Future of Business Survey collaboration between Facebook, OECD and the World Bank.

[2] Using a database of start-ups (Crunchbase) and patent data, Breschi, Lassébie and Menon (2018[6]) find that firms with founders between the ages of 28 and 33 tend to be more innovative. This is the basis for the age categories used to focus the analysis on characteristics of innovative entrepreneurs.

[3] From the perspective of individual entrepreneurs, predominantly rural regions also suffer from relatively lower entrepreneurs than predominantly urban regions (Figure 4.3).

[4] Unfortunately, comparable data sources that include the agricultural sector are not available.

[5] It is also notable that due to data limitations, the agricultural sector, an activity in predominantly rural and intermediate regions, is often omitted from such analysis.

[6] The analysis unfortunately excludes the agricultural sector, which is often more dominantly represented in rural regions.

[7] There is room to assess that some ownership may be related to mergers, or family acquisitions, however, at least for young individuals, this is this less often a concern. It remains an approximate indicator of

start-up entrepreneurship that allows some socio-economic analysis that may, in other cases, require more complicated and less comparable harmonisation of employee-employer databases across countries.

[8] The countries in the survey that contained sufficient variables for this analysis included the Czech Republic, Estonia, Germany, Greece, Hungary, Latvia, Lithuania, Norway, Portugal, the Slovak Republic and Spain.

[9] Eurostat's degree of urbanisation in the 2019 EU-LFS categorises areas based on the 2011 population grid and the 2016 local administrative unit (LAU) boundaries. It classifies areas based on the share of local population living in urban clusters and urban centres, LAUs or communes into three types of areas: cities (densely populated areas), towns and suburbs (intermediate density areas) and rural areas (sparsely populated areas). All statistics using the EU-LFS are weighted population estimates.

[10] Entrepreneurial ratios per 1 000 working-age individuals for 2019 are 29 in cities, 28.5 in towns and suburbs and 31.4 in rural areas. Start-up rates in this analysis is based on the proportion of entrepreneurs who were not business owners in the previous year. From the perspective of business owners in the labour force statistics, any differences between start-up rates using labour force data and those using firm data may reflect different trends in multiple-owner firms, or due to the sample of countries included in each of the databases.

[11] More analysis of the motivation of the different types of entrepreneurship will be explored in subsequent sections.

[12] The relatively high levels of rural young entrepreneurs in 2011, right in the aftermath of the global financial crisis, may reflect entrepreneurship as an obligation – for example, in the face of low scarce job opportunities – rather than a choice. If entrepreneurship by obligation leads to entrepreneurship in saturated markets, this suggests that this type of entrepreneurship may not necessarily be as innovative. Alternatively, the high level of entrepreneurship in 2011 and drop in 2019, may reflect the medium- and long-run distributional impacts of the Global Financial Crisis creating an environment where firm ownership is riskier and potential entrepreneurs are hesitant.

[13] This is captured by the markers weighted by the size of the labour force in left panel of Figure 4.4. While the relationship is noisy, assessing rurality within TL2 regions allows for incorporating intermediate areas more akin to rural regions than cities into the analysis.

[14] A mother's education level, as a proxy for household socio-economic background, is particularly important for entrepreneurship in rural areas, towns and suburbs. In these areas, a young individual is 25% more likely to start a firm if they come from a household with a highly educated mother.

[15] In a linear probability (probit) model with interaction terms on previous year unemployment and degree of urbanisation, estimation results were not significant for any interactions.

[16] In a fertility- and household-decision-making context, more educated women may decide to have more children only outside of dense cities (or rural areas). With increasing rates of female educational attainment over the past decades and the household decision-making choices of more educated mothers tending to favour human capital investment in children, the growth of female education in previous decades is continuing to have an impact on intergenerational outcomes.

[17] These include gender, unemployment status, education levels, socio-economic background, motivation, industry, occupation and more general attributes associated with regions (regional fixed effects).

[18] These do not refer to regional characteristics. If we exclude regional level effects that often capture time-invariant macro-economic framework conditions, the decomposition shows a much higher level of differences between the two groups that remains unexplained.