



REPORT

2023/2024

Global Entrepreneurship Monitor Luxembourg



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Executive summary

Entrepreneurship is widely recognised as a key driver of job creation, technological advancement, and economic growth. As a result, policymakers design programs to support and encourage entrepreneurial efforts worldwide. Since 1999, the Global Entrepreneurship Monitor (GEM) initiative studies entrepreneurship and provides evidence for policy actions. To these purposes, GEM collects data through surveys that are conducted annually in many countries. These data provide insights into entrepreneurial activities, features and traits of entrepreneurs, and entrepreneurial ecosystems. Luxembourg joined the GEM project in 2013. Since then, GEM Luxembourg's country reports present unique information on entrepreneurial activities in the country.

GEM Luxembourg 2023/2024 describes the state of entrepreneurship in Luxembourg in a comparative perspective. It documents the evolution of entrepreneurship in Luxembourg over time, focusing on key indicators of entrepreneurial intensity, provides information on the characteristics of the entrepreneurs, and on the country's entrepreneurial environment. Recent years have been marked by multiple shocks: the COVID-19 pandemic, the emergence of geo-political conflicts, inflationary pressures, and worsening credit conditions. In this context, the report illustrates recent developments in entrepreneurship to provide information on the consequences of the global environment on Luxembourg's entrepreneurs. It also presents evidence on entrepreneurship and sustainability, a theme which is high on the public agenda. What is more, it links entrepreneurship and business dynamism, providing information on firm creation in Luxembourg, and on financing conditions for entrepreneurs. The main takeaways of this report are as follows:

Entrepreneurial activity and intentions recovered in Luxembourg to pre-pandemic levels in 2023, although recent data indicate a slowdown in business creation.

- *Entrepreneurial intentions* have rebounded in recent years. In 2023, 19% of survey participants declared they are planning to start a business in the

upcoming three years, confirming this tendency. Entrepreneurial intentions are comparatively high in Luxembourg.

- In Luxembourg, *Early-stage Entrepreneurial Activity (TEA)* has rebounded to pre-pandemic levels. In 2023, the TEA rate for Luxembourg increased to 9.7% from a historic low of 7% recorded in 2022. Luxembourg's TEA is also slightly above the European country-average (9.2%), which places it in the middle of the international ranking.
- *Entrepreneurship quality.* Luxembourg, a “strong innovator” according to the European Innovation Scoreboard (European Commission et al., 2023), ranks first in terms of the proportion of entrepreneurs that declare to be innovative (40% in Luxembourg compared to 30% on average). What is more, Luxembourg has a considerable lower-than-average necessity-driven entrepreneurship (47% of Luxembourg's entrepreneurs report having started a business to earn a living because jobs are scarce compared to the cross-country average of 58%).
- Since 2013, *births of new firms have outnumbered closures* in Luxembourg. Recent register data for 2023 and 2024, however, indicate a considerable slow-down in business creation. This observation, also apparent when comparing Luxembourg to selected countries, is in line with the latest figures for the GEM indicators on established entrepreneurs and entrepreneurial exits.

Luxembourg's entrepreneurs report difficulties in access to funding, and in the availability of office spaces and human resources.

- Primary concerns of early-stage entrepreneurs appear to be the availability of adequate office space (55% of entrepreneurs), funding (40%) and human resources (36%). While many barriers indicators have improved over time, there are signs of deterioration in the recent survey wave, concerning the same indicators, e.g. human resources, funding and office spaces.

Perceptions of business opportunities and growth expectations are worsening, suggesting there might be challenges ahead.

- Residents perceiving good opportunities to start a business decreased from 52% in 2022 to 49% in 2023, in line with what was reported in other European countries. In 2023, 38% of entrepreneurs reported low growth expectations, the highest share among observed European countries, against a cross-country average of 28%.
- Yet, respondents report that *starting a business is easy in Luxembourg*. In 2023, 60% of respondents reported that it is easy to start a business in the country, relatively high compared to other European countries (approximately 50%).

- *Fear of failure* - measured as identifying good opportunities, but not starting a business for fear it might fail – increased in recent years (44% in 2022, 47% in 2023), but is broadly in line with cross-country averages (45%).

Luxembourg's entrepreneurs report strong commitment to social and environmental sustainability.

- In 2023, 54% of entrepreneurs declared to be actively engaged in maximising social impact; 66% reported to be actively engaged in minimizing environmental impact. This places Luxembourg high in a cross-country ranking.
- Data indicate that reporting of sustainability practices has been increasing among Luxembourg's firms, which support the view of growing sustainability awareness and commitment. The percentage of firms reporting their sustainability practices online increased from 14.7% in 2014 to 21.4% in 2022.
- *Entrepreneurship gender gap*: women have a lower propensity to engage in entrepreneurship than men. (In 2023, the share of TEA women entrepreneurs was 8.7% against 10.6% for men). Among those who start new businesses, no significant gender differences exist in terms of engagement in sustainable practices.
- Immigrants make significant contributions to entrepreneurship in Luxembourg, also in terms of sustainable entrepreneurship.

Contents

1	Introduction	3
2	The GEM research approach	9
2.1	The GEM conceptual framework	10
2.2	GEM surveys	13
2.2.1	Adult population survey (APS)	13
2.2.2	National experts survey (NES)	14
3	Entrepreneurship in Luxembourg over time	17
3.1	Quantifying entrepreneurial activity	19
3.2	The entrepreneurial environment: respondents' traits, attitudes and perceptions	22
3.2.1	Socio-demographic characteristics of respondents	24
3.3	The profile of entrepreneurs	31
3.4	Entrepreneurial motivations	34
4	Entrepreneurship in Luxembourg: a comparative perspective	37
4.1	Entrepreneurial activity in Europe	40
4.2	The entrepreneurial environment: respondents' traits, attitudes and perceptions	44
4.3	Features of entrepreneurship: motivations, innovation and expectations	49
5	Entrepreneurship and business dynamism	57
5.1	Entry, registrations and bankruptcies	60
5.2	Business venture creation in a comparative perspective	65
6	The ecosystem for entrepreneurship in Luxembourg: barriers, enablers and policy actions	69
6.1	Barriers to entrepreneurship	70
6.2	Exhibit: The OECD scoreboard on Financing SMEs and entrepreneurs	72
6.3	Policy actions for entrepreneurship	74
7	The 2023 special topic: Sustainable Development and entrepreneurship	81
7.1	United Nations Sustainable Development Goals	83
7.2	Sustainability considerations and entrepreneurship across Europe . .	85

7.3	Sustainability implementation	86
7.4	Exhibit: Reporting sustainability practices in Luxembourg.	89
7.5	Exhibit: Profile of the sustainable entrepreneur.	92
8	Entrepreneurial framework conditions: the NES survey	95
9	GEM Indicators	99
	Bibliography	103

Introduction

1

The Global Entrepreneurship Monitor (GEM) is an international research programme launched in 1999 to study entrepreneurship. For this purpose, GEM collects data through surveys that are conducted annually in many countries. The harmonised cross-country data provide insights into entrepreneurial activities, their impact, characteristics of entrepreneurs and those of entrepreneurial ecosystems, serving as evidence for policy actions. STATEC joined this endeavour in 2013 in collaboration with Luxembourg's Ministry of the Economy and the Chamber of Commerce. Since then, Luxembourg's GEM reports have provided unique information on the intensity and evolution of entrepreneurial activities in the country. What is more, GEM provides information on individual traits of entrepreneurs, the challenges they face, their attitudes and perceptions, and the context in which they operate, including the policy environment, all in a comparative perspective.

In recent years, the economic environment has been characterised by considerable uncertainty. The outbreak of the coronavirus pandemic in early 2020 represented an unprecedented exogenous shock, which caused a sudden worldwide economic contraction. The recovery that followed has been accompanied by emerging geopolitical tensions and inflationary pressures, linked to supply chains issues and increasing energy and raw materials' prices. As a result of inflation, interest rates have been increasing, affecting, in turn, credit conditions for consumers and businesses. Previously, GEM documented the impact of the severe economic shock caused by the pandemic on entrepreneurship. Luxembourg featured a contraction of early-stage activities and entrepreneurial intentions, accompanied by pessimistic views on business opportunities. In 2022, GEM data highlighted some positive signals, with entrepreneurs envisioning new opportunities, and first signs of recovery in entrepreneurial intentions.

The current report describes the state of entrepreneurship in Luxembourg in a comparative perspective. It documents the evolution of entrepreneurship in Luxembourg over time, focusing on key indicators of entrepreneurial intensity, including early stage entrepreneurship and established business ownership. It also provides information on the individual characteristics of the entrepreneurs, and on population traits, perceptions and sentiments that shape the entrepreneurial environment in the country. The indicators are compiled using data from Luxembourg's GEM Adult Population Survey (APS) collected over the period 2013 – 2023, and the cross-national dataset harmonised by the global consortium. These data provide the reference points for the assessment of entrepreneurship trends and features in the country, including aspects of the recent evolution in entrepreneurship. They also help us gauging the consequences of the new global environment on entrepreneurial activities and entrepreneurs. The report also includes a chapter on sustainable entrepreneurship. Indeed, the climate crisis remains a global challenge, and social and environmental sustainability are now primary public concerns. The role of entrepreneurship in adap-

tation and mitigation of climate change, and in reaching sustainable development goals, is recognised and described by the UN General Assembly's Resolution 75/211 adopted in December 2020. This is reflected in the GEM's questionnaire, which in 2022 and 2023 included a special module on sustainable entrepreneurship.

The report is structured as follows. Chapter 2 presents the GEM conceptual framework, which shapes the data collection and the structure of the report. It also provides a general description of the surveys and of GEM main indicators. Chapter 3 documents the evolution of entrepreneurship in Luxembourg over time, using data from the 2013 – 2023 waves of the GEM Adult Population Survey (APS). The chapter describes individual features of the entrepreneurs in the country, and aspects of the business environment and traits of the general population that shape the entrepreneurial environment in the country. Chapter 4 provides a comparative analysis of entrepreneurship in Luxembourg and Europe using global GEM data, giving additional insights into the country's recent entrepreneurial trends, and impact and quality of entrepreneurship. As entrepreneurship is strictly related to business dynamism, and specifically to the creation of new ventures, Chapter 5 presents evidence on entrepreneurial dynamism drawn from the Luxembourg Business Register and STATEC's Business Demography. Chapter 6 uses data from a set of GEM's APS specific questions for Luxembourg to provide information on barriers, enablers and policy initiatives to foster entrepreneurship in Luxembourg. Chapter 7 reports results from the 2023 Global GEM's special module on sustainable entrepreneurship, specifically reporting on entrepreneurs' sustainability considerations in business decisions making and actions. Finally, Chapter 8 reports on the GEM National Expert Survey (NES), which delivers a qualitative description of the national entrepreneurial ecosystem according to experts' evaluation. The report also features exhibits on sustainability reporting by Luxembourg's firms in Luxembourg, engagement in sustainable entrepreneurship, and financing conditions for SMEs and entrepreneurs.

The main results from the analysis presented in this report are as follows:

- **Entrepreneurial activity and intentions rebounded in Luxembourg in 2023, although recent data indicate a slowdown in business creation.**
- *Entrepreneurial intentions* have rebounded in recent years. In 2023, 19% of survey participants declared they are planning to start a business in the upcoming three years, confirming this tendency. Entrepreneurial intentions are comparatively high in Luxembourg.
- In Luxembourg, *Early-stage Entrepreneurial Activity (TEA)* has rebounded to pre-pandemic levels. In 2023, the TEA rate for Luxembourg increased to 9.7% from a historic low of 7% recorded in 2022. Luxembourg's TEA is also slightly

above the European country-average (9.2%), which places it at the middle of the international rank.

- *Entrepreneurship quality.* Luxembourg, a “strong innovator” according to the European Innovation Scoreboard (European Commission et al., 2023), ranks first in terms of the proportion of entrepreneurs that declare to be innovative (40% in Luxembourg compared to 30% on average). What is more, Luxembourg has a considerable lower-than-average necessity-driven entrepreneurship (47% of Luxembourg’s entrepreneurs report having started a business to earn a living because jobs are scarce compared to the cross-country average 58%).
- Since 2013, *births of new firms have outnumbered closures* in Luxembourg. Recent register data for 2023 and 2024, however, indicate a considerable slow-down in business creation. This observation, also apparent when comparing Luxembourg to selected countries, is in line with the latest figures for the GEM indicators on established entrepreneurs and entrepreneurial exits.
- **Luxembourg’s entrepreneurs report difficulties in accessing funding, and in the availability of office spaces and human resources.** Primary concerns of early-stage entrepreneurs appear to be the availability of adequate office space (55% of entrepreneurs), funding (40%) and human resources (36%). While many barriers indicators have improved over time, there are signs of deterioration in recent survey wave, concerning the same indicators, e.g. human resources, funding and office spaces.
- **Perceptions of business opportunities and growth expectations are worsening, suggesting there might be challenges ahead.** Residents perceiving good opportunities to start a business decreased from 52% in 2022 to 49% in 2023, in line with what reported in other European countries. In 2023, 38% of entrepreneurs reported low growth expectations, the highest share among observed European countries, against a cross-country average of 28%.
- Yet, respondents report that *starting a business is easy in Luxembourg*. In 2023, 60% of respondents reported that it is easy to start a business in the country, relatively high compared to other European countries.
- *Fear of failure* - measured as identifying good opportunities, but not starting a business for fear it might fail – increased in recent years (44% in 2022, 47% in 2023), but is broadly in line with cross-country averages (45%).
- **Luxembourg’s entrepreneurs report strong commitment to social and environmental sustainability.** In 2023, 54% of entrepreneurs declared to be actively engaged in maximising social impact; 66% reported to be actively engaged in minimizing environmental impact. This places Luxembourg high in a cross-country ranking.
- Data indicate that reporting of sustainability practices has been increasing among Luxembourg’s firms, which support the view of growing sustainability

awareness and commitment. The percentage of firms reporting online their sustainability practices increased from 14.7% in 2014 to 21.4% in 2022.

- *Entrepreneurship gender gap*: women have a lower propensity to engage in entrepreneurship than men. (In 2023, the share of TEA women entrepreneurs was 8.7% against 10.6% for men). Among those who start new businesses, no significant gender differences exist in terms of engagement in sustainable practices.
- Immigrants make significant contributions to entrepreneurship in Luxembourg, also in terms of sustainable entrepreneurship.

Table 1.1 summarises selected key GEM indicators, their evolution compared to the year 2022, and Luxembourg's rank among European countries participating in GEM.

Table 1.1: Dashboard of key GEM indicators

	Luxembourg		Europe		Luxembourg's Rank		
	2023	2022	2023	2022	2023	2022	Change
<i>1. Perceptions</i>							
Good business opportunities	49.3	52.4	51.1	48.4	11 th	8 th	●
Knowledge and skills	50.2	50.0	52.1	50.6	12 th	8 th	●
Fear of failure	47.3	44.1	45.2	44.8	7 th	11 th	●
<i>2. Activities</i>							
Nascent	15.7	13.7	12.0	11.3	5 th	7 th	●
TEA	9.7	7.0	9.2	9.0	10 th	15 th	●
EBO	4.2	5.3	7.5	7.1	17 th	15 th	●
<i>3. Motivations</i>							
Opportunity-driven TEA	50.6	55.8	42.8	43.9	5 nd	4 nd	●
Necessity-driven TEA	47.2	47.0	57.5	56.5	13 nd	15 nd	●
<i>4. Exit and future intentions</i>							
Discontinued business	3.1	2.7	2.3	2.3	3 th	7 th	●
Future entrepreneurial intentions	18.9	18.4	15.2	15.0	5 th	7 th	●

Source: 2023 and 2022 GEM Global APS data. Note: all figures are expressed in percentage of the adult population, except for opportunity-driven and necessity-driven which are expressed in percentage of TEA. The column "Rank" reports Luxembourg's position out the 19 European countries for which GEM data are available for both years. The column "Change" reports whether Luxembourg's position in the ranking is "better" (green dot), stable (yellow) or "worse" (red) in 2023 compared with 2022. A green (red) dot is assigned when Luxembourg gains (loses) more than two ranks. Annual variations equal or below two ranks are assigned a yellow dot. For all indicators, moving up in the ranking is seen as an improvement, except for fear of failure, necessity-driven TEA, and business discontinuation. This is done to facilitate the reading of the table, even if there is no consensus on the optimal level of these indicators. Fear of failure indicates, among those who recognize good business opportunities, the proportion that would not start a business due to fear of potential failure. Opportunity-driven TEA is the percentage of TEA entrepreneurs whose reasons for starting a business include the opportunity to make a difference in the world. On the other hand, necessity-driven TEA refers to the share of TEA entrepreneurs who start a business in order to earn a living because jobs are scarce. Discontinued business represents the share of the adult population who have exited a business that has not been continued by any other stakeholders.

The GEM research approach

2

Entrepreneurial activities are essential drivers of job creation, and contribute to generating and diffusing new technologies, thus indirectly fostering productivity gains and overall economic activity (Carree and A. R. Thurik, 2010). As a result, entrepreneurship is widely regarded as a key ingredient of economic prosperity, and is the target of numerous policy initiatives around the world. (According to Bai et al., 2022, between 2010 and 2019, worldwide governments' entrepreneurial finance programs had an average cumulative annual budget of 156 billion US dollars.) In this context, the Global Entrepreneurship Monitor (GEM) project was established in 1999 at the London Business School (UK) and Babson College (US) to collect data and study entrepreneurship, with the goal of assessing outcomes and impact on economic development, and identifying the conditions for thriving entrepreneurs. Based on qualitative and quantitative surveys conducted by national teams in many countries, GEM provides a harmonised dataset at annual frequency, which enables researchers and analysts to investigate entrepreneurial activities adopting a cross-national perspective. Since its inception, the GEM project has grown from a consortium of 10 participating countries to involving researchers from over 120 different countries. GEM is now regarded as a prominent longitudinal study of entrepreneurship. Based on 46 participating countries in 2023, the consortium published its 25th annual global report (GEM, 2024).

Luxembourg joined the GEM project in 2013. Since then, the two GEM Surveys - the Adult Population Survey (APS) and the National Experts Survey (NES) - have been administered on samples of the country's residents and panels of experts every year. The 10th APS and NES Luxembourg surveys, whose results are documented in this report, have been conducted in May and June 2023, respectively on a sample of 2,023 individuals, and by interviewing 36 experts.

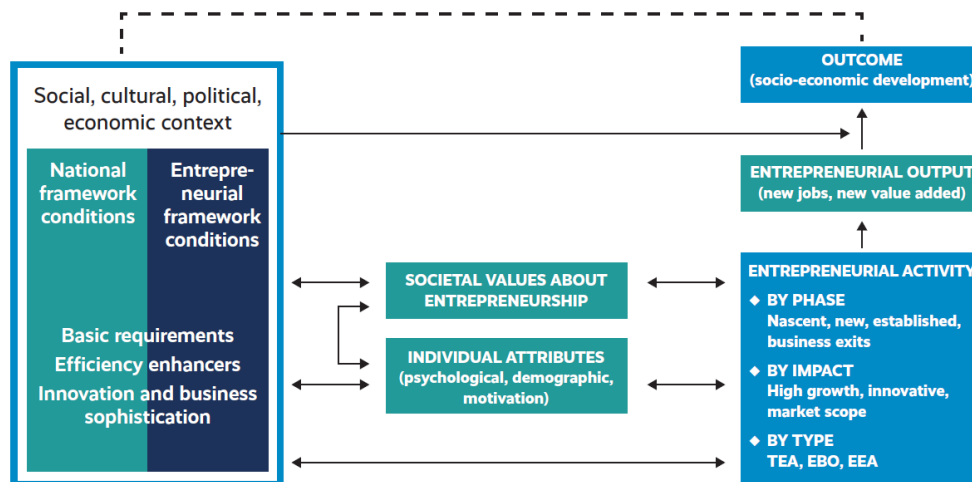
This chapter presents the GEM conceptual framework, which underpins the data collection and the analysis of this report, and provides a general description of the surveys and GEM main indicators. The framework comprises a definition of entrepreneurship, and a set of multi-directional relations between the entrepreneurial endeavour and its context. Entrepreneurship itself is seen as a cycle rather than a constant activity of an individual.

2.1 The GEM conceptual framework

GEM defines entrepreneurial activity as **“any attempt at new venture or new business creation, such as self-employment, a new business organization or the expansion of an existing business, by an individual, a team of individuals, or an established business”** (Bosma et al., 2020, p.22). Entrepreneurial activity, however,

should not be regarded as a purely individual endeavour. One of the main features of the GEM conceptual framework is that entrepreneurial activity does not take place in a vacuum, but rather within the specific context of a given environment, with its own social, cultural and economic characteristics. **Entrepreneurial activity is then jointly determined by the interaction between traits and characteristics of entrepreneurs and the overall “environment”.** In turn, entrepreneurial outcomes affect firm and job creation, innovation, and ultimately economic growth. The GEM conceptual framework outlined in Figure 2.1 portrays the relationship between entrepreneurship and its local, regional and national environment. To provide a comprehensive account of entrepreneurial activity and the context in which it takes place, GEM administers two surveys: the Adult Population Survey (APS) which captures the attitudes, behaviours and expectations of individual adults, and the National Expert Survey (NES) which focuses on the entrepreneurial context (see Section 2.2).

Figure 2.1: The GEM Conceptual Framework



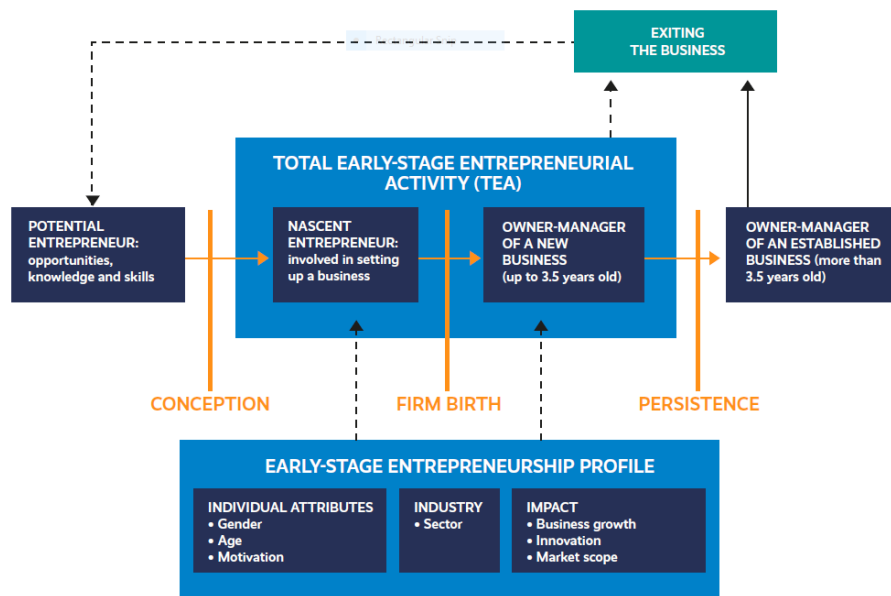
Source: Bosma et al., 2020.

An additional feature of the GEM framework is that **entrepreneurship is described as a “cycle”, or process** (e.g. Van der Zwan et al., 2010) — *“from conception of entrepreneurial opportunities to its maturity or, alternatively to its demise”* (GEM, 2018, p. 21). GEM surveys are shaped by this framework, and are designed to track people along the entrepreneurship process to provide indicators of entrepreneurial activities. To this end, every person engaged in any activity related to the creation of a new business is regarded as having an impact on the national level of entrepreneurship. Figure 2.2 depicts the entrepreneurial process, and the corresponding operational definitions adopted by GEM for each stage of the process. Individuals along the various stages of the entrepreneurial process are characterized as follows: i) “potential entrepreneurs” are those who plan to start a new business in the next three years; ii) “nascent entrepreneurs” are those individuals involved in

setting up a new business, and who have paid wages (to employers or to themselves) for less than three months; iii) “new entrepreneurs” are owner-managers of firms that have paid wages for a period of time between 3 and 42 months; iv) “established entrepreneurs” are owner-managers of firms that have paid wages for a period longer than 42 months.

The most important indicator produced by GEM is Total Early-Stage Entrepreneurial Activity (TEA). TEA measures the proportion of the working-age adult population actively engaged in starting or running a new business. Specifically, TEA is the sum of “nascent entrepreneurs” and “new entrepreneurs”. In other words, TEA reflects the level of entrepreneurial dynamism in a country and represents an overall entrepreneurship rate. Another important indicator is the level of Established Business Ownership (EBO), or the percentage of adults owning and managing an established business, defined earlier as having paid wages or salaries for 42 months or more. If the new business is successful, then it will evolve over time to become an established business. Either the new business owner or the established business owner may exit the business at some stage, and that business may or may not continue without them.

Figure 2.2: Entrepreneurial phases and GEM entrepreneurship indicators



Source: Bosma et al., 2020.

GEM collects information on individuals’ entrepreneurial attitudes, activities and aspirations over all the phases of the entrepreneurship process. The focus on individuals differentiates GEM from other statistical sources, in particular from official statistics such as business registers and business surveys. Official records are collected at the firm-level and, as such, they neither measure entrepreneurship *per se* (although they are linked to it) nor capture attitudes and perceptions of entrepreneurs and

potential entrepreneurs. Another limitation of official firm-level data is that they are not fully comparable across countries, because of the differences in countries' laws and institutions (e.g. mandatory incorporation with different turnover thresholds). Moreover, business registers do not record informal business activities and informal investment which might be relevant to assess entrepreneurship rates across countries (Marchese, 2015).

2.2 GEM surveys

The conceptual features of the GEM framework are reflected in the two surveys that are administered annually.

2.2.1 Adult population survey (APS)

The APS is a survey addressed in each country to the population that is between 18 and 65 years old. Each of the participating countries conducts the survey by interviewing a representative sample of at least 2,000 individuals (2,023 individuals in 2023). The fieldwork takes place during the spring/summer of each year. The basic questionnaire is common to all countries participating in the consortium. The questionnaire comprises core questions and modules on special topics, the latter varying every year. The core questions of the APS enquire about individual attitudes and perceptions on whether it is easy to start a business, whether there are good business opportunities, and whether fear of failure is an obstacle. Additional questions focus on whether that person is actively starting a new business or running an established business and what their motivations and ambitions are. Thus, the APS provides a comprehensive depiction of all phases of the entrepreneurial process.

The special modules of the APS have been addressing relevant topics such as immigrant entrepreneurs in 2012 (Xavier et al., 2013), subjective well-being in 2013 (Amorós and Bosma, 2013), family entrepreneurship, etc.. During the pandemic, a special module was administered to monitor entrepreneurial dynamics in 2020, 2021 and 2022. In 2022 and 2023, a special module was included to cover sustainability intentions and actions. Because of the relevance of immigration and well-being to Luxembourg, these modules have been retained in the national questionnaire ever since. In 2018, additional Luxembourg specific questions have been included in the questionnaire. They concern barriers and enablers of entrepreneurship, and entrepreneurial policies.

The 2023 questionnaire comprises the following eleven blocks of questions:

1. Nascent entrepreneurs;
2. Owner-managers;
3. Potential and discontinuing entrepreneurs;
4. Informal investors;
5. Employment and entrepreneurial employee activity;
6. Sustainable entrepreneurship (Special topic 2023);
7. Entrepreneurship programs (Luxembourg specific questions);
8. Barriers and enablers (Luxembourg specific questions);
9. Individual perceptions: health; trust; well-being; job satisfaction (Luxembourg specific questions);
10. Immigration (Luxembourg specific questions);
11. Demographics of respondents.

To ensure consistency, the international GEM data team supervises the data collection process. During the field work, raw data are sent regularly to the GEM data team for quality checks. The observations are weighted to ensure that the joint distribution of the gender, age, education and immigration status of the respondents is equal to the distribution of the reference population as recorded in official registers.

Once collected at the country level, national records are harmonized to enable meaningful international comparisons of results. Indeed, a prominent goal of GEM is to collect comparable data to explore cross-country differences in the motivations of entrepreneurs, and to link these differences to job creation rates and economic growth.

2.2.2 National experts survey (NES)

The national experts' survey (NES) provides insights into the entrepreneurial start-up environment in each country. National experts provide information regarding nine Entrepreneurial Framework Conditions that influence entrepreneurial activities. They range from the ease of access to finance to social support for entrepreneurship, and from the adequacy of entrepreneurial education to the availability and cost of essential business services. Each of these aspects is evaluated in the NES by a group of four or more national experts, summing up to a total of at least 36 experts per country.

The current report exploits the entire Luxembourg GEM dataset, since its inception to the latest available observations collected in 2023, and cross-country data from the global consortium. The report uses APS data for Luxembourg and 18 European countries, namely Croatia, Cyprus, France, Greece, Germany, the Netherlands, Norway, Hungary, Poland, Lithuania, Latvia, Romania, Slovakia, Slovenia, Spain,

Sweden, Switzerland, and the United Kingdom.¹ Before moving on to present the results, it is important to consider the following caveat when interpreting the data. Throughout the period of analysis, key variables display changes. Some of these variations might reflect structural changes affecting entrepreneurship, others might be the consequences of the pandemic, or other economic shocks, or the effect of randomness, due to sampling across a large population. Whenever possible, appropriate statistical techniques are employed to assess the significance of changes.

¹Additionally, NES includes Italy and Latvia, whereas APS data are not available for these two countries.

Entrepreneurship in Luxembourg over time

This chapter documents the evolution of entrepreneurship in Luxembourg over time, using data from the GEM Adult Population Survey (APS) collected over the period 2013 – 2023. The chapter focuses on key indicators of entrepreneurial intensity, including early stage entrepreneurship and established business ownership. It also provides information on the individual characteristics of the entrepreneurs, and on population traits, perceptions and sentiments that shape the entrepreneurial environment in the country.

This analysis allows us to assess trends as well as aspects of the recent evolution in entrepreneurship, specifically the decline in early-stage entrepreneurship and entrepreneurial intentions observed during the pandemic.

The chapter is organised as follows. Section 3.1 presents the evolution of key indicators of entrepreneurship in Luxembourg over time. Section 3.2 documents entrepreneurial networks, population's traits — attitudes to risk, capabilities — and the evolution of perceptions of the business environment in Luxembourg. Considered together, these aspects describe the overall entrepreneurial environment in the country. Section 3.3 describes Luxembourg's entrepreneurs by looking at their socio-demographic characteristics (gender, education, immigration status, and age). Finally, Section 3.4 illustrates the motivations for engaging in entrepreneurship, focusing on the distinction between opportunity-driven and necessity-driven entrepreneurs.

Results show that entrepreneurial intensity in Luxembourg has been generally stable before the pandemic's outbreak. Following the generalised decline in entrepreneurial activity during the pandemic, the most recent data provides positive signals: they indicate a recovery in entrepreneurial intentions and early-stage activity, two key indicators of entrepreneurial dynamism. Indeed, despite challenging economic conditions, both the proportion of potential entrepreneurs and total early-stage entrepreneurship (TEA) have bounced back to pre-pandemic levels.

Similarly, while several indicators of the business environment display a positive trend over time, nearly all indicators worsened during the pandemic. The perception of good business opportunities displays a declining trend in recent years. Fear of failure has been gradually increasing since the pandemic. The share of respondents declaring that it is easy to start a business in Luxembourg has also declined in the last year. Overall, and also shown by the decline in established firms, these indicators point to a challenging environment for entrepreneurs.

These data also reveal more persistent features of entrepreneurship in Luxembourg, such as personality traits and individual characteristics of the population and entrepreneurs. These indicators, that typically display more stability over time than

indicators that reflect the (perceptions of) overall economic outlook, contribute to provide a comprehensive portrait of the entrepreneurial environment and of the quality of entrepreneurship .

There are several gaps in entrepreneurial intentions and activity across socio-demographic groups, which appear to be stable over time. Men, individuals with higher education, immigrants, and younger people are more likely to express entrepreneurial intentions and to become TEA entrepreneurs. Data reveal the persistent entrepreneurship gender gap in Luxembourg. Plausibly linked to the gender gap, shares of respondents declaring fear of failure are higher among women, who also reports less confidence in their entrepreneurial capabilities. Immigrants show higher propensity to engage in entrepreneurship, and have favourable views on business opportunities and easiness of starting a business in Luxembourg. Entrepreneurial motivations have changed, indicating a rise in necessity-driven entrepreneurship, suggesting a possible change in both entrepreneurial intensity *and* quality.

3.1 Quantifying entrepreneurial activity

This section describes **the intensity and the evolution of entrepreneurship in Luxembourg over time** using the 2013 – 2023 waves of GEM’s APS. We focus on several indicators of entrepreneurial intensity, which capture respondents’ involvement in the subsequent stages of the entrepreneurial process.

As seen in Chapter 2, GEM views entrepreneurship as a *process*, whereby entrepreneurs move through the following stages:

1. **Potential entrepreneur:** expecting to start a new business within the next three years;
2. **Nascent entrepreneur:** involved in setting up a business;
3. **New entrepreneur:** owner-manager of a firm younger than 42 months that has paid wages during the last three months;
4. **Established entrepreneur:** owner-manager of a firm that has paid wages for over 42 months.
5. **Discontinued entrepreneur:** owner-manager who has exited a business in the past 12 months, and the business was not continued.

As in an obstacle race, every entrepreneur moves through the stages. At each stage, they can either leave, or continue to the next one in their entrepreneurial "journey".¹

The indicators in Figure 3.1 represent the shares of population involved at each stage of the entrepreneurial process. They provide insights on the *intensity* of entrepreneurship in Luxembourg, and its evolution over time. Thus, the share of potential entrepreneurs capture **entrepreneurial intentions**, crucial for entrepreneurial dynamism. **Early-stage Entrepreneurial Activity (TEA)**, which combines information on nascent and new entrepreneurs (that is, stages 2 and 3 of the entrepreneurship process), is GEM's key indicator of entrepreneurial intensity. The share of **established entrepreneurs (EBO)** is another key indicator for assessing entrepreneurial intensity. Lastly, "exit" is the share of those respondents that declare they had exited a business in the last 12 months that did not continue.² Exit is linked to entrepreneurial dynamism. It poses significant challenges for individuals and society, as it involves financial losses for the entrepreneur and stakeholders (such as suppliers and creditors), emotional distress for the entrepreneur, and job losses. At the same time, the literature also notes that it could serve as a learning opportunity, enhancing an entrepreneur's growth aspirations in subsequent ventures, especially for "serial entrepreneurs," in environments where social norms do not stigmatize failure but instead encourage learning from the experience (Hessels et al., 2011).

We observe that entrepreneurial intensity in Luxembourg has been generally stable before COVID, with a mildly upward trend for TEA and established entrepreneurs. In contrast, the pandemic years featured a generalised decline in entrepreneurship.

In 2023, 18.9 % of survey participants identified themselves as potential entrepreneurs. This is in line with the 18.4% reported in 2022, confirming a recovery to pre-COVID levels. TEA, stable at around 10 % in the years up until 2019, declined during the pandemic to a historic low of 7% in 2022. In 2023, this indicator improved to 9.7%. EBO declined to 4.2% in 2023 from the 5.3% recorded in the previous year. The proportion of individuals who have discontinued a business was at 3.1% in 2023, the highest recorded in the observed period.³

Thus, despite a challenging economic environment, **entrepreneurial activity shows signs of recovery in 2023. The share of early stage entrepreneurs has recovered,**

¹The dataset is formed by repeated cross-sections. At every wave of data collection, respondents report their entrepreneurial status, from inactive to exited.

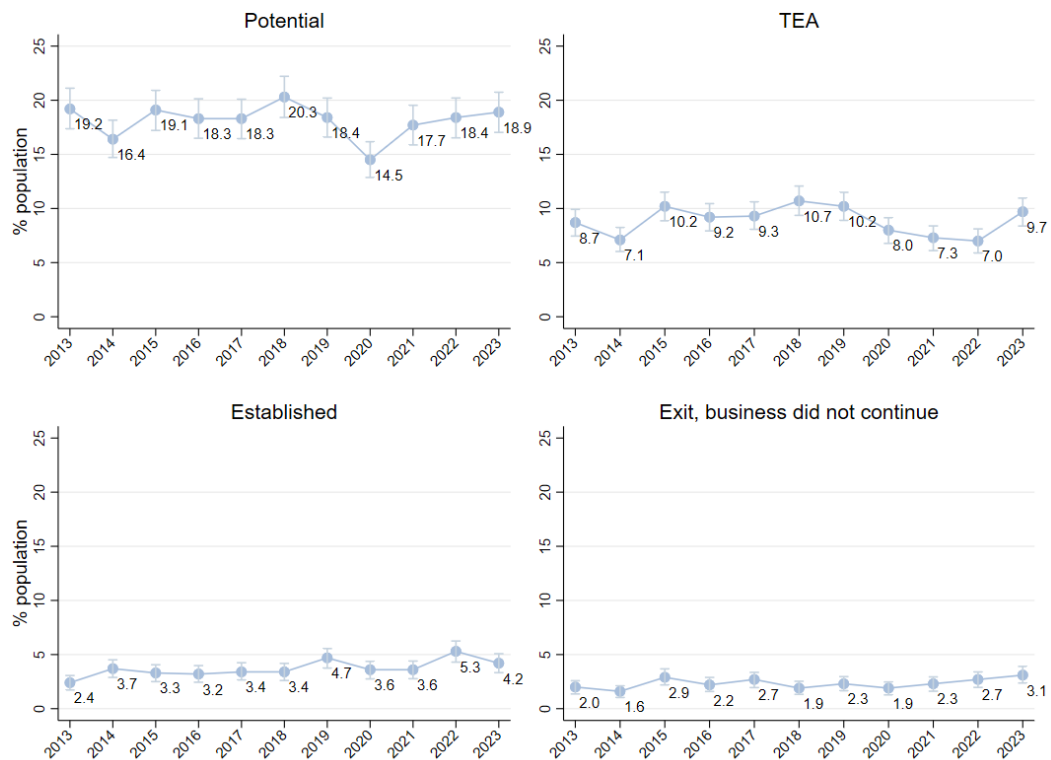
²The questions captures the exit of business from markets, distinguishing it from the exit of the entrepreneur.

³In recent years, governments have deployed extensive economic policies to help firms and workers, preventing widespread bankruptcies and job losses due to the economic consequences of COVID-19 and the rising cost of energy. Support policies have been gradually removed. This could be linked to increases in exits.

approaching pre-pandemic levels. What is more, entrepreneurial intentions are also high, confirming last year's recovery to pre-COVID levels.

These observations align with patterns found in other OECD and GEM countries (Berger Marius, 2024; GEM, 2024). This is a positive signal, in light of worries that economic shocks might lead to long-term negative impacts on entrepreneurship, the so-called "missing generations of firms" — businesses that never come into existence because of challenging economic circumstances (Sedlacek and Sterk, 2020). Nevertheless, the economic slowdown continues to pose challenges, as evidenced by a mild decline in established firms and an increase in exit.

Figure 3.1: Entrepreneurship in Luxembourg (2013 – 2023).



Population shares (in %).

Source: 2013 – 2023 GEM Luxembourg APS data.

3.2 The entrepreneurial environment: respondents' traits, attitudes and perceptions

This section provides information on **the evolution of the entrepreneurship environment in Luxembourg**, based on respondents' traits, attitudes and perceptions of the business environment as surveyed by the GEM APS.

According to the GEM framework depicted in Figure 2.1, **individual attributes, such as motivations, perceptions, socio-demographics characteristics and psychological traits, interact with the socio-economic context to form the "entrepreneurial ecosystem"**, and shape entrepreneurship in a country. GEM includes questions to survey these aspects. These are listed below:

1. **Personally Know Entrepreneurs:** "Knowing someone who has started a business in the past two years."
2. **Good Opportunities:** "In the next six months, there will be good opportunities to start a business in my area."
3. **Easy to Start a Business:** "It is easy to start a business."
4. **Personally Have the Skills:** "I possess the knowledge, skills, and experience required to start my own business."
5. **Fear of Failure:** "Hesitating to start a business due to fear of failure, among those who believe there are good opportunities locally."

Indeed, the decision on whether or not to become an entrepreneur is influenced by the interaction of personality traits, attitudes and perceptions of the surrounding environment (Boyd and Vozikis, 1994). The perception of favourable conditions and business opportunities — linked to business sentiment and expectations, typically regarded as important economic variables — affect entrepreneurial intentions (Linan, 2008) and the decisions to start a business (Shane, 2003). Conversely, the perception of a negative economic outlook may discourage those intentions and, as a result, the creation of new businesses (Koellinger and Thurick, 2012). Related, the perceived ease of starting a business captures aspects of the business environment, including regulatory frameworks, access to resources, and market conditions. This is an essential indicator of the structural and procedural facilitation/hindrance to entrepreneurship in a specific context (Djankov et al., 2002; World Bank, 2020). Turning the intentions of pursuing entrepreneurial activities into practice, however, also requires confidence in one's abilities, as well as overcoming fears about the possible failure of the new venture. Research has shown that individuals' belief in their entrepreneurial capabilities strongly predicts their involvement in starting a business (Shinnar et al., 2014). Fear of failure, linked to individuals' attitudes towards risk,

is often regarded as a barrier to entrepreneurship. It can be related to concerns of being involved expensive insolvency procedures, and social stigma (Cacciotti and Hayton, 2015). Finally, social networks are often essential in providing resources, knowledge, and support to new entrepreneurs (Greve and Salaff, 2003).

Figure 3.2 illustrates the evolution of the five indicators compiled from the questions listed above.⁴

While several indicators display a positive trend over time, **individuals' perceptions of the business environment typically display larger fluctuations — plausibly reflecting changes in the overall economic outlook — while personality traits are more stable over time. Nearly all indicators worsened during the pandemic. The perception of good business opportunities exhibits a declining trend in recent years:** it has declined sharply during the pandemic, and is worsening again despite the recovery from the pandemic trough. Noticeably, **fear of failure has been gradually increasing since the pandemic.** The share of respondents declaring that it is easy to start a business in Luxembourg has also declined in the last year.

In 2023, 46% of respondents declared to **know at least one new entrepreneur.** The proportion of respondents knowing at least one entrepreneur remained stable at around 36% on and before 2018, then jumped to 46% in 2019 and remained relatively stable afterwards. (The jump recorded in 2019 should be interpreted cautiously, due to a methodological change in the survey.) Data suggest a slight decrease in entrepreneurial connections during the pandemic years. This suggests a consistent presence of entrepreneurs in respondents' networks.

The confidence in **having the necessary skills to start a business** shows a mildly increasing trend over the years, rising from 43% in 2013 to 50% in 2023, suggesting an improvement in entrepreneurial capabilities in Luxembourg.

In 2023, 49% of respondents declared that "**there will be good opportunities to start a business in the next 6 months**". Before 2019, a majority of respondents declared to perceive good opportunities for starting a business (58%). However, in 2020 a notable drop (42%) occurred, in correspondence of the pandemic's outbreak.

⁴Note that data collection and treatment have undergone a methodological change in 2019. Before that date, survey responses for Good Opportunities, Personally Have the Skills, Fear of Failure, and Ease of Starting a Business were gathered using a binary yes/no question. Since 2019, these variables are captured using a 5-point Likert scales. Another change has involved the questions on networks, where from a binary answer required prior to 2019, respondents are now asked to indicate the number of entrepreneurs they know. Moreover, while the fear of failure indicator was initially calculated with respect to the entire population, from 2015 onwards it has been assessed exclusively among those perceiving good opportunities to start a business.

One observes a sharp rebound to 54% in 2021, followed by a declining trend, plausibly due to geopolitical tensions and inflation.⁵

Fear of Failure, among those stating that there are good opportunities to start a business, has been generally stable over the years.⁶ This indicator shows a slight increasing trend in recent years, having increased from a 42% recorded in 2020 to 47% in 2023.⁷

Respondents generally perceive that **it is easy to start a business in Luxembourg**. This indicator shows an upward trajectory from 52% in 2015 to a peak of 65% in 2021-2022, suggesting an improvement in accessibility to entrepreneurship over time. However, the flattening trend and the decline observed in 2023 hint that starting a business is perceived as increasingly challenging, plausibly a consequence of the economic outlook, seen as volatile and difficult.

3.2.1 Socio-demographic characteristics of respondents

What follows presents the **indicators depicting the entrepreneurial environment for population groups**, identified by certain socio-demographic characteristics of respondents, namely gender, age, immigration background and education.

The charts in this section report indicators' values for the subgroups. The values are read as follows. Taking, for example, "know entrepreneurs by gender" in 2013 (top left panel), the figures indicate that 41 % of male respondents knew at least one entrepreneur. In contrast, only 31 % of female respondents knew at least one entrepreneur.

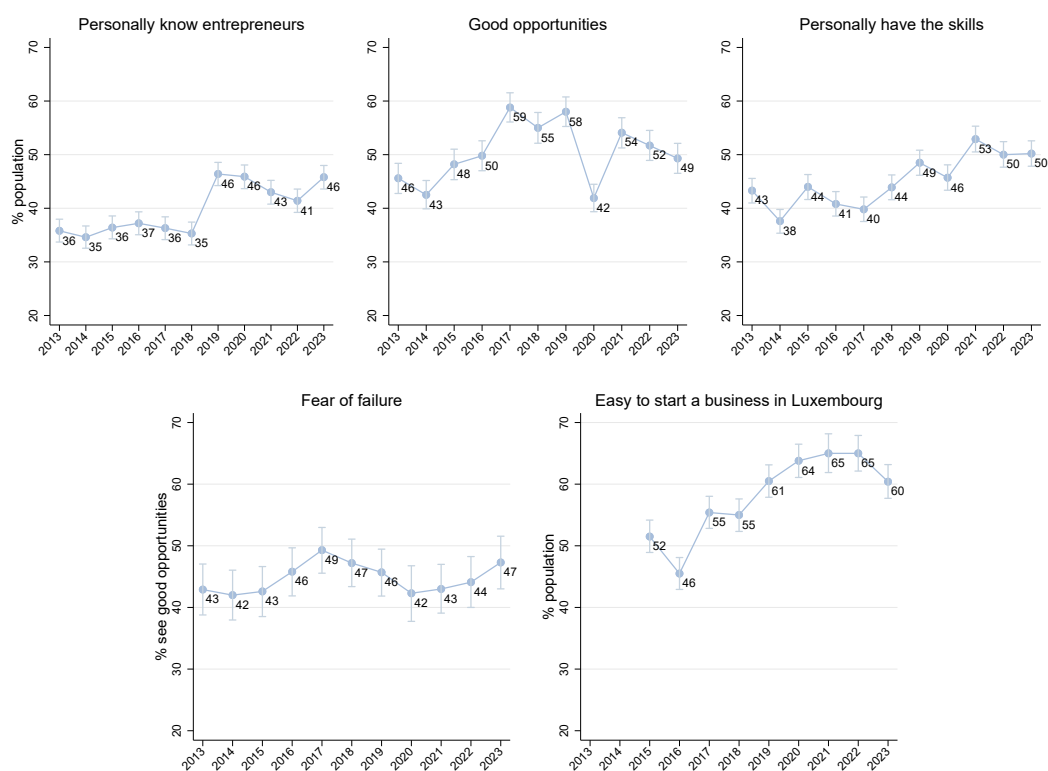
Data reveal the generalised **existence of gaps in traits and perceptions across the population groups**. It appears that higher shares of **immigrants express consistently more positive views of the business opportunities, and of the easiness of starting a business in Luxembourg**, compared to natives. Higher shares of men and immigrants, individuals with higher education and of younger

⁵This observation aligns with a decrease in business confidence among non-financial companies in Luxembourg during the second quarter of 2023 (STATEC, 2023b).

⁶While fear of failure was initially calculated with respect to the entire population, from 2015 onwards has been assessed among those perceiving good opportunities to start a business. This might result in slight discrepancies in figures reported in this document compared to those in previous GEM Luxembourg reports

⁷The parliament approved the reform of the right of establishment, introducing the "new chance" scheme ("*nouvelle chance*") on 20 July 2023, after the end of data collection. Under some conditions, the "new chance" scheme offers individuals the opportunity to initiate a new business by providing them with a new business permit, even following previous engagements in bankruptcy or compulsory liquidation. Further details can be found at <https://www.cc.lu/en/all-information/news/detail/reform-of-the-right-of-establishment-what-you-need-to-know>.

Figure 3.2: The entrepreneurial environment in Luxembourg (2013 – 2023): traits and perceptions.

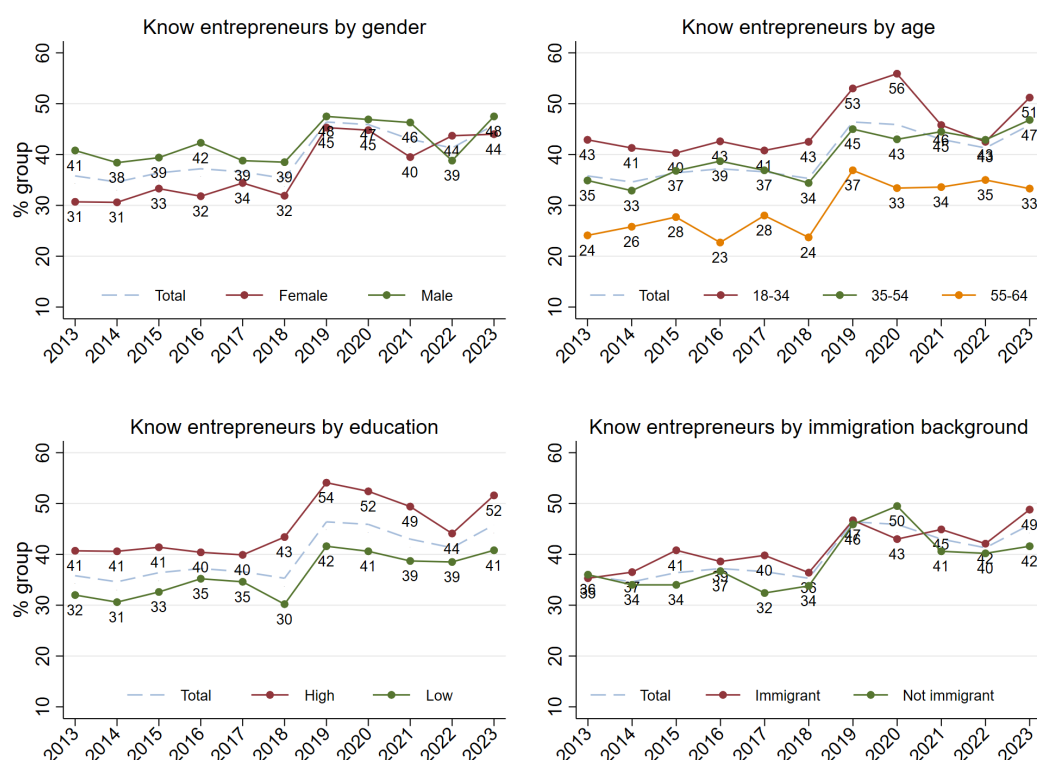


Population shares (in %). Break in the series in 2019. Easy to start a business introduced in 2015.
Source: 2013-2023 GEM Luxembourg APS data.

age tend to express confidence in their entrepreneurial capabilities compared to the other categories. There is an **apparent gender and age gap in fear of failure**.

Figure 3.3 shows that individuals that are younger and more educated report higher proportions of "personally knowing entrepreneurs" compared to older age groups and individuals with lower education levels. These "gaps" appear stable over time. This suggests that entrepreneurial social networks may vary significantly by age and education. There is no gap by immigration background categories, whereas the gender gap disappears in 2019 (possibly due to methodological changes in the survey).

Figure 3.3: Personally know entrepreneurs by socio-demographic groups.

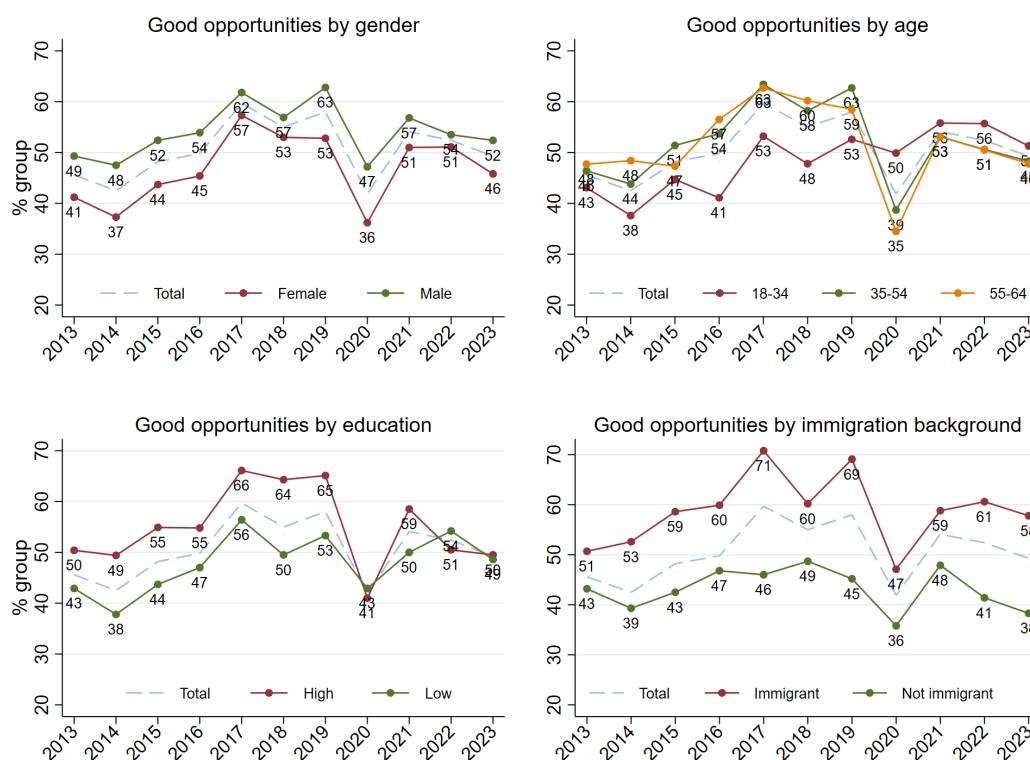


Shares of population groups (in %). High education is defined as obtaining at least a tertiary education degree (Master craftman's diploma is not included); immigrants are those residents who were not born in Luxembourg; age groups are defined as 18-34 year-olds, 35-54, and 55-64. Dashed lines refer to the whole sample. Break in the series in 2019.

Source: 2013-2023 GEM Luxembourg APS data.

Figure 3.4 illustrates the different perceptions of entrepreneurial opportunities for the socio-demographic groups considered. Immigrants and male respondents have consistently reported more optimistic views of business opportunities over the years. Younger and highly educated individuals were more optimistic before the pandemic. However, following the COVID-19 outbreak, the views of these groups have become more aligned. One can also see that the significant drop in "optimism" recorded in 2020 affected all demographic groups, with the possible exception of individuals of 18-34 years of age.

Figure 3.4: See good opportunities in the next six months by socio-demographic groups.

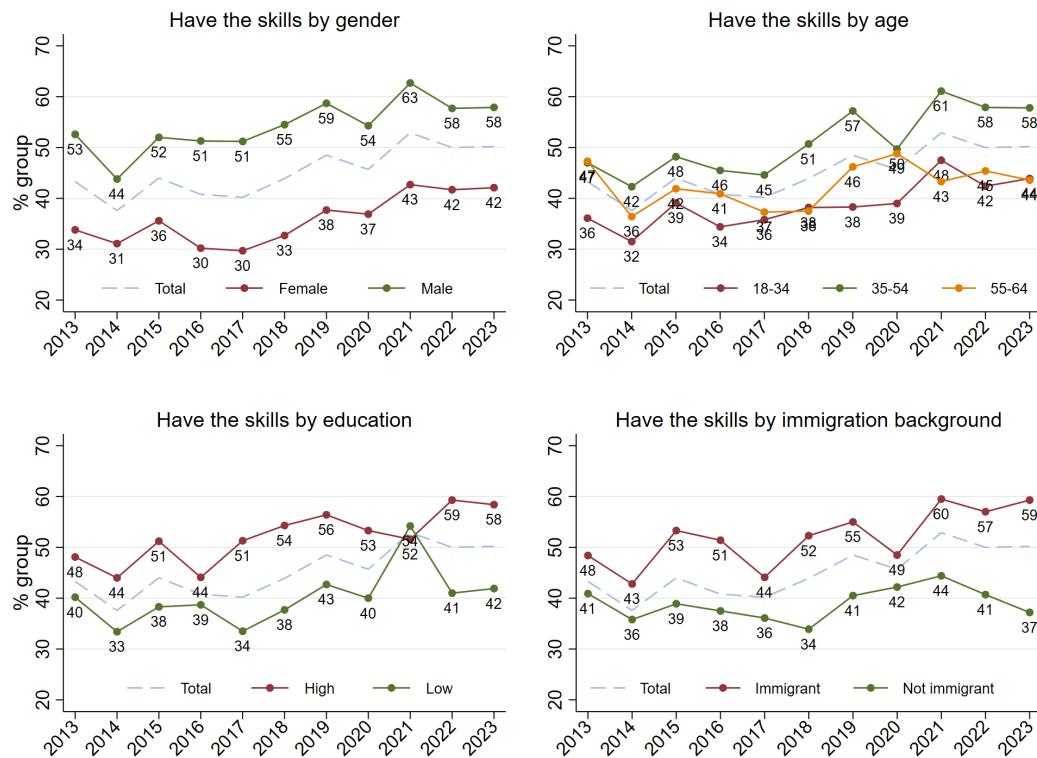


Shares of population groups (in %). High education is defined as obtaining at least a tertiary education degree (Master craftsman's diploma is not included); immigrants are those residents who were not born in Luxembourg; age groups are defined as 18-34 year-olds, 35-54, and 55-64. Dashed lines refer to the whole sample. Break in the series in 2019.

Source: 2013-2023 GEM Luxembourg APS data.

Figure 3.5 shows that men, immigrants, and highly educated individuals tend to report higher self-perceived entrepreneurial skills. In 2023, 58% of men expressed confidence in their entrepreneurial skills compared to 42% of women. In the same year, middle-aged individuals (35-54) reported the highest self-confidence at 57%, significantly more than the oldest age group (55-64) and the younger group (18-34), both at 44%. 58% of those with higher education levels reported confidence in their skills, in contrast to 42% for those with lower education levels. Immigrants exhibit higher confidence in their skills (60%) compared to non-immigrants (50%). These gaps tend to remain stable over time.

Figure 3.5: Personally have the skills by socio-demographic groups.



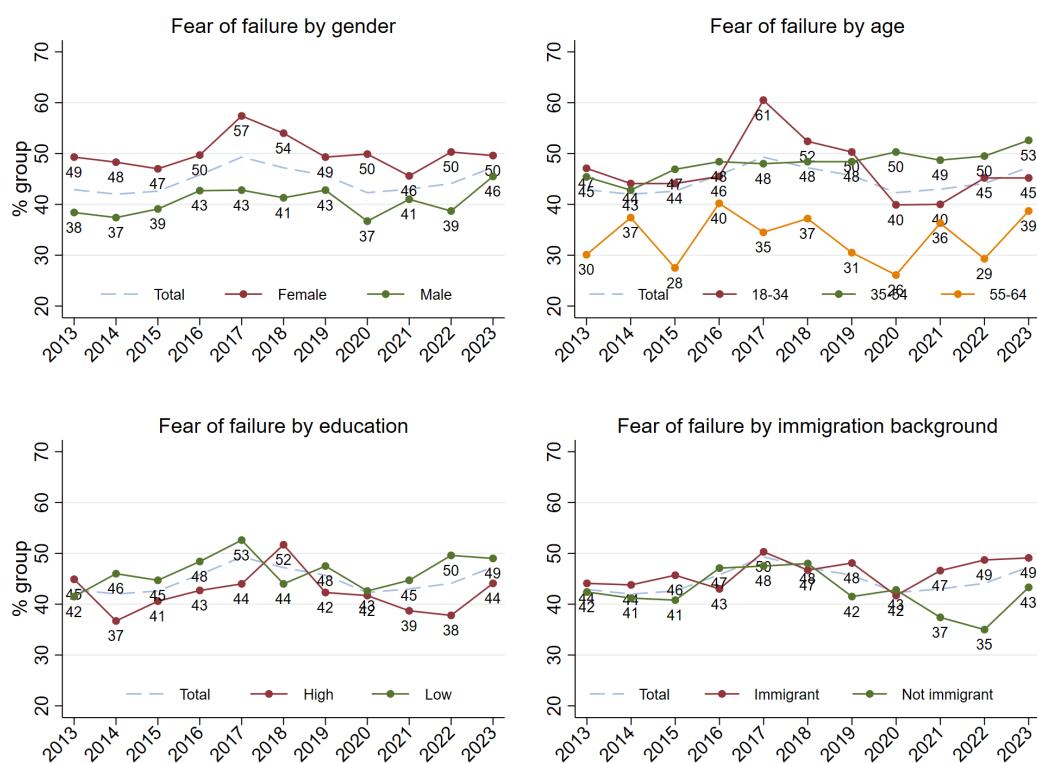
Shares of population groups (in %). High education is defined as obtaining at least a tertiary education degree (Master craftsman's diploma is not included); immigrants are those residents who were not born in Luxembourg; age groups are defined as 18-34 year-olds, 35-54, and 55-64. Dashed lines refer to the whole sample. Break in the series in 2019.

Source: 2013-2023 GEM Luxembourg APS data.

Figure 3.6 shows a systematic gender and age gap in fear of failure. Women have consistently reported higher fear of failure than men over the period. Recent data possibly indicate a slight narrowing of this gap. In 2023, fear of failure was at 50% for women compared to 46% for men. Older individuals (55-64) typically report a lower fear of failure than other age groups. No clear gap emerges for education and immigration background.

Figure 3.7 illustrates respondents' perceptions on the ease of starting a business in Luxembourg across the socio-demographic groups. Immigrants and highly educated

Figure 3.6: Fear of failure by socio-demographic groups.



Shares of population groups (in %). High education is defined as obtaining at least a tertiary education degree (Master craftsman's diploma is not included); immigrants are those residents who were not born in Luxembourg; age groups are defined as 18-34 year-olds, 35-54, and 55-64. Dashed lines refer to the whole sample. Break in the series in 2019.

Source: 2013-2023 GEM Luxembourg APS data.

individuals have consistently perceived greater easiness of starting a business in the country throughout the period. The data suggests also the existence of a gap by gender, which has widened in the latest years. (In 2023, 66% of men declared it is easy to start a business compared to a 54% of women.) Middle-aged respondents have also reported greater easiness to start a business than those in the younger age group throughout.

Figure 3.7: Easy to start a business in Luxembourg by socio-demographic groups.



Shares of population groups (in %). Variable introduced in 2015; break in the series in 2019. High education is defined as obtaining at least a tertiary education degree (Master craftman's diploma is not included); immigrants are those residents who were not born in Luxembourg; age groups are defined as 18-34 year-olds, 35-54, and 55-64. Dashed lines refer to the whole sample.
Source: 2013-2023 GEM Luxembourg APS data.

3.3 The profile of entrepreneurs

This section provides information on the **entrepreneurial intentions and engagement of different population subgroups**. The groups are identified according to selected socio-demographic characteristics: gender, education, immigration status, and age. We focus on entrepreneurial intentions and early-stage entrepreneurship.⁸

This analysis reveals that **entrepreneurship gaps exist across all the socio-demographic dimensions considered**, shows the **persistent entrepreneurship gender gap in Luxembourg**, and **confirms immigrants' higher propensity to engage in entrepreneurship**. Gaps tend to be persistent over time, while trends do not seem to depart from those observed for the population.

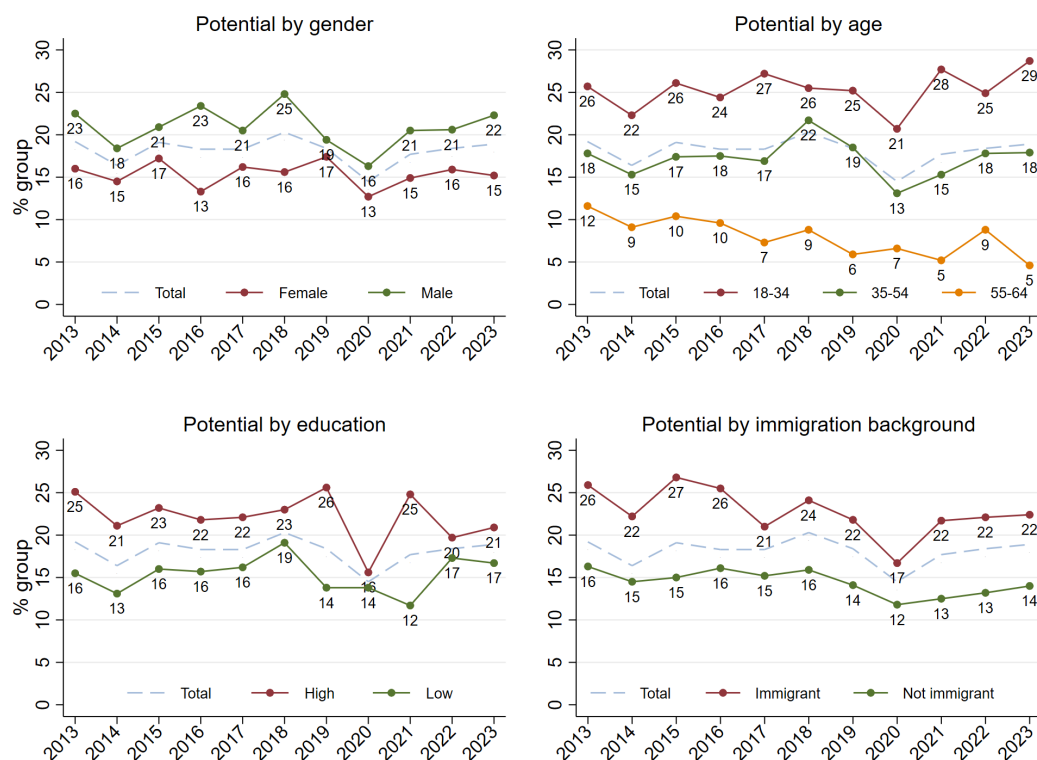
The scientific literature highlights factors that may explain the observed gaps. These factors include prevailing cultural norms (Hechavarria and Reynolds, 2009). On the entrepreneurship gender gap, "self-efficacy", which refers to an individual's belief in their ability to perform the necessary behaviours (Wilson et al., 2007), is also a possible explanation. Indeed, figure 3.5 in the previous section illustrates that women consistently perceive themselves as having fewer entrepreneurial skills than men, which provides support to the self-efficacy view. In 2023, 42% of women reported having the knowledge, skills, and experience required to start a new business, compared to 58% of men. The entrepreneurship gender gap has been observed in all GEM countries (Elam et al., 2021), and confirmed by studies that use alternative indicators of entrepreneurship, such as self-employment and sole proprietorship (Halabisky, 2018; OECD and European Union, 2018). Reports by the OECD (OECD, 2023b) document that in Luxembourg there are more self-employed men than women.

Figure 3.8 shows that **entrepreneurial intentions vary considerably across the groups**. Specifically, men, young adults (18-34), those with higher education, and immigrants are more likely to declare that they intend to start a business in the next three years than their counterparts. In 2023, 22% of all male respondents declared their intentions to start a new business, in contrast to 15% of female respondents. In the same year, respectively 22% of immigrants, and 25% of highly educated individuals reported intentions to start a business compared to 14% of non-immigrants, and 17% of those with lower education levels. Furthermore, 28% of younger individuals intended to start a business compared to 18% of middle-aged (35-54) and 5% of older individuals (55-64). The observed gaps are persistent over time, with the possible exception of the year 2020. Indeed, the COVID-19 crisis seems

⁸Due to sample size issues we do not report breakdowns for established entrepreneurs (EBO) and business exits.

to have affected more those groups that are more likely to report entrepreneurial intentions, resulting in the narrowing of certain gaps for that year.

Figure 3.8: Potential entrepreneurs: gender, age, education and immigration (2013 – 2023).



Shares of population groups (in %). High education is defined as obtaining at least a tertiary education degree (Master craftsman's diploma is not included); immigrants are those residents who were not born in Luxembourg; age groups are defined as 18-34 year-olds, 35-54, and 55-64. Dashed lines refer to the whole sample.
Source: 2013-2023 GEM Luxembourg APS data.

Figure 3.9 presents results for **early-stage entrepreneurship (TEA)**. It shows the evolution of TEA by gender (top left panel), age (top right), education (bottom left) and immigration background, and compares it to the aggregate TEA (dashed line). Shares of male respondents that report engagement in TEA are consistently higher than females' ones. Trends are similar, with two exceptions. Firstly, women's TEA decreased in 2016 and 2017. Secondly, during the pandemic TEA has been decreasing in both groups, but with different patterns. As a result, in 2022 and 2023 the gender gap narrowed slightly. In 2023 the percentage of women engaged in TEA increased from 5.3% to 8.7%, while the percentage of men increased from 8.4% to 10.6%.

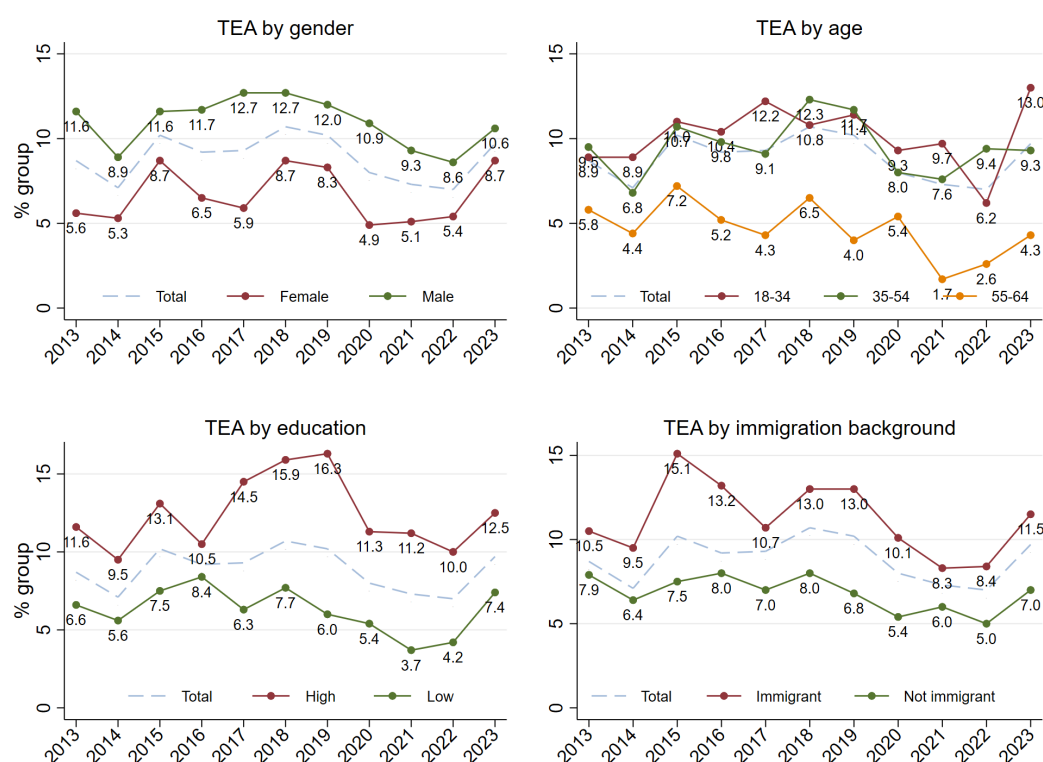
TEA also differs across age groups. Typically, TEA tends to be higher among younger individuals. This can be seen throughout the period. In 2023, the TEA rate increased significantly for respondents of 18-34 years of age (13%, up from 6.2% in 2022), and increased by a smaller proportion (from 2.6% to 4.3%) for those of 55-64 years of age. For individuals aged 35-54, the TEA rate remained relatively stable, changing

slightly to 9.3% in 2023 from the 9.4% of the previous year. The trend of TEA for the 55-64 years of age decreased slightly over the period.

The bottom left panel in Figure 3.9 depicts TEA by education level. Throughout the period, the TEA rate has been consistently higher for individuals with higher education levels. This is in line with previous research that highlights the positive impact of education on the decision to start a business (Block et al., 2013). In 2023, TEA increased in both groups. For those with lower education levels, TEA rose to 7.4% from the 4.1% of 2022, underscoring a significant growth in entrepreneurial activity for that group.

The bottom right panel in the Figure shows that TEA is higher for immigrants than natives. The last data point, 2023, recorded a TEA rate for immigrants of 12%, compared to 7% for natives. This result highlights the contribution of immigrants to Luxembourg's entrepreneurship, and is in line with research on immigrants' entrepreneurs.⁹

Figure 3.9: TEA: gender, age, education and immigration (2013 – 2023).



Shares of population groups (in %). High education is defined as obtaining at least a tertiary education degree (Master craftsman's diploma is not included); immigrants are those residents who were not born in Luxembourg; age groups are defined as 18-34 year-olds, 35-54, and 55-64. Dashed lines refer to the whole sample.
Source: 2013-2023 GEM Luxembourg APS data.

⁹Previous studies highlighted immigrants' higher propensity for entrepreneurship in Luxembourg, but also the lower success rates that immigrants exhibit in the subsequent stages of entrepreneurship (Peroni et al., 2016).

3.4 Entrepreneurial motivations

GEM data allows us to **explore entrepreneurial motivations to capture qualitative aspects of entrepreneurship**. In this respect, entrepreneurship studies place emphasis on the distinction between opportunity-driven and necessity-driven entrepreneurship. **Opportunity-driven entrepreneurs** are those individuals engaging in entrepreneurial activities because they see a business opportunity. **Necessity-driven entrepreneurs** are individuals who establish new ventures due to a lack of paid employment opportunities. These types of entrepreneurship typically display different patterns along the business cycle (Thurik, 2014), with necessity and opportunity entrepreneurship showing, respectively, anti-cyclical and pro-cyclical patterns. Economic downturns are usually characterized by an increase in necessity-driven entrepreneurs. In contrast, opportunity-driven entrepreneurship numbers are higher during period of growth (Fairlie and Fossen, 2019). What's more, the literature shows that opportunity-driven entrepreneurs create firms that tend to have higher growth prospects and create more jobs than necessity-driven entrepreneurs (Fairlie and Fossen, 2019; Schoar, 2010). For this reason, necessity-driven entrepreneurship is seen as less desirable than opportunity-driven entrepreneurship.

GEM has traditionally included questions to capture the distinction between the two types of entrepreneurship, and to explore reasons for individuals' engagement in entrepreneurship. Since 2019, GEM has expanded the questions, and has been asking TEA entrepreneurs to evaluate their motivations by selecting one or more of the following statements:¹⁰

- To make a difference in the world;
- To build great wealth or very high income;
- To continue a family tradition;
- To earn a living because jobs are scarce.

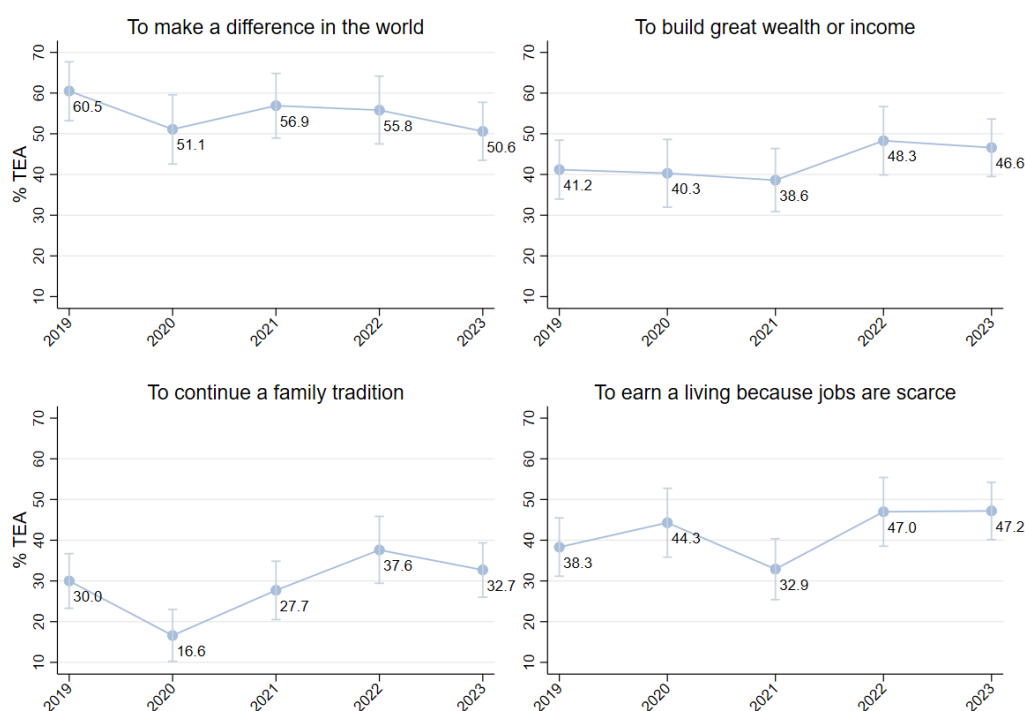
Note that the last statement corresponds to the prevailing definition of necessity-driven entrepreneurship found in the literature. Since 2019, GEM Luxembourg has been capturing opportunity-driven entrepreneurs by the share of TEA entrepreneurs who are motivated by a desire to make a difference in the world.

¹⁰In the period from 2013 to 2019, the Global GEM defined opportunity TEA as the share of TEA entrepreneurs who were pulled towards entrepreneurship by business opportunities, and driven by a desire for autonomy and independence or to increase their income. Autonomy and independence were subsequently excluded as reasons because tests revealed them being common among early-stage entrepreneurs (Niels and Kelley, 2019).

Previous GEM Luxembourg reports have extensively documented early stage entrepreneurs motivations, and highlighted the fall in opportunity-driven entrepreneurship that marked recent years (Peroni et al., 2023).

Figure 3.10 documents how entrepreneurial motivations evolved from 2019 to 2023 in Luxembourg. In 2023, the proportion of TEA entrepreneurs driven by the intention to make a difference in the world decreased by 5 percentage points compared to 2022, confirming the decreasing trend of previous years, while those motivated by the absence of alternatives increased from 38% in 2019 to 47% in 2023. **The decrease in opportunity-driven and increase in necessity-driven entrepreneurship suggests that recent years' adverse economic conditions may have led to changes in both the quality and intensity of entrepreneurship.**¹¹

Figure 3.10: Entrepreneurial Motivations (2019 – 2023).



Shares of TEA entrepreneurs (in %). Source: 2019 – 2023 GEM Luxembourg APS data.

¹¹Recent trends provide support for the empirical definitions of necessity- and opportunity-driven entrepreneurship adopted by GEM Luxembourg.

Entrepreneurship in Luxembourg: a comparative perspective

This chapter presents a comparative analysis of entrepreneurship in Luxembourg and several European countries. The analysis uses global GEM data and covers 19 European countries, including Luxembourg, participating in both the 2022 and 2023 waves of the APS. The cross-country comparison provides additional information and insights into Luxembourg's entrepreneurial trends and features presented in the previous chapter. It also helps gauging the quality and impact of entrepreneurship.

Each year, the Global Entrepreneurship Monitor (GEM) collects data and documents entrepreneurship across countries worldwide. The surveyed countries feature different economic structures and levels of economic development. (Countries are also characterised by wide variations in the extent of their informal sector, which captures a form of entrepreneurship.) To ensure comparability, GEM classifies countries according to their income levels (low, medium, and high), and presents the analysis of entrepreneurship by group. In the same spirit, this chapter compares Luxembourg with other European countries that share similar economic structures, and for which observations are available for the years 2022 and 2023.

The chapter is organised as follows. Section 4.1 presents indicators of entrepreneurial intensity for the various stages of the entrepreneurial process. Section 4.2 reports on perceptions of the business environment and attitudes towards risk, providing a comparative evaluation of Luxembourg's entrepreneurial environment. The chapter concludes with Section 4.3, which provides information on TEA entrepreneurs' motivations for engaging in entrepreneurship, innovativeness of products and services, and growth expectations. These indicators provide information on the impact and quality of entrepreneurship. This is relevant because well-motivated and innovative entrepreneurs are generally perceived as drivers of productivity and economic growth (e.g., Erken et al., 2018; Lafuente et al., 2020).

The analysis of this chapter shows that, compared to other European countries, Luxembourg ranks above average in terms of entrepreneurial intentions and early-stage entrepreneurship. In 2023, the country's potential entrepreneurs and TEA rates are at, respectively, 19 and 9.7%, higher than cross-country averages (approximately at 15 and 9%, respectively). However, Luxembourg features one of the lowest rates of Established Business Ownership (EBO) within GEM's Europe, and a higher than average proportion of exits involving discontinued businesses. The rebound in Luxembourg's TEA observed in 2023, compared to the previous year, represents one of the highest increases in this indicator across Europe.

The indicators, which feature considerable cross-country variations, confirm the improvements in early-stage entrepreneurial intensity after the widespread decline that occurred during the pandemic both internationally and in Luxembourg. Compared to 2022, shares of potential entrepreneurs, early stage entrepreneurs and established

entrepreneurs increased or remained stable in a majority of the European countries, suggesting a generalised improvement in entrepreneurship across Europe.

Perceptions of the business environment vary considerably across countries. In contrast, individual traits of respondents display less variation. In Luxembourg, fear of failure, and the proportion of individuals that declare to possess entrepreneurial skills are in line with cross-country averages. The number of people with entrepreneurs in their network is below average in the country. Luxembourg's residents' perceptions of business opportunities are in line with the European average, with about half of respondents declaring there are good opportunities to start a business. In contrast, Luxembourg is above average in terms of the perceived easiness to start a business: 62% of respondents agree with the statement that starting a business is easy, compared to the cross-country average of 52%.

On entrepreneurship quality, shares of necessity-driven entrepreneurs vary widely across the countries considered. Luxembourg has a considerable lower-than-average necessity-driven entrepreneurship, with data suggesting that highly motivated entrepreneurs are also above average. Luxembourg, a "strong innovator" according to the European Innovation Scoreboard (European Commission et al., 2023), ranks first in terms of the proportion of TEA entrepreneurs that declare to be innovative.

More worryingly, Luxembourg recorded the lowest level of growth expectations among entrepreneurs in 2023. Together with the decrease in the number of individuals perceiving good opportunities to start a business, revealed by time-series data, this could signal a decline in business confidence. This is also consistent with the decline in business confidence among non-financial companies evidenced for the second quarter of 2023 by STATEC's *Note de Conjoncture* (STATEC, 2023b).

4.1 Entrepreneurial activity in Europe

This section analyses entrepreneurial intensity in Luxembourg in a comparative perspective. As in the previous chapter, we provide a set of indicators that cover all stages of the entrepreneurial process:

1. Potential entrepreneurs: individuals planning to start a new business within the next three years;
2. TEA entrepreneurs: individuals actively involved in setting up a business, and new entrepreneurs (owner-managers of firms younger than 42 months);
3. Established entrepreneurs (EBO): owner-managers of a firm that has been paying wages for over 42 months;
4. Discontinued entrepreneurs: owner-managers who have exited a discontinued business in the past 12 months.

The charts in the remainder of the section presents the indicators of entrepreneurship for the years 2022 (circles) and 2023 (bars) for Luxembourg and the other 18 European countries. (Averages refer to the considered countries.)

The indicators feature wide cross-country variations. On average, however, indicators appear stable across the two years. The figures confirm the **improvements in early-stage entrepreneurial intensity** after the widespread decline that occurred during the pandemic (GEM, 2023). Shares of potential entrepreneurs, early stage entrepreneurs and established entrepreneurs increased or remained stable in a majority of the European countries.

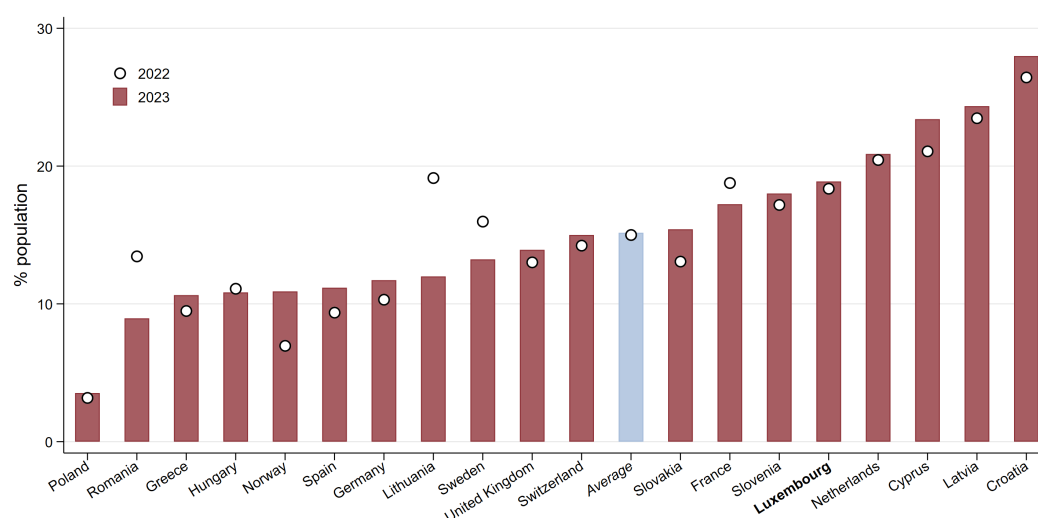
Compared to other European countries, Luxembourg ranks above average in terms of potential entrepreneurs and Total Early-stage Entrepreneurial Activity (TEA). In contrast, it features one of the lowest rates of Established Business Ownership (EBO) within GEM's Europe, and maintains a slightly higher than average proportion of exits involving discontinued businesses. The significant rebound in TEA rates in 2023 represents one of the most notable increases in Europe.

Potential entrepreneurship

Figure 4.1 compares Luxembourg's entrepreneurial intentions against other countries. In 2023, the proportion of potential entrepreneurs in Luxembourg was 19%, above the cross-country average of 15%. Compared to the previous year, entrepreneurial intentions either slightly increased or remained unchanged in a majority of countries

(fifteen out of nineteen). Luxembourg is among the countries that saw a slight increase in entrepreneurial intentions in 2023 compared to 2022.

Figure 4.1: Potential entrepreneurs in Europe.



Shares of adults (in %). Bars and circles refer, respectively, to the year 2023 and 2022.
Source: 2023 and 2022 GEM Global APS data.

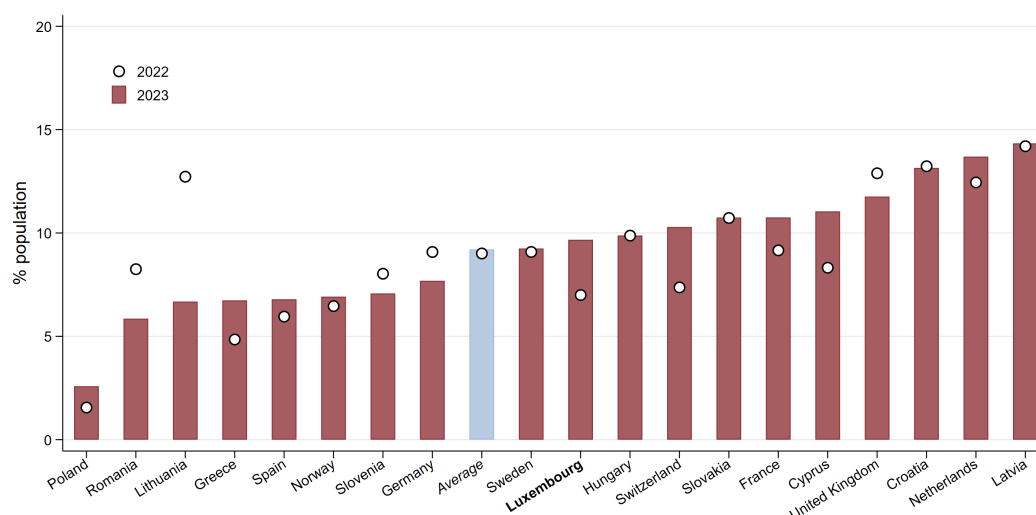
Early Stage Entrepreneurial Activity (TEA)

Figure 4.2 presents cross-country TEA rates for the years 2023 and 2022. The average TEA in 2023 remained at 9%, consistent with the level observed in 2022. TEA rates increased or remained stable in a majority of countries, with only five countries experiencing a decline (especially pronounced in Lithuania, followed by Romania). Luxembourg, alongside Switzerland and Cyprus, saw a substantial recovery in TEA. As shown in Section 3.1, Luxembourg's TEA rate improved to 9.7% from a historic low of 7% in 2022, marking a departure from the downward trajectory of the pandemic years. We also observe that TEA rates varied considerably across countries. Latvia, the Netherlands, UK, and Croatia confirm their standing as top performers. Luxembourg's TEA is also slightly above the country-average (9.2%), in the middle of the rank.

Established Business

Figure 4.3 reports the level of EBO for 2023 and 2022. In a majority of countries (twelve out of nineteen), data show that the share of adults running or owning an established business (EBO) increased or remained stable. This increase was of considerable magnitude in Lithuania. The other seven countries experience a decline, especially pronounced in Romania and Slovakia. The cross-country average EBO remained substantially stable at 7%. Luxembourg, which usually features low levels

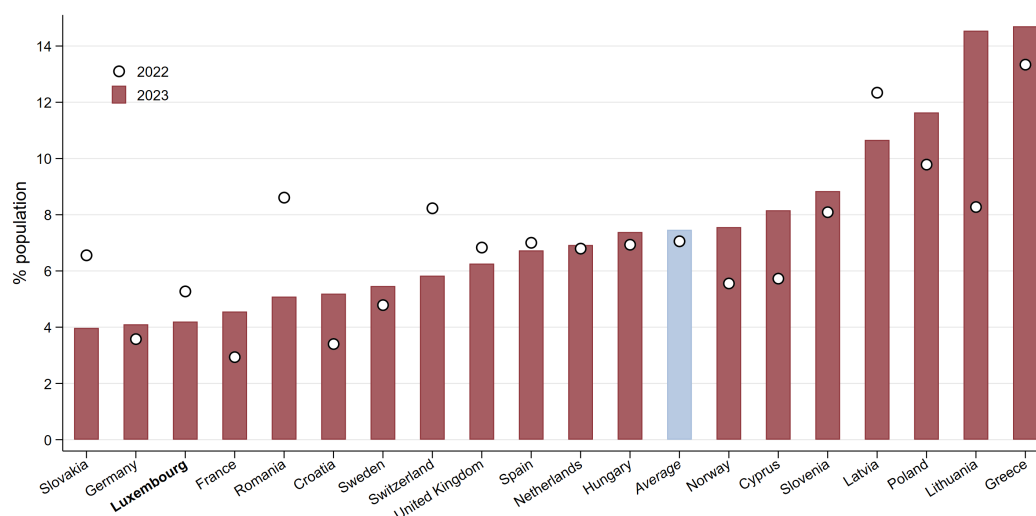
Figure 4.2: Total Early-stage Entrepreneurial Activity (TEA) in Europe.



Shares of adults (in %). Bars and circles refer, respectively, to the year 2023 and 2022.
Source: 2023 and 2022 GEM Global APS data.

of EBO (Peroni et al., 2023), is below average in 2023, with a slight drop to 4% compared to 5% in 2022.

Figure 4.3: Established Business Ownership (EBO).

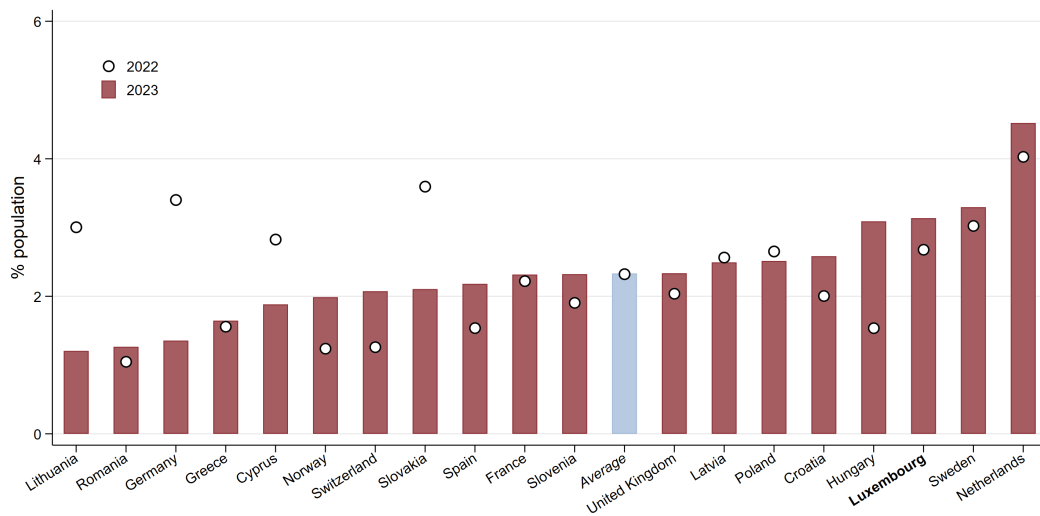


Shares of adults (in %). Bars and circles refer, respectively, to the year 2023 and 2022.
Source: 2023 and 2022 GEM Global APS data.

Entrepreneurial exit

Figure 4.4 shows that in a majority of countries the number of people involved in discontinued businesses increased, albeit modestly, in 2023 compared to 2022, except for six countries among the nineteen surveyed. Notably, Germany, Lithuania, and Slovakia experienced the most significant reductions in exit. The cross-country average for discontinued businesses remained steady at 2%. Luxembourg saw a slight increase in the proportion of discontinued businesses (approximately 3%). The country's share of adults that discontinued a business was slightly higher than average.

Figure 4.4: Share of adults discontinuing a business in the last 12 months.



Shares of adults (in %). Bars and circles refer, respectively, to the year 2023 and 2022.
Source: 2023 and 2022 GEM Global APS data.

4.2 The entrepreneurial environment: respondents' traits, attitudes and perceptions

This section reports on respondents' traits and attitudes across Europe, as these variables affect individuals' decisions to engage in entrepreneurship. Indeed, as argued previously, it is plausible that entrepreneurial intentions and entry patterns reflect changes in the economic outlook also through changes in expectations and perceptions of the business environment.

The indicators considered are the following:

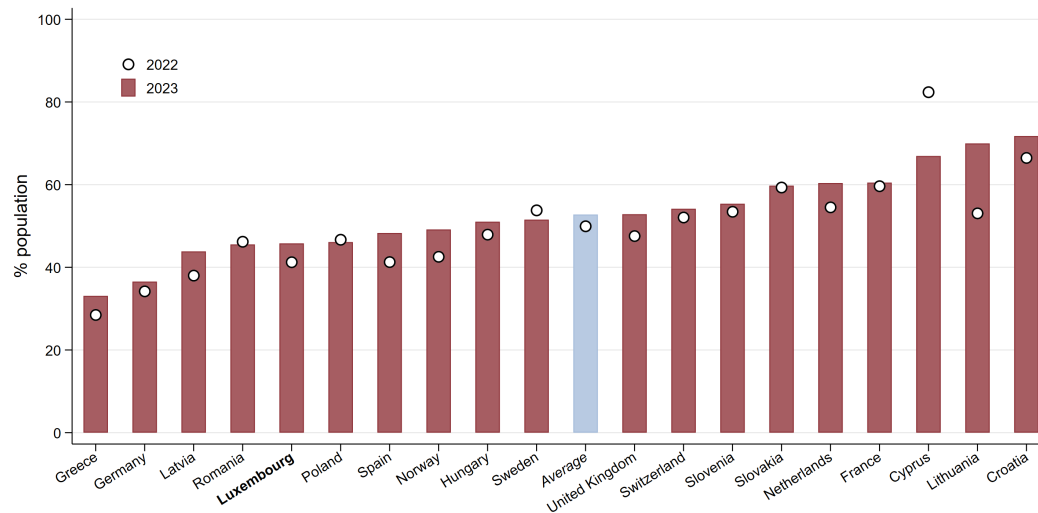
1. **Personally Know Entrepreneurs:** "Knowing someone who has started a business in the past two years."
2. **Good Opportunities:** "In the next six months, there will be good opportunities to start a business in my area."
3. **Personally Have the Skills:** "I possess the knowledge, skills, and experience required to start my own business."
4. **Fear of Failure:** "Hesitating to start a business due to fear of failure, among those who believe there are good opportunities locally."
5. **Easy to Start a Business:** "It is easy to start a business."

The indicators analysed in this section have generally remained stable in the last two years. The only indicator that exhibits a slightly higher variability is "good opportunities", plausibly because it reflects changes in economic outlook and business sentiment. Perceptions of the business environment, captured by "good opportunities" and "easiness to start a business", display large variations across countries. In contrast, fear of failure and perception of own abilities, which reflect inherent personality and behavioural traits, display less variation.

Figure 4.5 provides information on **entrepreneurial networks** across Europe for the years 2022 and 2023. Overall, this indicator remained stable for most countries, except for a significant rise in Lithuania and a notable decrease in Cyprus, while the overall average set at around 50%. In Luxembourg, there was an increase in the proportion of adults that know an entrepreneur, from 41% in 2022 to 46% in 2023. This is below the European average.

Figure 4.6 illustrates the proportion of individuals acknowledging **good business opportunities** in 2023 versus 2022 across Europe. One observes wide variations of this indicator across countries, from the lowest share of Hungary to the highest share of Poland. Luxembourg is in line with the average. Among these countries,

Figure 4.5: Personally know entrepreneurs.



Shares of adults (in %). Bars and circles refer, respectively, to the year 2023 and 2022.
Source: 2023 and 2022 GEM Global APS data.

thirteen observed a modest increase in the perception of viable business opportunities. Overall, there was a slight uplift in optimism, with the average rate climbing from 48% in 2022 to 51% in 2023. In contrast, Luxembourg experienced a minor decline, moving from 52% to 49%.¹ This stability, especially in a global context of an uncertain economic climate, may seem unexpected. It could be attributed to governmental support and economic measures, which potentially alleviated entrepreneurial apprehensions. Alternatively, or additionally, some individuals might perceive new opportunities amidst adversity.

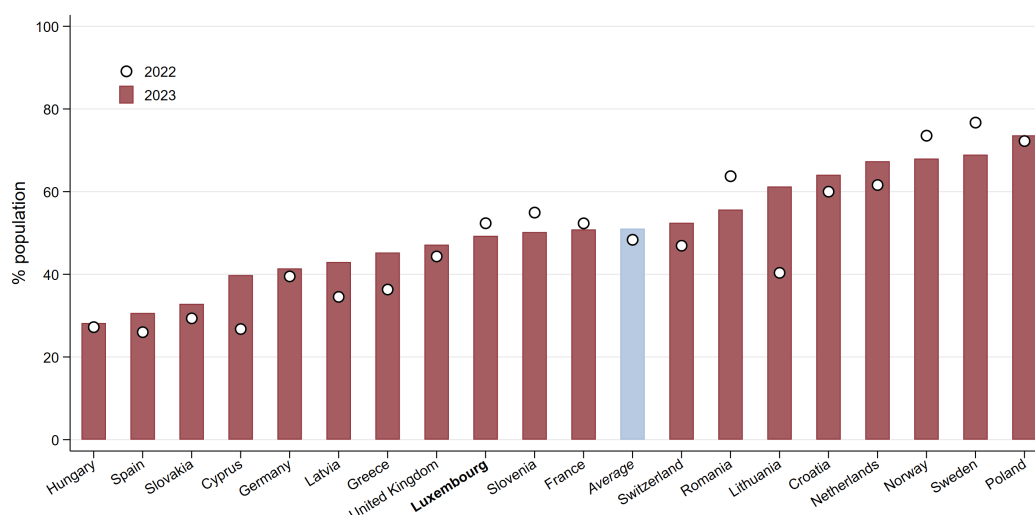
Figure 4.7 shows the percentage of adults stating that they have the **necessary knowledge, skills, and experience** to start a business. Overall, this self-assessment remained steady, except in Romania, where it fell from 63% to 53%. In Luxembourg, the proportion of adults who declare possess entrepreneurial skills is in line with the average across countries.

Figure 4.8 illustrates the percentage of adults recognizing good business opportunities yet hesitating to start a business due to fear of failure. The **fear of failure** rate has largely remained stable across the surveyed period. Notable exceptions include Lithuania, which saw a significant reduction from 46% in 2022 to 35% in 2023, and Latvia, experiencing an increase from 37% to 47%. Luxembourg's fear of failure, at 47% in 2023, closely aligns with the 45% average of the European countries.²

¹This observation aligns with a decrease in business confidence among non-financial companies in Luxembourg during the second quarter of 2023 (STATEC, 2023b).

²As discussed in Section 3.2, the “new chance” scheme (nouvelle chance) was approved on 20 July 2023, after the APS 2023 data collection. For more details, see <https://www.cc.lu/en/all-information/news/detail/reform-of-the-right-of-establishment-what-you-need-to-know>.

Figure 4.6: Good opportunities to start a business in next 6 months.



Shares of adults (in %). Bars and circles refer, respectively, to the year 2023 and 2022.
Source: 2023 and 2022 GEM Global APS data.

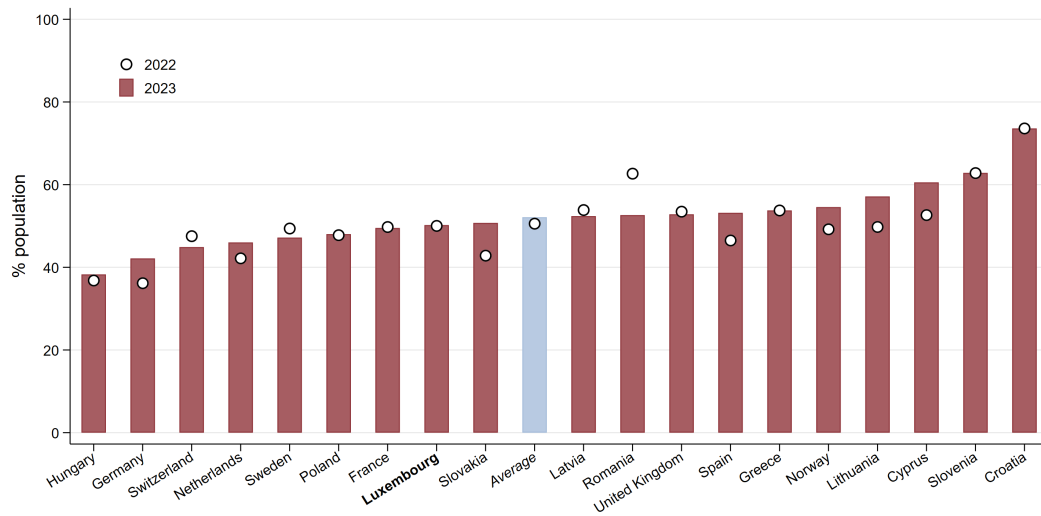
Well-functioning institutions that facilitate initiating and operating a business play a crucial role in fostering economic growth.³ GEM collects information on this aspect by asking individuals how easy it is to start a business in their home countries. Figure 4.9 displays the proportion of adults aged 16-64 in various European countries who believe it is easy to launch a business locally, offering a comparison between 2022 and 2023. The data for 2023 showed relative stability compared to 2022, with only slight variations reported by the participating countries. Yet, there is substantial cross-country variation. In Luxembourg, 62% of respondents felt that starting a business was easy in 2023, surpassing the cross-country average of 52%. Luxembourg ranked 8th among the surveyed countries.

Do other studies support these findings? The Index of Economic Freedom provides complementary insights, assessing a country's economic freedom and its influence on business activities (Kim, 2024)⁴. With an economic freedom score of 78.4 out of 100, Luxembourg ranks 4th among 44 countries in the Europe region according to the 2023 Index, albeit with a slight decline of 2.2 points from the previous year. This standing emphasizes Luxembourg's conducive environment for starting a business.

³This concept was the theoretical basis for the World Bank's Ease of Doing Business index, which, from 2003 to 2020, evaluated the regulatory quality and efficiency impacting global business activities. The index was discontinued and not updated in 2023A successor project, the B-ready index, is expected to be launched in September 2024.

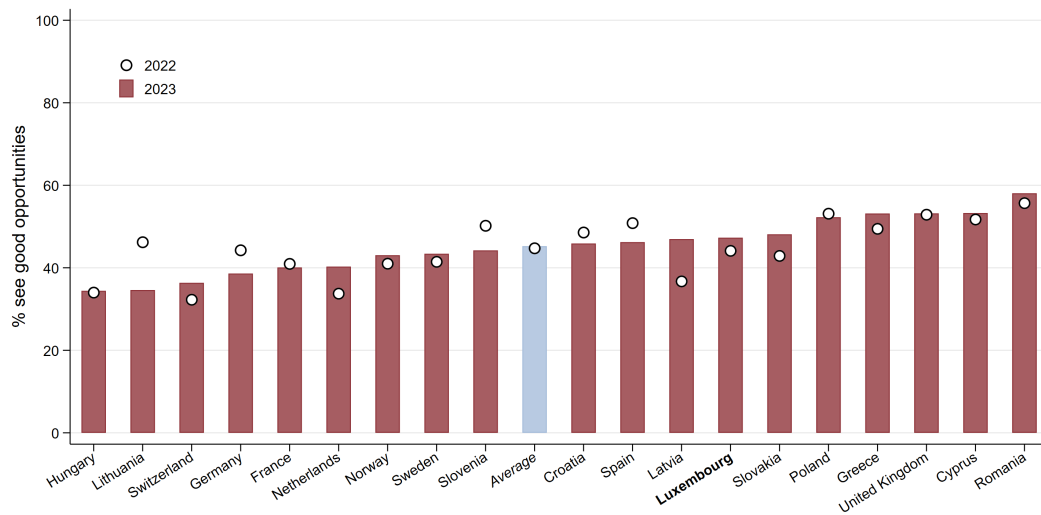
⁴Economic freedom is defined by limited government intervention in the economy, except as needed to protect citizens' liberties. This index assesses freedom through four pillars: Rule of Law, Government Size, Regulatory Efficiency, and Open Markets, across 12 factors.

Figure 4.7: You personally have the knowledge, skills, and experience required to start a business.



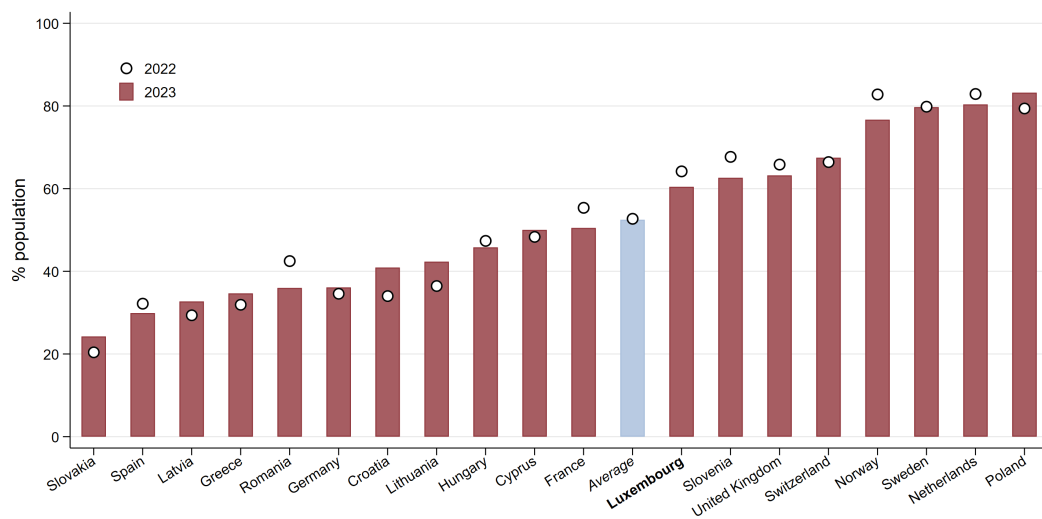
Shares of adults (in %). Bars and circles refer, respectively, to the year 2023 and 2022.
Source: 2023 and 2022 GEM Global APS data.

Figure 4.8: Fear of failure: you see good opportunities, but would not start a business for fear it might fail.



Shares of respondent who see good opportunities to start a business (in %). Bars and circles refer, respectively, to the year 2023 and 2022.
Source: 2023 and 2022 GEM Global APS data.

Figure 4.9: Easy to start a business.



Shares of adults (in %). Bars and circles refer, respectively, to the year 2023 and 2022.
Source: 2023 and 2022 GEM Global APS data.

4.3 Features of entrepreneurship: motivations, innovation and expectations

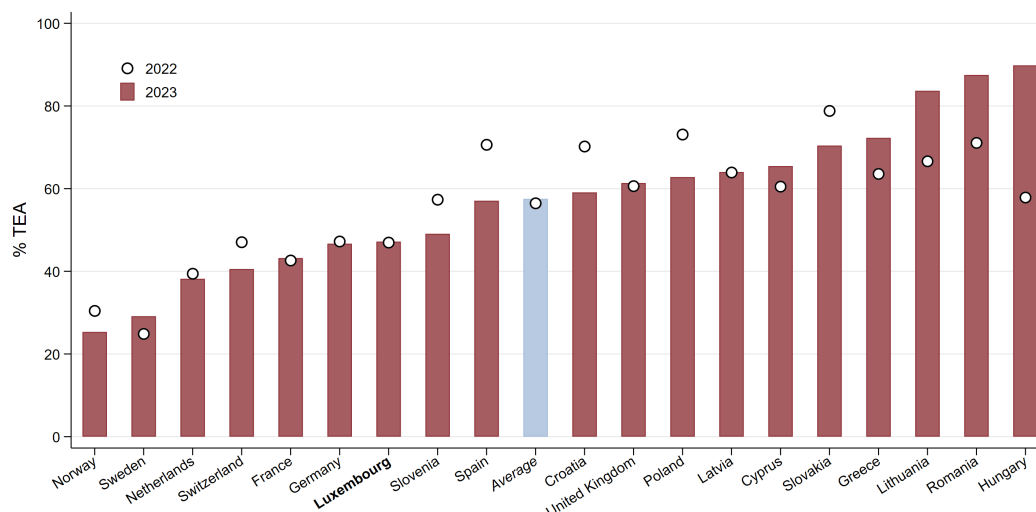
This section uses the cross-country dataset to explore entrepreneurs' motivations and expectations, and innovativeness of entrepreneurial ventures. These aspects provide information on the quality and impact of entrepreneurship. Indeed, well-motivated and innovative entrepreneurs are regarded as drivers of productivity and economic growth, one of the channel being technological improvements (e.g., Erken et al., 2018; Lafuente et al., 2020). We first explore the distinction between opportunity-driven and necessity-driven entrepreneurs within the data. The former concept identifies individuals engaging in entrepreneurial ventures in response to identifiable business opportunities, while the latter captures those who turn to entrepreneurship due to the lack of paid employment opportunities (see Section 3.4 for further details). Subsequently, we examine the proportion of entrepreneurs who report introducing products and services new to their market. We conclude by focusing on growth expectations, as these correlate with business outcomes and dynamism. The statistics of this section are based on answers provided by TEA entrepreneurs.

Necessity and opportunity-driven entrepreneurs

Figure 4.10 shows the percentage of TEA entrepreneurs (those starting or running a new business) who declared that their motivation is “to earn a living because jobs are scarce” in 2023 (bars) and 2022 (circles). The data exhibit large variations across the countries, from the 25% of Norway to the 90 % of Hungary. In 2023, on average 58% of businesses were created out of necessity, broadly in line with the previous year datum (56%). Some countries experienced considerable increases in necessity-driven entrepreneurship, especially Hungary. Necessity-driven entrepreneurship in Luxembourg was below the country average in both years, at 47%. (This represents an increase from the 33% recorded in 2019, the lowest value observed in Luxembourg since this indicator has been collected, as seen in Figure 3.10.)

Opportunity-driven entrepreneurship illustrates the proportion of TEA entrepreneurs setting up a firm to make a difference in the world. This remained stable, approximately at 44% in both years. Out of 19 countries, 7 registered an increase in the proportion of opportunity-driven entrepreneurs, while the others featured either a decline or a stable share of individuals setting up a firm to make a difference in the world (Figure 4.11). Luxembourg, which typically features a very high share of opportunity-driven entrepreneurship in cross-country comparisons, still features a high share of opportunity-driven entrepreneurship. The distance from the average,

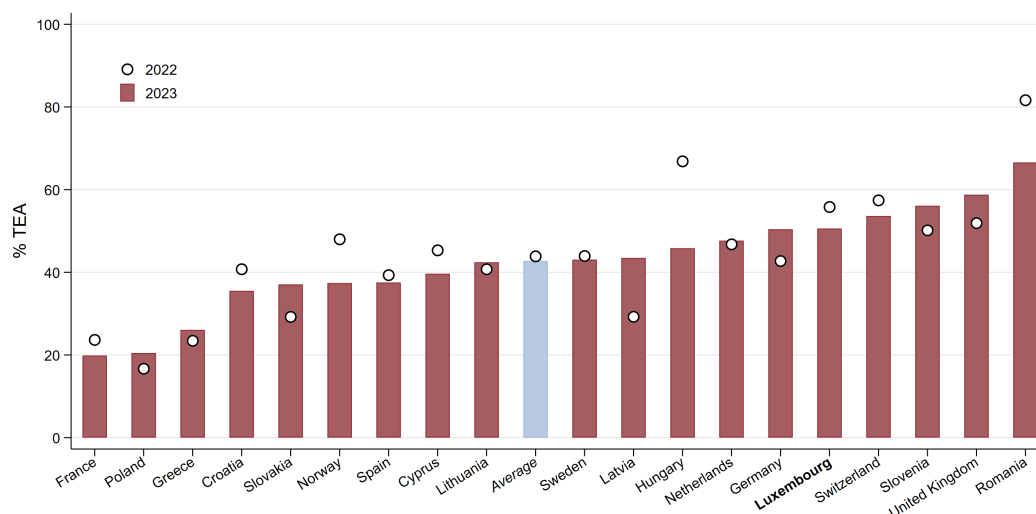
Figure 4.10: Motivation is “to earn a living because jobs are scarce” (% of TEA).



Shares of TEA entrepreneurs (in %). Bars and circles refer, respectively, to the year 2023 and 2022.
Source: 2023 and 2022 GEM Global APS data.

however, is decreasing over time (51% against an average of 44% in 2023). Year on year it recorded a moderate decline, from 56% to 51% (see also Figure 3.10).

Figure 4.11: Motivation is “to make a difference in the world” (% of TEA).



Shares of TEA entrepreneurs (in %). Bars and circles refer, respectively, to the year 2023 and 2022.
Source: 2023 and 2022 GEM Global APS data.

Innovation: new products and services

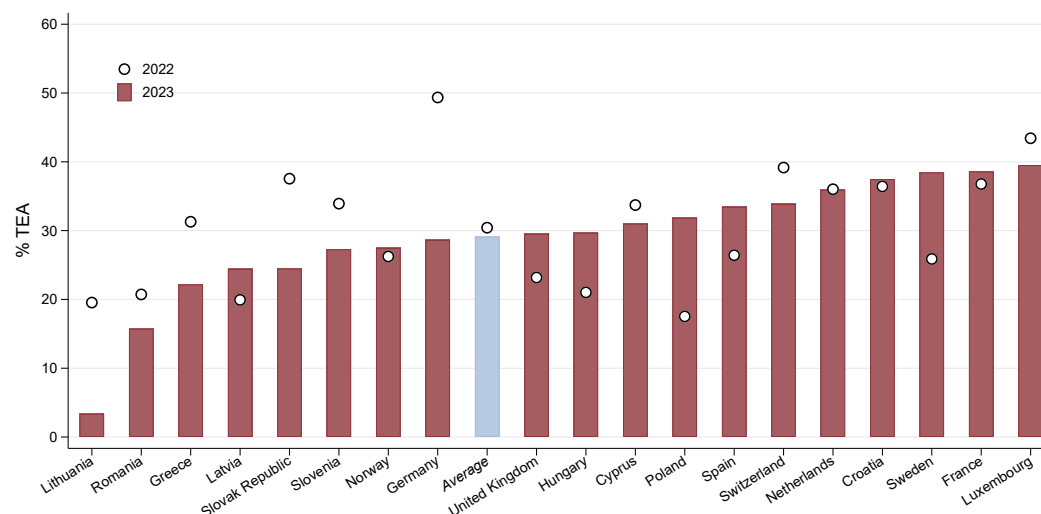
GEM investigates the innovativeness of new ventures by asking respondents whether their products or services are new to their local area, country, or the world. Figure 4.12 reports survey results.

In 2023, Luxembourg ranked first in terms of the proportion of TEA entrepreneurs declaring that their products or services are novel in their operational area, with 39.5% reporting such innovations, slightly down from 43.4% in 2022. The cross-country average remained stable, at about 30 percent, with some countries reporting decreases, others reporting increases. Germany and Lithuania experiencing the most significant decreases. **Early stage entrepreneurs in Luxembourg are the most innovative in Europe.**

How do these findings correlate with other studies? Despite methodological differences, GEM's data show partial alignment with the European Innovation Scoreboard (EIS) 2023 (European Commission et al., 2023), which evaluates the research and innovation performance of European countries using a composite index based on 32 statistical indicators. Although Luxembourg does not emerge as the most innovative country in the EIS rankings, it is still classified as a “Strong Innovator” (see Figure 4.13). Upon examining Figure 4.13 and limiting the analysis to countries participating in GEM, Luxembourg is identified as the 6th most innovative country, trailing behind Switzerland, Sweden, the Netherlands, Norway, and Germany.⁵

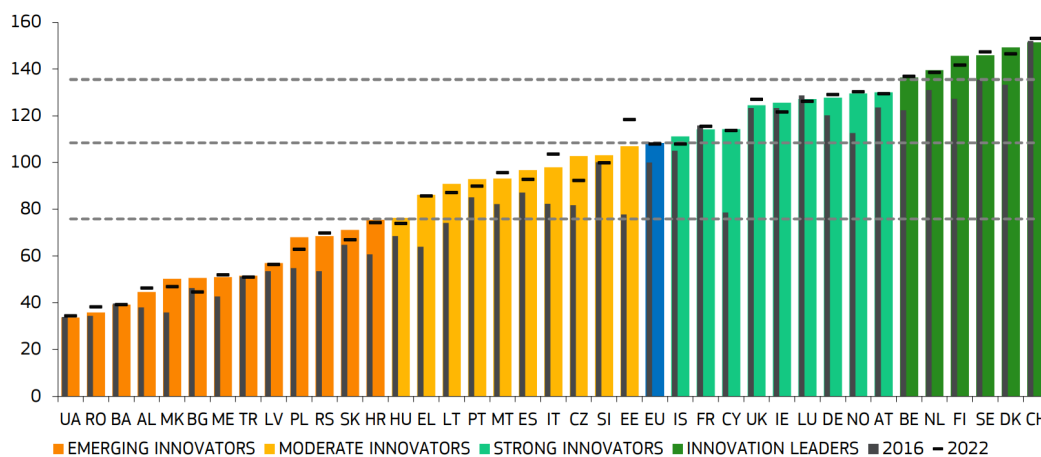
⁵While the rankings between GEM and EIS are largely consistent, there are some notable exceptions. Croatia, Poland, and Spain, despite outperforming the GEM cross-country average, are classified as ‘Moderate’ or ‘Emerging Innovators’ in the EIS, indicating performances below the European average. Conversely, Germany, Norway, and Slovenia exhibit lower rankings in GEM compared to their EIS standings.

Figure 4.12: Entrepreneurs with new products or services (% of TEA).



Shares of TEA entrepreneurs (in %). Bars and circles refer, respectively, to the year 2023 and 2022.
Source: 2023 GEM Global APS data.

Figure 4.13: European Innovation Scoreboard 2023.



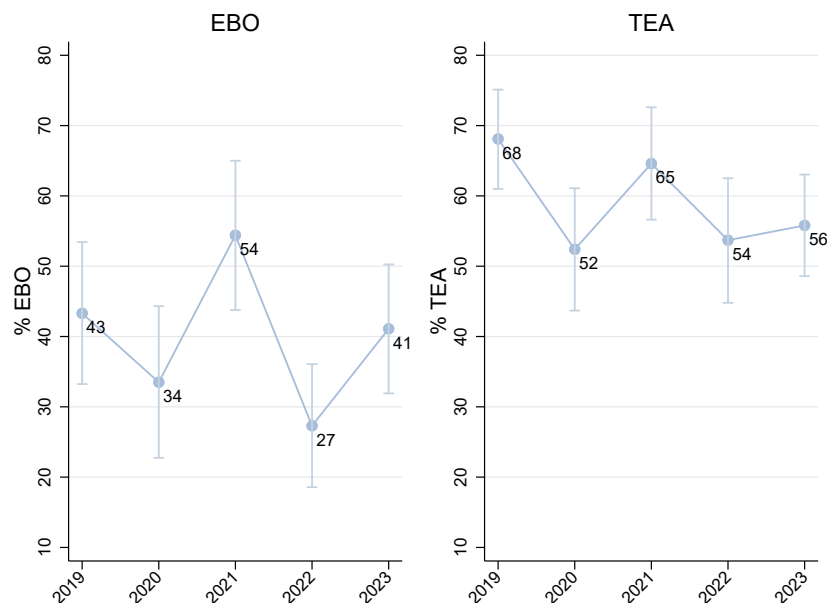
Note: All performance scores are relative to that of the EU in 2016. Coloured columns show countries' performance in 2023, using the most recent data for 32 indicators. The horizontal hyphens show performance in 2022, using the next most recent data. Grey columns show countries' performance in 2016. The dashed lines show the threshold values between the performance groups, where the threshold values of 70%, 100%, and 125%, when using the latest 2023 data, have been adjusted upward by multiplying with 1.085 to reflect the performance increase of the EU between 2016 and 2023 as the graph shows performance scores relative to the EU in 2016.
Source: European Innovation Scoreboard 2023 European Commission et al. (2023, p. 28).

Exhibit: Innovation in Luxembourg over time

The introduction and diffusion of innovation is an important outcome of the entrepreneurial process. New ventures are generally regarded as potentially radically innovative because they are able to identify and exploit business and technological opportunities more efficiently than older firms. GEM establishes the innovativeness of new ventures by asking owners/managers: 1) the share of customers perceiving the main product of the new or established venture as new or unfamiliar; 2) the number of competitors offering the same product.^a

Figure 4.14 shows the shares of innovative ventures on TEA and established entrepreneurs . (The figure display the proportion of TEA or established entrepreneurs - EBO - that declare to have at least one product OR process that is new to all or some customers AND that declare that few/no other businesses offer the same product.) The chart shows that, in 2023, 56% of TEA entrepreneurs are innovative compared to 41% of EBOs. (Note that the figure is higher than the one reported in the the cross-country chart opposite, because here we consider both process and product innovation, while the cross-country data capture solely product innovation.) **In self reports, early-stage entrepreneurs appear more innovative than established entrepreneurs.**

Figure 4.14: New product or process, established and TEA.



Source: 2019-2023 GEM Global APS data.

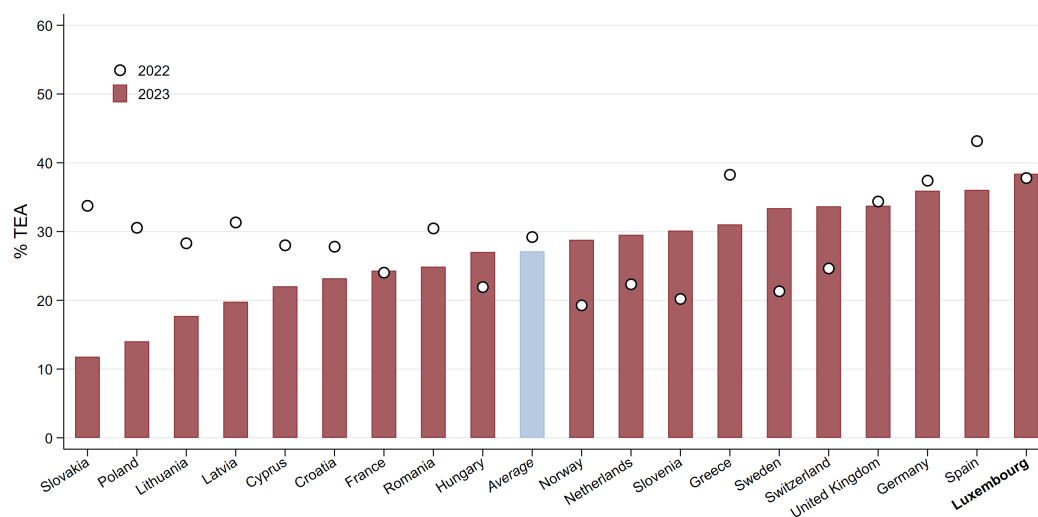
^aNote that respondents to this question are managers/owners of the business - and not their customers. Thus, the answers does not reflect the market's perception but those of managers.

Growth expectations

Expectations are regarded as reliable indicators of business dynamism and outcomes. Despite a natural inclination among entrepreneurs towards excessive optimism (Hmieleski and Baron, 2009), research shows that entrepreneurs' expectations can serve as reliable indicators of overall business outcomes (Kolvereid and Isaksen, 2017, have shown that expectations recorded during the business registration process can accurately forecast both immediate and future cumulative sales revenues and labour costs). Additionally, businesses' opinion surveys tend to be significantly correlated with business statistics (Remond-Tiedrez, 2005).

To explore entrepreneurs' expectations, GEM surveys their **expectations on future business growth**. Figure 4.15 displays the percentage of TEA respondents who reported lower growth expectations compared to the previous year. Once again, data indicate cross-country variations, but also considerable changes in ranking positions over the years. In 9 out of 19 countries, mostly Eastern European countries, expectations are more optimistic than the previous year. In 5 western European countries, however, expectations of growth have deteriorated compared to the previous year. Overall, 27 percent of TEA entrepreneurs declare that growth expectations are lower than the previous year. The data indicate that, in 2023, a significant share of entrepreneurs in Luxembourg had reduced growth expectations (38% compared to the cross-country average of 28%), marking the highest rate among the countries analyzed. This observation, along with a decrease in the number of individuals perceiving viable business opportunities (see Figure 4.6), suggests a deteriorating economic outlook for 2023. This is consistent with a recorded decline in business confidence among non-financial companies in Luxembourg during the second quarter of 2023 (STATEC, 2023b).

Figure 4.15: Growth expectations are lower than one year ago (% of TEA).



Bars and circles refer, respectively, to the year 2023 and 2022. Shares of TEA entrepreneurs (in %).
Source: 2023 GEM Global APS data.

Entrepreneurship and business dynamism

This chapter presents evidence on Luxembourg's business dynamism based on data sourced from the Luxembourg Business Register and STATEC's Business Demography. The aim is to provide further insights on the evolution of entrepreneurship in Luxembourg. Additionally, these sources provide validation for GEM observations, and in the case of the business register very up-to-date observations. Indeed, entrepreneurship is strictly related to business dynamism — a term that refers to the birth, growth, decline and closure of firms — and specifically to the creation of new ventures. GEM places emphasis on entrepreneurship as the creation of new ventures (Parker, 2009), and does so by gathering information on entrepreneurs and their environment. As a result, GEM surveys are conducted on individuals, and the information on the firms created and owned by the entrepreneurs provided by GEM is limited. Thus, this chapter uses data from the business register and demography to complement GEM, the main source of information for this report, with the caveat that the datasets considered are not directly comparable to GEM due to differences in the unit of observations and coverage.

The remaining of this chapter is organised as follows. Section 5.1 presents data on firms entry, exit and net creation from STATEC's business demography, and data on new business registrations from the business register of Luxembourg. Section 5.2 compares Luxembourg's business dynamism with neighbouring countries using cross-country versions of business demography and registers.

Business demography data reveal a decrease in Luxembourg's net firm creation, driven by a decrease in entry, followed by a recovery, during the pandemic years. This evidence is broadly in line with GEM figures. Register data provide a more up-to-date view on business creation, until up to the first quarter of 2024, showing considerable variability in the number of bankruptcies, and a considerable slow down in business creation. This feature also stands out when analysing comparative data: Luxembourg has seen a consistent decrease in business registrations since the second half of 2021. This evidence is suggestive of a recent slowdown in business dynamism. However, these data should be interpreted cautiously in light of their limitations.

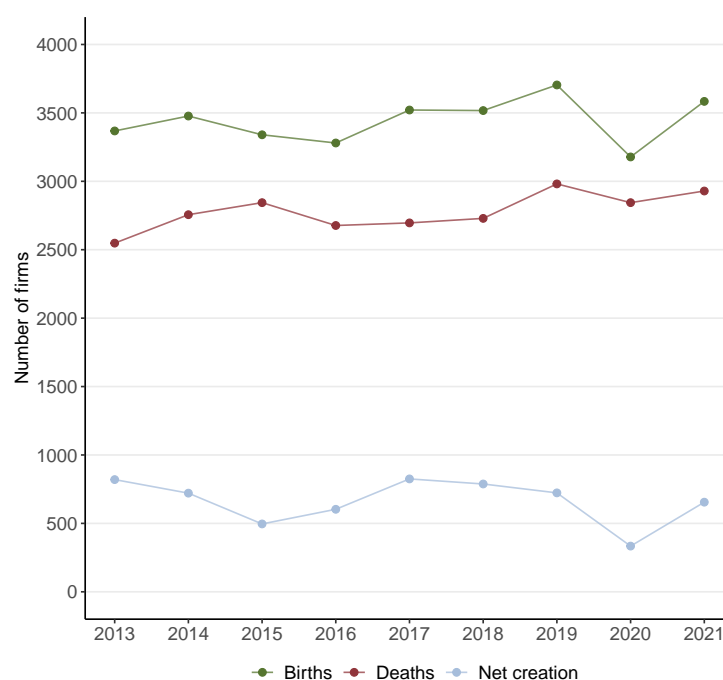
Before presenting results, what follows provides some basic information on the data used. The Luxembourg Business Register (LBR, or simply BR, hereafter) is an administrative source that provides information on the registrations of new businesses. Data are available at monthly frequency, and are timely. The registration of new businesses, however, can be influenced by various factors, including events such as mergers, takeovers, and internal restructuring, which may not be related to entrepreneurship. Moreover, appearances and disappearances of businesses in registers are not easily comparable across countries due to differences in legal and administrative requirements, including mandatory incorporation thresholds (OECD,

2011). Business demography (BD) statistics typically address these limitations. The data are comparable across countries and take into account changes in legal status and other events (e.g. mergers, breakups) to reliably capture "true" firm exit (death) and entry (birth) (STATEC, 2023a). They are compiled annually by STATEC adopting the methodological indications of the Eurostat-OECD Manual on Business Demography Statistics (Eurostat, 2007) and provide information on the number of active firms in the business economy, as well as aspects such as firms' entry, survival, and growth. Luxembourg's BD data are available from 2004 to 2021 (see STATEC, 2021, for more details). Despite offering greater accuracy in measuring genuine business creation, one limitation of BD data is that they are available with a considerable lag.

5.1 Entry, registrations and bankruptcies

Figure 5.1 presents the evolution of firm births (green line) and deaths (red line), as measured by Luxembourg's Business Demography (BD), from 2013 to 2021, the latest available observation. It also shows the net number of newly created businesses (blue line). Observations are at annual frequency.

Figure 5.1: Business demography in Luxembourg (2013 – 2021).



Number of newly created (green line) and discontinued businesses (red line). The blue line denotes net business creation.

Source: STATEC business demography 2013 – 2021.

The figure shows that the years between 2013 and 2019 featured relative stability in firm entry and exit (with a slowdown in business dynamism in 2015) and, as a result, in the *net* number of newly created businesses. In 2020, the year of the first COVID-19 lockdown, we observe a considerable slowdown in the entry of new firms, and a resulting trough in the net number of business entries. (Note that the slowdown in entry has not been accompanied by an equivalent increase in closures.) In 2021, we observe a recovery in the number of new businesses, and a slight increase in the number of closures, leading to a recovery in net firm creation.

As previously highlighted, BD data are a reliable source of information on business creation. These data, however, do not provide information on most recent developments. (This is due to the natural time lag between data collection, treatment and release.) This requires the use of an alternative source of data, namely the Business Register (BR).

Figure 5.2 presents the evolution of bankruptcies (top panel) and new business registrations (bottom panel) from 2013 to 2024 in Luxembourg from BR data. (Observations are quarterly and seasonally adjusted.)¹

The top panel shows the evolution of bankruptcies. One can see that the number of bankruptcies substantially increased between 2017 and 2019. (This increase was mainly driven by bankruptcies in the financial sector.) This was followed by a sharp decrease, which occurred just before the implementation of the first lockdown, and a subsequent surge, during the third quarter of 2020. During the pandemic, the number of bankruptcies reached its highest level for the entire period, exhibiting two peaks. Note, however, that the maximum number of bankruptcies recorded during this period was not much higher than the one prevailing in the two previous years. A plausible explanation for this feature is the support provided by government to businesses during this phase.² The second peak, recorded in the last quarter of 2022, coincided with the ECB's change in monetary policy stance in response to increasing inflationary pressures, a likely contributing factor.³ Since the occurrence of the second peak, the number of bankruptcies has sharply decreased to reach one of its lowest levels since 2013. Nonetheless, we observe another surge in the first quarter of 2024, possibly linked to the lagged effects of the increase in ECB basic rates.

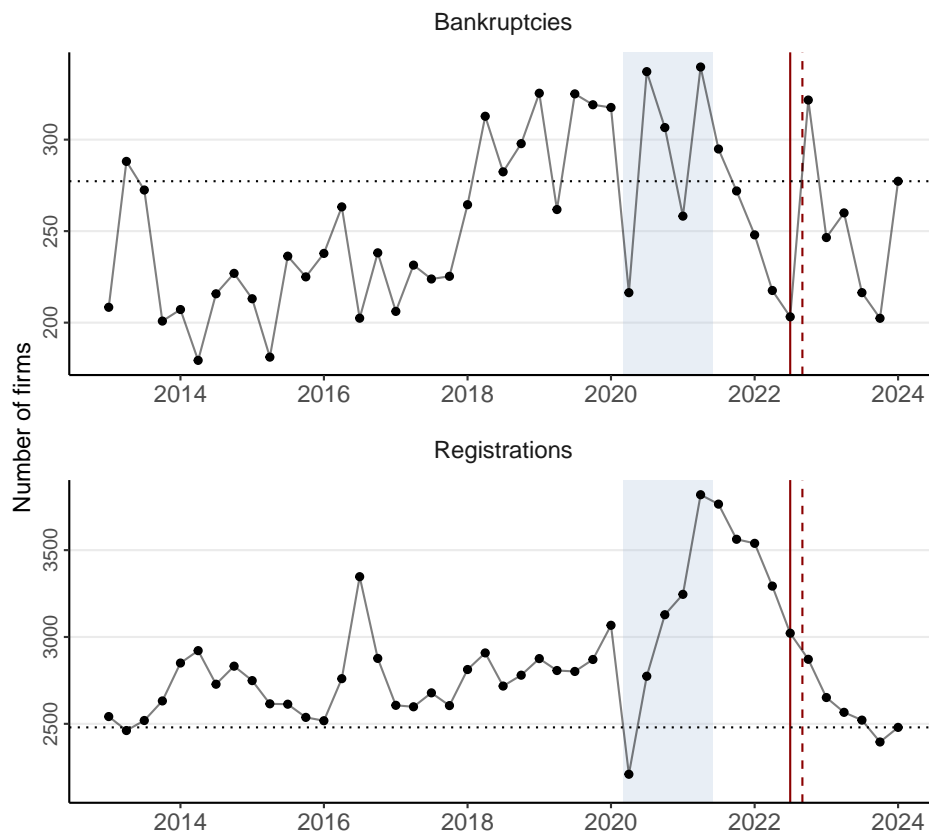
The bottom panel of Figure 5.2 shows the evolution of new business registrations from 2013 to 2024. The chart presents several striking features. Firstly, we observe a sharp decrease in the number of business registrations in correspondence of the pandemic outbreak and restrictive measures (second quarter of 2020 and first two quarters of 2021). Secondly, this was followed by a dramatic increase in registrations, which rose from the lowest period level in the first quarter of 2020, to their highest level in the second quarter of 2021. Thirdly, since then, business registrations have been decreasing, reaching their second lowest level for the period. While a slight increase in registrations has been observed during the first quarter of 2024, at the

¹Exit ('death') and entry ('birth') variables are not readily available in BR data. Although BD data are derived from BR data, the information from the latter is treated by dedicated departments of national statistical offices to compile harmonised economic indicators of entry and exit. In other words, Figure 5.2 reports raw data on registrations, which are not directly comparable to firms 'birth' documented previously. Data on bankruptcies are sourced from the Ministry of Justice and STATEC. For the most recent data available at the time of writing, see, for example, <https://statistiques.public.lu/en/actualites/2024/stn15-faillites-02.html>.

²The European Economic Forecast, Winter 2024, suggests additional possible explanations, stating that "the policy response to the pandemic crisis also included temporary changes to insolvency procedures and bankruptcy moratoria" (European Commission, Directorate General for Economic and Financial Affairs, 2024). These, combined to the "judicial backlog accumulated during the lockdowns", could have contributed to "keep bankruptcies low until the third quarter of 2022."

³See e.g. https://www.ecb.europa.eu/stats/policy_and_exchange_rates/key_ecb_interest_rates/html/index.en.html. Another possible explanation is the end of the bankruptcy moratorium and the clearing of backlogs accumulated during the lockdown (European Commission, Directorate General for Economic and Financial Affairs, 2024).

Figure 5.2: Bankruptcies and registrations (2013 – 2023).

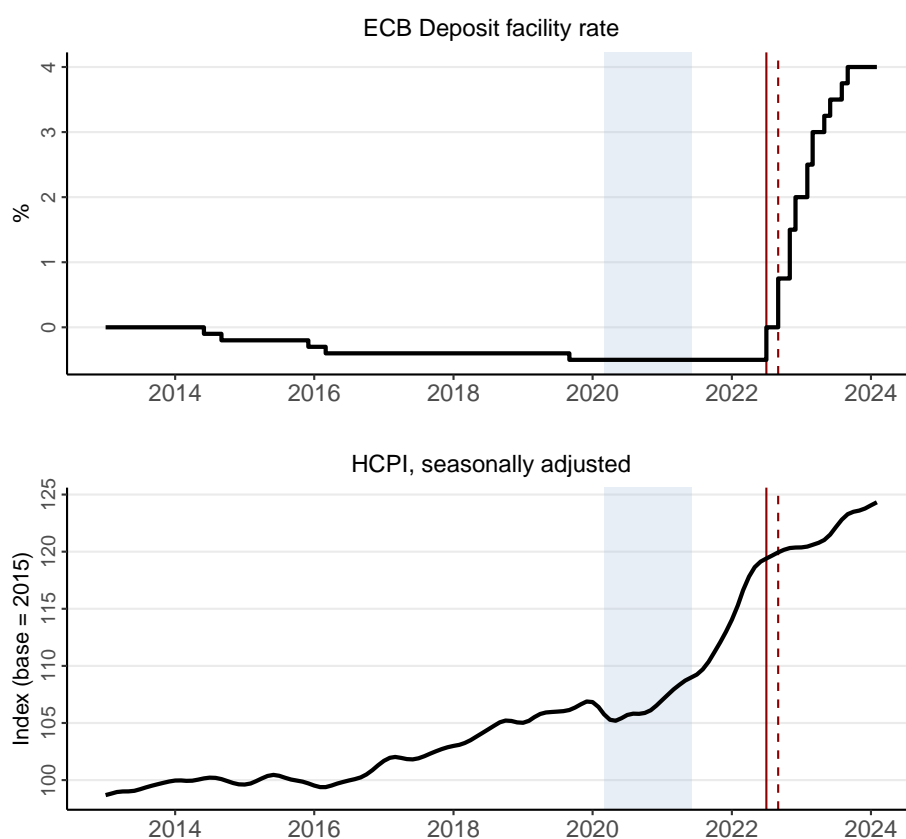


The blue shaded area indicates the period between the beginning of the first lockdown measures implemented in Luxembourg and the end of the second and final lockdown measures, as documented, for example, in OECD, 2022. The vertical red lines mark the change in the ECB's monetary policy stance. Source: authors' calculations on STATEC business demography and LBR.

time of writing, it is not possible to establish whether this constitutes a reversal of the decreasing trend observed in recent years.

In summary, data depicted in Figure 5.2 suggest that entrepreneurial activity in Luxembourg, when understood as the creation of new ventures, has been consistently slowing down since the second half of the pandemic period. While the identification of the causes of this slowdown is outside the scope of this report, it is plausible that the increase in interest rates that followed the emergence of inflation has contributed to preventing entrepreneurial activity from rebounding to its pre-pandemic level. Figure 5.3, read together with figure 5.2, suggests so. The top panel presents the evolution of the deposit facility rate - one of the key interest rates set by the ECB - during the 2013-2023 period. The bottom panel shows the evolution of the harmonized consumer price index (HCPI) during the same period.

Figure 5.3: ECB key rate and Harmonized Consumer Price Index (2013 – 2023).



The blue shaded area indicates the pandemic years. The vertical red lines mark the change in the ECB's monetary policy stance.

Source: authors' calculations on ECB and Eurostat data.

Figure 5.1 and the bottom panel of Figure 5.2 clearly differ in terms of absolute figures, but depicted trends appear to be consistent.⁴ The question arises, while the content of business demography and business register data differ, do they convey consistent information on economic developments? Can we then use BR data as a possible timely alternative source of data compared to BD to examine business dynamism? The next section attempt to address this question by comparing business venture creation in Luxembourg with its neighbouring countries.

⁴BR data tend to overestimate the number of economically meaningful entries.

5.2 Business venture creation in a comparative perspective

This section illustrates trends in the creation of new ventures to assess business dynamism in Luxembourg, comparatively to Belgium, France, Germany, and the Netherlands.⁵ The creation of new ventures is captured by the number of firms entering the market (also referred to as "entries" hereafter) from two sources, namely the the OECD's BR and BD data from Eurostat. We first assess the consistency of trends compiled from two sources of data. Then, we exploit quarterly BR data to illustrate recent comparative trends in business dynamism.

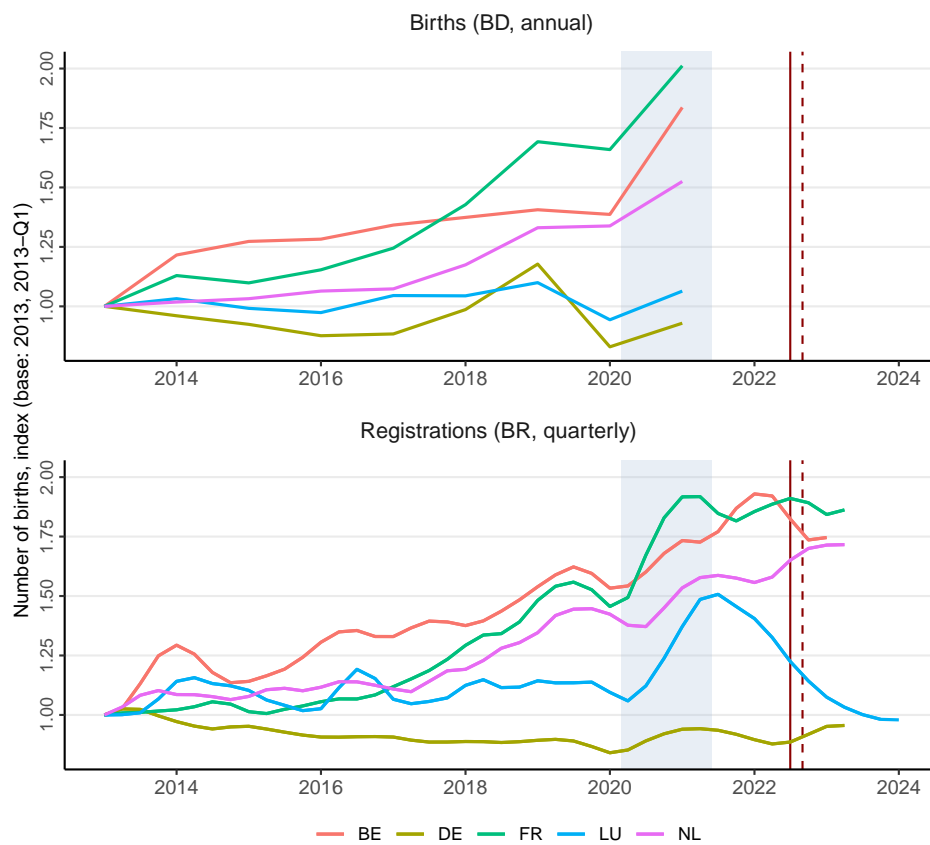
Figure 5.4 presents the evolution in business entries based on, respectively, Eurostat's BD (top panel) and OECD cross-country BR data (bottom) for the countries considered. Note that panels differ in data sources, variables considered, and, importantly, in data frequency: Eurostat BD data are annual, while BR data are quarterly. (The latter allows us to illustrate the fluctuations in entries with greater accuracy.)⁶

The two panels of Figure 5.4 show similar features. We distinguish two groups of countries. A first group, which includes Belgium, France and the Netherlands, exhibits an increasing trend in the number of entries since 2013. In contrast, a second group of countries features an overall stagnation in the creation of new ventures. This group consists of Luxembourg and Germany. One can see that, during the pandemic period, patterns for both groups are similar: a trough in business creation between the end of 2019 and beginning of 2020 is followed by a sharp increase in the indicator. In summary, while the magnitudes of the changes may differ, underlying trends show considerable similarity. This confirms that BR and BD data convey consistent information on business dynamism.

⁵While the Netherlands is not a direct neighbour of Luxembourg, it is geographically close and shares similar socio-economic conditions, making its inclusion in the comparison relevant to the aim of the analysis.

⁶To compile the trends we proceeded as follows. To account for the effect of the size of countries on the number of entries, each series is divided by the value it takes in a chosen reference period (year). To be in line with the period covered by GEM Luxembourg, we choose 2013 as the reference year (first quarter of 2013 for the quarterly series). This allows us to obtain two sets of indices summarizing the trends of business dynamism for each countries, based on BD and BR. To facilitate the visual comparison, note that the bottom panel in figure 5.4 only shows smoothed versions of the countries' trajectories. The smoothed lines are obtained via the X13-ARIMA procedure recommended by Eurostat.

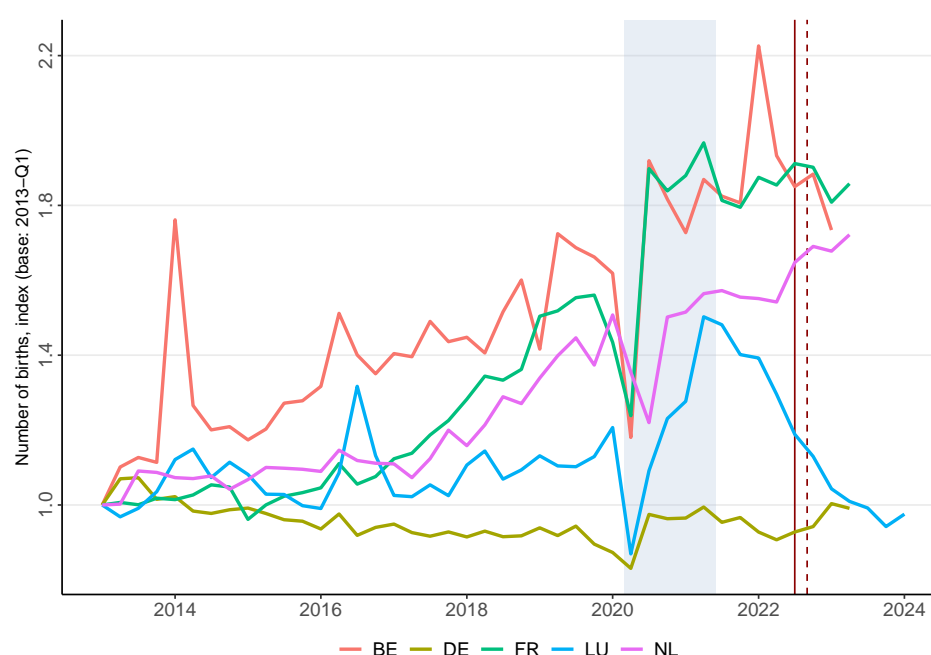
Figure 5.4: Trends in business entries: cross-country comparison (2013 – 2023).



Observations in the bottom panel are smoothed to capture trends. The vertical red lines mark the change in the ECB's monetary policy stance. Source: authors' calculations on Eurostat (BD), OECD (BR) and LBR data.

Figure 5.5 presents seasonally adjusted data on business registrations from the OECD's BR dataset. This data treatment offers a more detailed view of the pandemic and post-pandemic trajectories for the countries considered.⁷ One observes that all countries experienced a decline in business entries following the pandemic outbreak. Shortly after, there was a sharp increase in the number of registrations, which reached levels even higher than those recorded before the pandemic. Since then, however, post-pandemic trajectories have varied significantly across countries. Business entries stagnated in Germany, Belgium and France. They increased in the Netherlands, and saw a sharp and continuous decline in Luxembourg. By the end of 2023, quarterly registrations in Luxembourg approached the low point experienced at the onset of the pandemic.

Figure 5.5: Business registrations: cross-country comparison (2013 – 2023).



Observations are seasonally adjusted. The vertical red lines mark the change in the ECB's monetary policy stance. Source: authors' calculations on OECD BR data and LBR.

The diversity of these post-pandemic paths prompts questions. A slowdown in entrepreneurial activity in 2022 and 2023 could have been foreseen in light of the rise in energy prices and the subsequent hike in interest rates prompted by the ECB new policy stance. Yet, only Luxembourg has seen a consistent decrease in business registrations since the second half of 2021. Nonetheless, while BR data are timely and appear to capture trends in business entry effectively, they have limitations that makes them less informative, in terms of economic interpretation, than business demography data.

⁷Seasonal adjustment removes variations in the series that are due to seasonal movements. In Figure 5.4, bottom panel, both seasonal movements and random fluctuations have been removed from the series; only the trend-cycle component remains.

The ecosystem for
entrepreneurship in Luxembourg:
barriers, enablers and policy
actions

This chapter provides descriptive evidence on the Luxembourg's entrepreneurial ecosystem, highlighting barriers, enablers and policy initiatives to foster entrepreneurship in Luxembourg. This uses data from a set of GEM's APS specific questions for Luxembourg. This information is valuable because it contributes to understanding what hampers, or favours, entrepreneurial activity in Luxembourg. It also allows us to examine whether respondents have changed their view on barriers/enablers over time, and to provide a first correlational assessment of the impact of policies.

Section 6.1 presents data on perceived barriers to early-stage entrepreneurship in Luxembourg. Section 6.3 illustrates responses to a set of questions concerning the relevance and effectiveness of programmes to foster entrepreneurship in Luxembourg.

Early-stage entrepreneurs in Luxembourg primary concerns appear to be the availability of adequate office space, funding and human resources. While a majority of the barriers indicators have improved over time, there are signs of deterioration in recent survey wave(s), concerning the same indicators, e.g. human resources, funding and office spaces. The evidence from policy questions suggests a positive *association* between initiatives supporting entrepreneurial activities and running a business, and specifically a positive *association* between the provision of entrepreneurial training and setting up and running a new business.

6.1 Barriers to entrepreneurship

Since 2016, seven dedicated questions ask GEM's APS respondents to assess **barriers and enablers of Luxembourg's entrepreneurial ecosystem**. Respondents are asked to report their agreement with the following statements:¹

- I can easily access funding for launching and running my company.
- I have time to launch a new company.
- I can easily access needed information to start my company.
- Dedicated training programs to start a new company are available and adequate.
- I can easily access potential customers.
- I can easily access office spaces that are affordable.
- Qualified and affordable human resources, needed for launching and running a new company, are available.

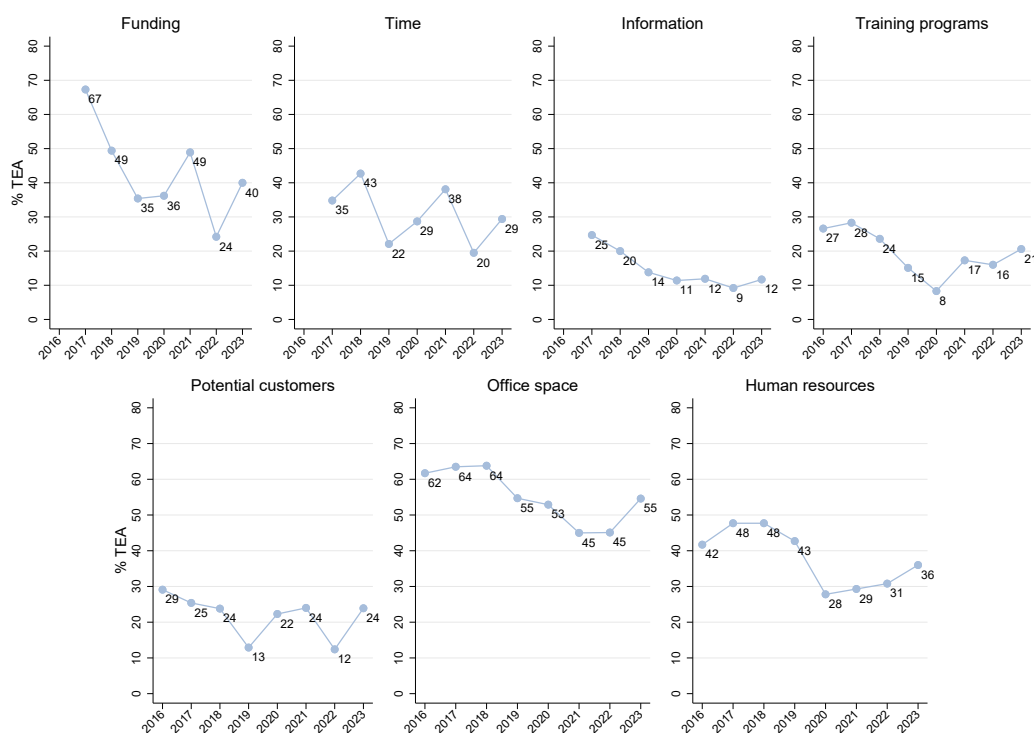
¹ Answers ranges on a scale from 1 (i.e. completely agree) to 5 (i.e. completely disagree).

Figure 6.1 illustrates the evolution of perceived barriers to entrepreneurship during the period 2016 – 2023 according to TEA entrepreneurs. (The shares refer to those entrepreneurs that strongly disagree or disagree with the corresponding statements, so that higher percentages represent a more negative evaluation of the specific factor.)

In 2023, the primary concern for entrepreneurs is office space: at least 55% of entrepreneurs disagree with the statement that they have easy access to affordable office spaces (2023). **This is followed by the availability of funding and qualified human resources.**

Until 2022, all barriers showed a downward trend, indicating that entrepreneurs have been viewing these factors as less problematic over time. This, with the exception of the availability of training programs and human resources, which show a deterioration from 2020. In 2023, however, we observe a worsening for all indicators. Difficulties in the availability of funding, in particular, see a significant increase, rising from 24% in 2022 to 40% in 2023. Plausibly, increases in interest rates from early 2022 onwards, and the worsening of credit conditions have contributed to this trend (OECD, 2023a).

Figure 6.1: Barriers according to entrepreneurs (2016 – 2023).



Note: figures indicate shares of TEA entrepreneurs that strongly disagree or disagree to the statements.
Source: 2016 – 2023 GEM Luxembourg APS data. Notes: proportion of TEA entrepreneurs that strongly disagree or disagree to the statements.

Caveats concern the persistency of trends and coverage. Firstly, more data will be needed to assess robustness of recent trends. Secondly, the sample covers resident entrepreneurs only. Non-resident entrepreneurs might face greater difficulties and might have different views on barriers.² Findings, however, are in line with results from the 2023 European Investment Bank Investment Survey (EIBIS) (European Investment Bank, 2024). According to the EIBIS, Luxembourg firms identified the lack of skilled labour and rising energy costs as the primary long-term barriers to investment. Access to finance was among the least reported concerns. Nonetheless, the EIBS survey underlines that the proportion of firms constrained by finance has significantly increased from 2.4% in 2022 to 10% in 2023 in Luxembourg. This is essentially in line with our data, where we can see that, while access to funding has been improving over the period, it increases in relevance again in recent years.

6.2 Exhibit: The OECD scoreboard on Financing SMEs and entrepreneurs

Access to finance — defined as the availability of sufficient and affordable funds — is crucial to entrepreneurs and new ventures. The OECD's "Financing SMEs and entrepreneurs" (OECD, 2024) provides information on the access to finance for small and medium enterprises (SMEs) and entrepreneurs in OECD and other selected countries. The publication overviews the financing instruments available to small firms and entrepreneurs, and presents indicators of credit conditions and loan volumes. The report includes an analysis of overall and within-country trends on access to finance, as well as scoreboards reporting the indicators for each participating country.^a

The OECD (2024, p. 174) scoreboard for Luxembourg reports the following key facts:

- According to the latest available data, SMEs (firms that employ less than 250 employees) accounted for 99.5% of all non-financial firms in Luxembourg in 2020. SMEs employed approximately 66% of the labour force and generated 59% of the economy's total value added.
- New loans to all enterprises continued to decrease in 2022, marking the lowest level since records began. New loans to SMEs also decreased in 2022, but at a slower pace than loans to all enterprises. The share of

² Cross-border entrepreneurs are not included in the GEM sample. However, the European Commission, based on IGSS data, documents that, in November 2022, approximately, 20% of the self-employed were cross-border workers (5966 over a total 29383) (EU Commission, 2023).

new lending to SMEs increased to 17.2%, surpassing the previous peak of 16.1% in 2011. It should be noted that, due to limited data availability, loans to SMEs are proxied by loans that amount to a maximum of EUR 1 million.

- Interest rates experienced a sharp rise in the second half of 2022, a trend that continued into 2023. As of August 2023, the interest rate for SME loans reached 4.79%. For loans exceeding EUR 1 million, the interest rate was lower, at 2.81%.^b
- Over the period 2007-2022, interest rates for SMEs remained consistently higher than those for large firms. In 2022, the interest rate for SMEs was 1.73%, compared to 1.47% for large firms. In absolute terms, this translates to a spread of 0.26 percentage points. In relative terms, interest paid by SMEs is approximately 17.9% higher than interest paid by large firms in 2022. The gap in interest rates between SMEs and large firms widened further in 2023. As of August 2023, SME loans had an interest rate of 4.79%, while large firms were charged a lower rate of 2.81%. This difference represents a 1.98 percentage point spread, meaning SMEs pay about 70% more in interest compared to large firms.
- Alternative forms of financing, such as venture capital, may be important for SMEs seeking finance. In 2022, nearly EUR 225 million of venture capital was invested in Luxembourg's firms. The largest portion of all venture capital funding was invested in firms active in the financial and insurance industry (EUR 178 million).
- In 2022, government-guaranteed loans reached EUR 157.7 million, showing a significant increase from EUR 112.3 million in 2021, EUR 128.7 million in 2020, and just EUR 14.8 million in 2019. This trend underscores the countercyclical nature of these loans and highlights the government's commitment to supporting SME financing during the COVID-19 pandemic.
- The government has also emphasised innovation within SMEs. In 2022, SMEs accounted for 76% of Research, Development, and Innovation (RDI) projects financed by the Ministry of the Economy.
- The number of bankruptcies among all firms in Luxembourg stood at 1011 cases in 2022, marking a 12.7% decrease from the 1158 reported in 2021.

^aThe Luxembourg's full country profile is available at: https://read.oecd-ilibrary.org/industry-and-services/financing-smes-and-entrepreneurs-2024_b911d78e-en

^bThe interest rate for SMEs here is measured by the interest rate on loans below 1 million Euros. In other words, no information is available on the firm size.

6.3 Policy actions for entrepreneurship

In recent years, governments and policy organisations have been stepping up efforts to support entrepreneurial activities with dedicated actions and policies. The EU Commission has elaborated a wide strategy, "The Entrepreneurship 2020 Action Plan", focused on improving entrepreneurship education, and easing the administrative barriers to starting new businesses.³

In this context, Luxembourg authorities have set up or supported programmes to offer entrepreneurship education and to provide advice and funding to entrepreneurs, with the goal of improving public response and engagement in entrepreneurial activities. Among those initiatives, we find the House of Entrepreneurship, Nyuko, Fit4Entrepreneurship, and Fit4Start. The latter provides funding and advice to Luxembourg's innovative start-ups.⁴ Other initiatives provide ad-hoc training to students and school leavers, to improve entrepreneurial education. One such initiative, the *mini-companies* by Jonk Entrepreneuren, aims to encourage students' entrepreneurial spirit since high school. Students are encouraged to create a business plan, and set up their own company to commercialize innovative products or services. (Note that the National Experts indicate education about entrepreneurship is a major bottleneck affecting the Luxembourg's entrepreneurial ecosystem; see Chapter 8.)

Since 2015, the GEM Luxembourg's APS has included a set of questions concerning the relevance and effectiveness of programmes to fostering entrepreneurship in Luxembourg. The questions are as follows:

- *Has a campaign from institutional actors like the Chamber of Commerce, Government or an initiative that promotes entrepreneurship (Nyuko, Fit4Entrepreneurship, Fit4Start, etc.) raised your interest in entrepreneurship?*
- *Have you ever taken part in a training about how to start a business at secondary school? For example through specific projects like mini-enterprise or corporate relevant lessons in economics, accounting or management?*
- *Have you ever attended a training which would help you to start a business after leaving school?*

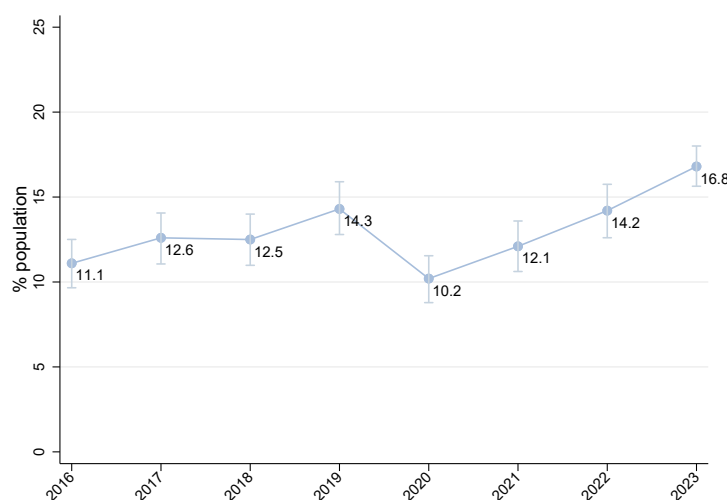
³The main legal basis for the plan is 'The Small Business Act' of 2008. For an overview of related ongoing initiatives see https://single-market-economy.ec.europa.eu/smes/supporting-entrepreneurship_en

⁴Fit4Start is an initiative of: Luxinnovation, Ministry of Economy, Technoport Luxembourg-city incubator, House of BioHealth and Luxembourg Space Agency. <https://www.fit4start.lu/>

Figure 6.2 shows that, in 2023, 17% of respondents declared that institutional campaigns and initiatives have raised their interest in entrepreneurship, the highest value recorded since the introduction of the question.

Figure 6.3 shows that this datum is higher among entrepreneurs (48%) compared to non-entrepreneurs (14%). The chart documents the evolution of responses over time, and compares the responses of TEA entrepreneurs (continuous line) vs non-TEA respondents (dotted line).⁵ This pattern suggests **a positive association between initiatives supporting entrepreneurial activities and running a business.**

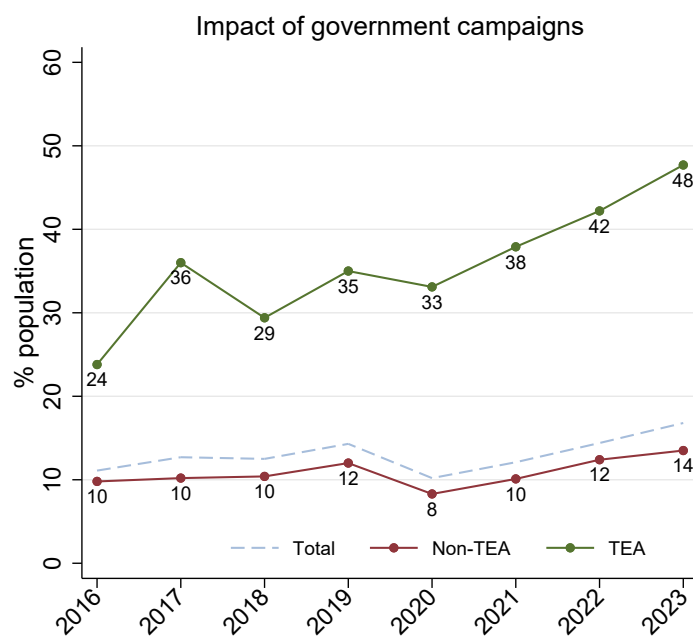
Figure 6.2: Interest in entrepreneurship raised by campaign.



Note: Data for 2015 not reported due to changes in coverage.
Source: 2016 – 2023 GEM Luxembourg APS data.

⁵The population average is naturally closer to that of non-TEA respondents due to the relatively low proportion of TEA entrepreneurs in the population.

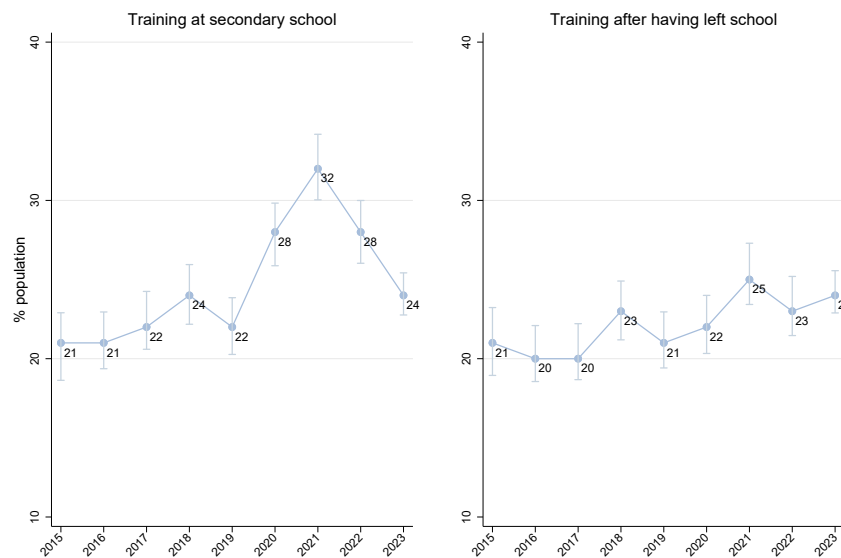
Figure 6.3: Interest in entrepreneurship raised by campaign by TEA status.



Note: Data for 2015 not reported due to changes in coverage.
Source: 2016 – 2023 GEM Luxembourg APS data.

Figure 6.4 reports the shares of the population who attended a training at secondary school (left panel), and after leaving the school (right panel). One can see that, while the proportion of respondents attending training after school is relatively stable with a slight upward trend, the share of individuals who received training at school showed a significant increase during the COVID period, rising from 22% in 2019 to 32% in 2021. This was followed by a downward trend. In 2023, the figure settled back to pre-COVID levels, at about 24%. Figure 6.5 indicates that the increase in training recorded during the pandemic was driven by the age group 18-34 (for example, in 2021 48% of 18-35 attended a training compared to the 25% of 35-54 and 18% of 55-64). This pattern is consistent with the increased activity reported by Jonk Entrepreneuren, where 15816 students participated in the 2021/2022 school year, marking a 21% increase from the previous year.⁶

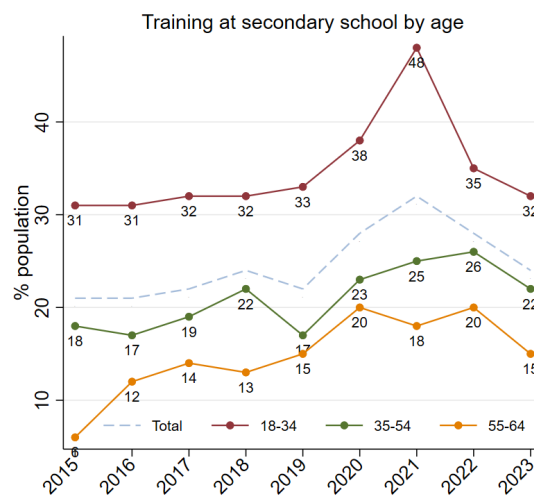
Figure 6.4: Training at secondary school and after leaving school.



Source: 2015 – 2023 GEM Luxembourg APS data.

⁶<https://jonk-entrepreneuren.lu/fr/notre-impact/>

Figure 6.5: Entrepreneurship training by age group.

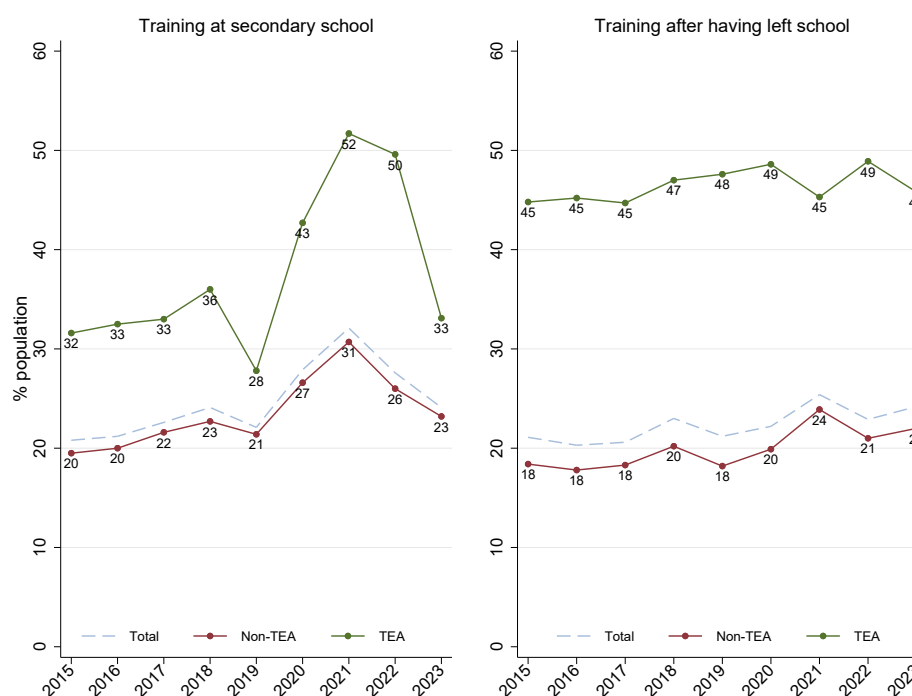


Source: 2015 – 2023 GEM Luxembourg APS data.

Finally, we investigate whether the responses on training vary according to the respondents' roles in the entrepreneurial process, as previously documented in the case of institutional campaigns. Figure 6.5 illustrates that the share of individuals who attended training was consistently higher among TEA entrepreneurs than among non-entrepreneurs. This holds throughout the period, and for both secondary school trainings and post-secondary education. In 2023, 33% of TEA entrepreneurs attended training at school compared to 23% of not-entrepreneurs. The gap widens for post-secondary training; in 2023, 46% of TEA entrepreneurs attended such training, whereas only 22% of non-entrepreneurs did so.

This suggests a **positive association between the provision of entrepreneurial training and setting up and running a new business**. These results are encouraging, but they should be interpreted with care. They show that training programmes are popular among entrepreneurs. The answers do not necessarily imply that institutional initiatives lead to an increase in entrepreneurial activities; in other words, this does not mean that trainings have directed people toward becoming entrepreneurs. Nonetheless, nearly half of entrepreneurs take part into these training. This suggests that individuals that are more willing to start a business are also more receptive to entrepreneurship-oriented initiatives, or are more motivated to learn entrepreneurial skills.

Figure 6.6: Entrepreneurship trainings at school by TEA status.



Source: 2015 – 2023 GEM Luxembourg APS data.

The 2023 special topic:
Sustainable Development and
entrepreneurship

"Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs." World Commission on Environment and Development (1987, point 3.27)

This chapter reports results from the 2023 Global GEM's special module on sustainable entrepreneurship. The link between sustainable development and entrepreneurship emerges from the growing need of new production methods and technologies to meet environmental and social objectives, as set forth by the United Nations Sustainable Development Goals (UNSDGs). The relevance of this issue is outlined by the UN General Assembly's adoption, in December 2020, of Resolution 75/211 on entrepreneurship for sustainable development.

Section 7.1 presents a concise overview of the UNSDGs and the GEM questions on the topic. Section 7.2 illustrates the relevance attributed by early-stage entrepreneurs to social and environmental considerations when making business decisions. Section 7.3 examines the extent to which entrepreneurs prioritize maximizing social impact and minimizing environmental of their business practices. The analysis includes a comparative view with other countries, providing a broader perspective on sustainable entrepreneurship. The chapter features two exhibits: one focuses on sustainability reporting by firms in Luxembourg, and another on the traits of sustainable entrepreneurs.

The data suggests that environmental and social considerations are very relevant for early-stage entrepreneurs across Europe. In Luxembourg, data reveal a higher than average share of early-stage entrepreneurs focused on reducing their business's environmental impact and enhancing social value, positioning it as a leader in sustainable entrepreneurship. This is reflected in the decision-making process, but also in actions put in place to minimise environmental impact and maximise social impact. Overall, GEM data highlights Luxembourg's entrepreneurs for their strong commitment to sustainability.

This result is in line with the significance of the Environmental Goods and Services Sector (EGSS) and the Social and Solidarity Economy (SSE) in the national economy. What's more, an analysis from the ICT usage survey for enterprises indicates that reporting of sustainability practices follows an increasing trend among Luxembourg's firms, providing support for GEM results. The number of firms engaged in sustainability rose from 14.7% in 2014 to 21.4% in 2022.

In terms of the profile of sustainable entrepreneurs, data for Luxembourg indicate that immigrants have a higher probability of starting a sustainable business. Interest-

ingly the usual lower propensity of women in starting a business is not observed in case of sustainable business. Among individuals who start their business, there is no significant gender difference in choosing between sustainable and non-sustainable entrepreneurship.

7.1 United Nations Sustainable Development Goals

Sustainable development — defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs — aims to reconcile economic activity with environmental preservation to ensure the well-being of both current and future generations. This concept gained global recognition with the adoption of the 2030 Agenda for Sustainable Development by the United Nations (UN), in September 2015. The agenda sets broad goals and quantifiable objectives, and extends the scope of sustainability to its social implications.

The UN agenda calls for global partnerships and actions to address a wide range of social, environmental, and economic objectives. The agenda, which builds on the Millennium Development Goals of 2000, comprises 17 interconnected **Sustainable Development Goals (SDGs)**, and includes 169 measurable targets. The purpose is to enable the quantitative assessment of progress toward the SDGs. Figure 7.1 provides an overview of the goals .

The UN recognises the role that entrepreneurship can play in reaching the SDGs. In December 2020 the UN General Assembly adopted Resolution 75/211 on **entrepreneurship for sustainable development**. The resolution recognized the significant contribution that entrepreneurship makes to sustainable development by creating jobs, driving inclusive economic growth and innovation, improving social conditions, and addressing economic, social, and environmental challenges within the framework of the 2030 Agenda for Sustainable Development. The resolution emphasized the role of entrepreneurship, including social entrepreneurship, and micro-, small and medium-sized enterprises in social and economic development (UN General Assembly, 2020).

In this context, in 2022 the GEM project started including questions related to sustainability, focusing on social and environmental dimensions of entrepreneurship. These questions can be grouped into two categories: considerations of social and environmental factors when making business decisions (see Section 7.2) and actual implementation (Section 7.3).

Figure 7.1: UN Sustainable Development Goals



Source:United Nations.

Entrepreneurs are asked to rate their agreement, on a scale from 1 (lowest) to 5 (highest), concerning the following statements:

Sustainability considerations

- When making decisions about the future of your business, **you always consider social implications** such as access to education, health, safety, inclusive work, housing, transportation, and quality of life at work.
- When making decisions about the future of your business, **you always consider environmental implications** such as preservation of green areas, reduction of the emission of pollutants and toxic gases, selective garbage collection, and conscious consumption of water, electricity, and fuels.
- **You prioritize** the social and/or environmental impact of your business above profitability or growth.

Additionally, the entrepreneurs are asked whether they have actually implemented specific actions. These are yes/ no questions.¹

Sustainability implementation

- **Have you taken any steps to minimize the environmental impact of your business over the past year?** This could include energy-saving measures, re-

¹Interviewers are instructed to provide relevant examples to help clarifying the questions.

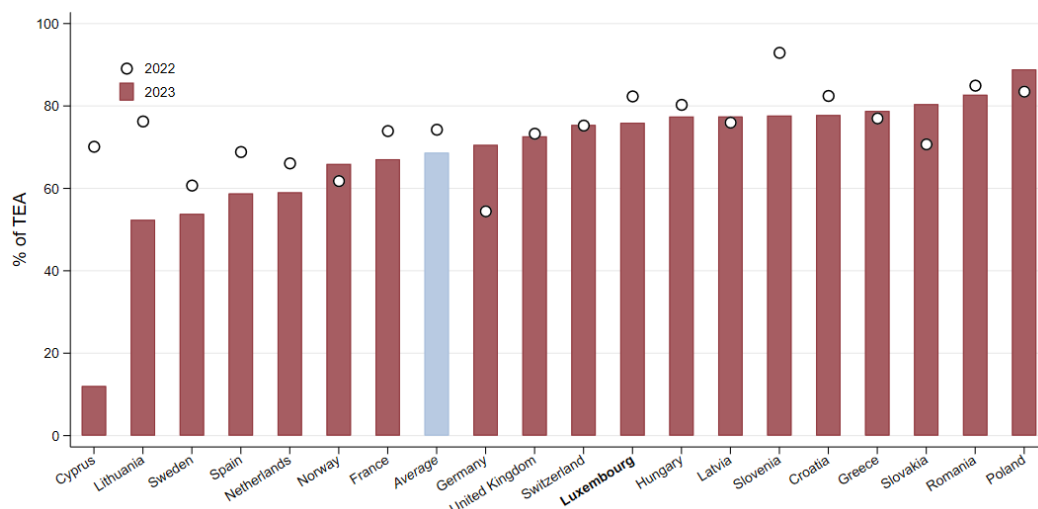
ducing carbon emissions, introducing more efficient machinery, managing solid waste, using recyclable materials, and promoting alternative transportation methods such as cycling, walking, collective rides, and public transportation.

- **Have you taken any steps to maximize the social impact of your business over the past year?** This could include hiring young unemployed individuals and other groups with limited access to the labour market; incorporating social enterprises into your supply chain; ensuring workforce diversity; prioritizing companies and/or suppliers that respect human rights and the environment when purchasing products or services; combating child or slave labor; invest or support projects or social organizations that develop the community and include less favored groups.

7.2 Sustainability considerations and entrepreneurship across Europe

The data depicted in Figure 7.2 suggests that environmental considerations are very relevant for early-stage entrepreneurs. The cross-country average proportion of TEA entrepreneurs considering environmental impacts when making business decisions was 69% in 2023, a slight decrease from the 74% in 2022. What's more, in the vast majority of countries, more than 50% of TEA entrepreneurs declared considering environmental implications. (A notable exception is Cyprus, which recorded a significant drop compared to 2022, from 70% to 12% .) Luxembourg remained above average, with 76% in 2023 compared to 82% in 2022.

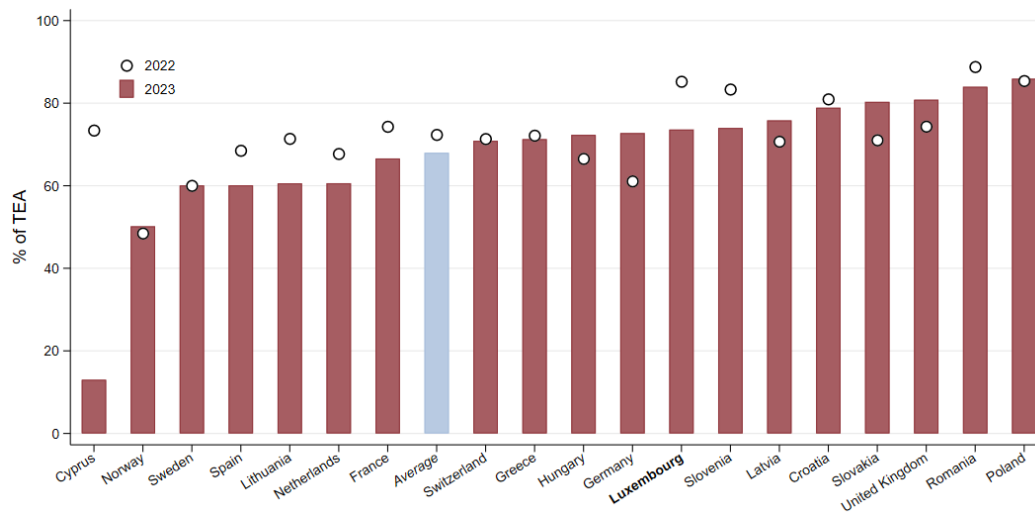
Figure 7.2: Always consider environmental implications when making business decisions.



Share of TEA entrepreneurs (in %). Source: 2023 GEM Global APS data.

Figure 7.3 presents a pattern very similar to that seen in Figure 7.2. Most countries that report high percentages of environmental consciousness among entrepreneurs also report high percentages of socially conscious entrepreneurs. (This observation also supports the view that social and environmental aspects are dimensions of a broad underlying sustainability concept.) The cross-country average of TEA entrepreneurs considering the social implication when making business decisions slightly decreased from 72% in 2022 to 68% in 2023. Luxembourg continues to rank above the average, with 85% in 2022 and 74% in 2023.

Figure 7.3: Always consider social implications when making business decisions.



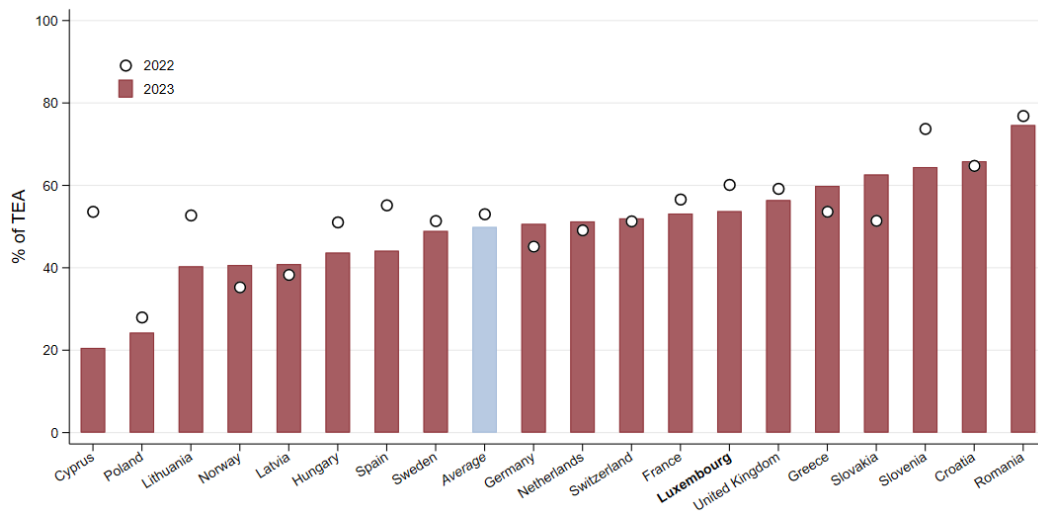
Share of TEA entrepreneurs (in %). Source: 2023 GEM Global APS data.

To better interpret these data, GEM also investigates what objectives entrepreneurs prioritise when making decisions. Figure 7.4 shows the proportion of TEA entrepreneurs who declare they prioritise the social and/or environmental impact of their business over profitability or growth. The cross-country average in 2023 was at 50%, once again relatively stable over time, compared to the 53% in 2022. (Cyprus, once again, records a sharp decrease in 2023.) Eleven out of nineteen countries are above the 2023 cross-country average, indicating that a majority of TEA entrepreneurs in these countries prioritise social and environmental impacts considerations when making decisions. Luxembourg is among these countries, with 54% recorded in 2023 (a decrease from the 60% in 2022).

7.3 Sustainability implementation

Taking into consideration social and environmental impacts when making decisions must translate into action to effectively impact the social and environmental domain ((Hall et al., 2010)). For this reason, GEM asks entrepreneurs whether they

Figure 7.4: Prioritize social and/or environmental impact of business over profitability or growth.

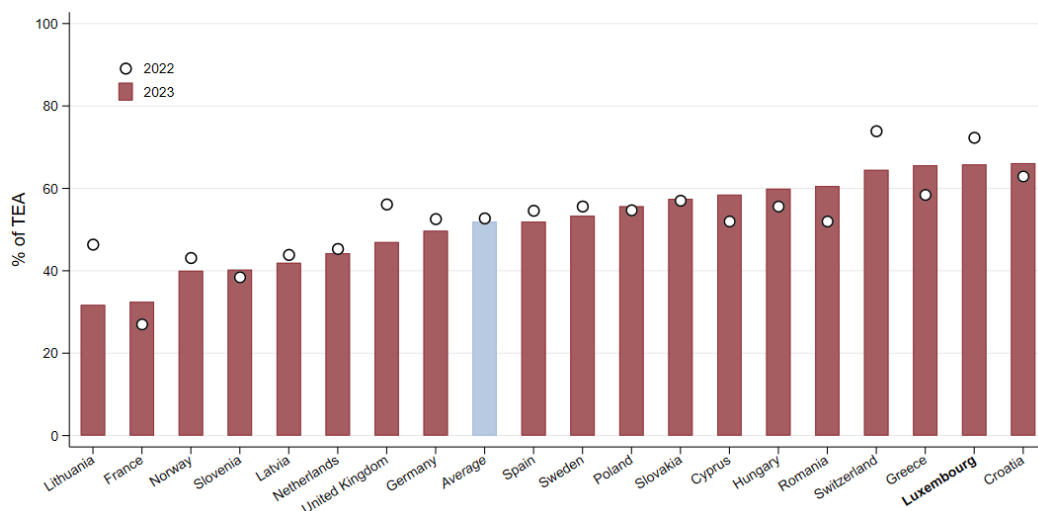


Share of TEA entrepreneurs (in %). Source: 2023 GEM Global APS data.

have taken steps to minimize their environmental impact or maximize their social impact.

Figure 7.5 reports the proportion of TEA entrepreneurs who have taken actions to **minimize environmental impact** in the past year. The indicator's cross-country average was 52% in both 2023 and 2022. In 11 out of 19 countries, at least half of TEA entrepreneurs declare having taken concrete actions. Luxembourg ranked second among the considered countries, with 66% of its TEA entrepreneurs reporting to actively minimizing environmental impact.

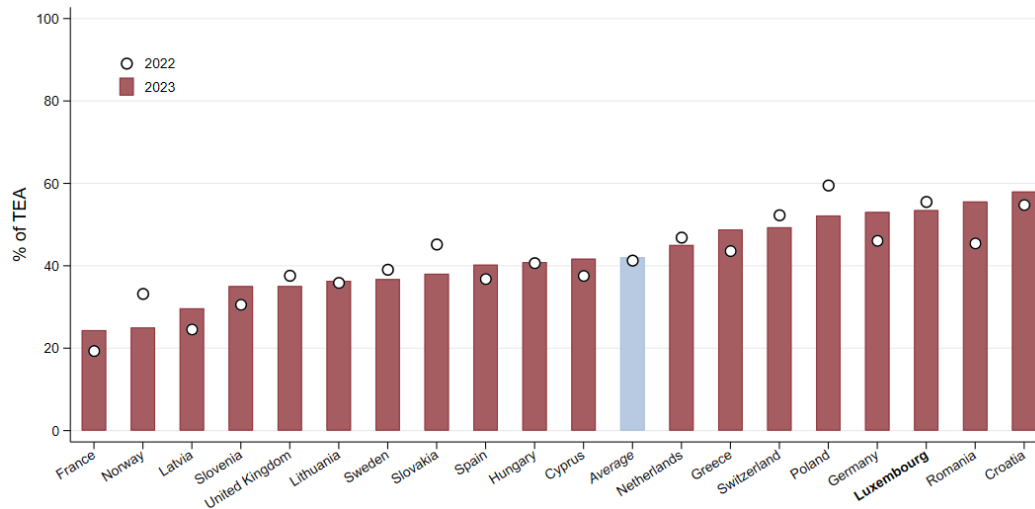
Figure 7.5: Have taken steps to minimize the environmental impact of the business over the past year (% of TEA).



Share of TEA entrepreneurs (in %). Source: 2023 GEM Global APS data.

Figure 7.6 reports the proportion of TEA entrepreneurs who have taken actions to **maximize social impact** over the past year. The cross-country average was 42% in 2023 and 41% in 2022. Luxembourg ranked third among the considered countries, with 54% of its TEA entrepreneurs actively working to maximize social impact. Country rankings for both indicators are positively related.²

Figure 7.6: Have taken steps to maximize the social impact of the business over the past year (% of TEA).



Source: 2023 GEM Global APS data.

Overall, the data highlights Luxembourg's entrepreneurs strong commitment to sustainability. This result is in line with the significance of the Environmental Goods and Services Sector (EGSS) and the Social and Solidarity Economy (SSE) in the national economy.³

²The correlation between the proportion of TEA entrepreneurs reporting social maximization and those reporting environmental minimization in 2023 is 76.2%.

³According to STATEC's most recent data, in 2020 the EGSS accounted for 4.7% of total employment and generated a Gross Value Added (GVA) of EUR 1.9 billion, which represents 3% of the total GVA (Georgescu and Thunus, 2023). In the same year, the SSE comprised 4% of total employment, contributing approximately EUR 1.2 billion to the GVA, or 2.2% of the total (Rick, 2022).

7.4 Exhibit: Reporting sustainability practices in Luxembourg.

How widespread are sustainability practices in Luxembourg? To address this question, this exhibit provides evidence on reporting activities. Reports can be used as proxies to provide a first quantification of the diffusion of sustainability practices among Luxembourg's firms.

In recent years, numerous initiatives have been launched to promote the adoption and disclosure of social and environmental practices by businesses. Some initiatives consists of voluntary efforts by companies, the idea being that sustainable activities during regular business operations have to exceed legal requirements to achieve social and environmental objectives. Several terms are used to describe these efforts, including Corporate Social Responsibility (CSR), Environmental, Social, and Governance (ESG), business ethics, impact finance, etc.. However, 'Sustainability' and 'ESG' are now prevalent (Filosa et al., 2021).^a To facilitate and communicate these activities, companies make use of various standards, certifications and labels (e.g., ISO 14001, ESR – Entreprise Responsable, B-corp).^b

Significant regulatory developments have occurred, too. In 2014, the EU adopted the Non-Financial Reporting Directive — FNRD — (European Parliament and Council of the European Union, 2014), which requires large European firms to disclose some ESG information. The number of firms under the directive's scope is relatively small. In Luxembourg, Weisgerber (2022) estimated that 60 firms were required to comply with the Non-Financial Reporting Directive. Of these, only one-third published their sustainability report on their website in 2022. In 2022, the EU expanded the scope of Non-Financial Reporting Directive, and adopted the Corporate Sustainability Reporting Directive (CSRD) to enhance the transparency of sustainability information provided by companies. The CSRD mandates large European companies to publish detailed sustainability reports, and to disclose ESG information (European Parliament and Council of the European Union, 2014). Although many SMEs are outside the scope of the CSRD, they may still need to provide specific ESG information to their larger business partners. This could significantly broaden the impact of the directive (Burbi, 2023).

Sustainability regulations significantly impact also the financial sector. Financial intermediaries under the scope of the Sustainability-Related Disclosures in the

Financial Services Sector (SFDR) are required to disclose how they incorporate ESG factors into their investment decision-making processes. This practice is often referred to as sustainable finance and data suggest that it plays an important role in Luxembourg. (At the end of June 2022, Luxembourg-domiciled ESG funds managed assets worth EUR 2.2 trillion, accounting for 54.6% of the country's total fund assets (LSFI, 2024).)

Given the regulatory environment and voluntary schemes, **to which extent companies in Luxembourg declare to adopt sustainable practices, and how this has evolved over time?**

Official registry data on sustainable firms are unavailable, but survey data can provide valuable information on the diffusion of sustainable practices. A survey conducted in 2022 of 584 Luxembourg's firms indicates that CSR is applied by approximately 40% of Luxembourg's companies (Chambre de Commerce/IMS/INDR, 2022). While this survey provides useful insights, it has a relatively small sample size and lacks a longitudinal perspective.

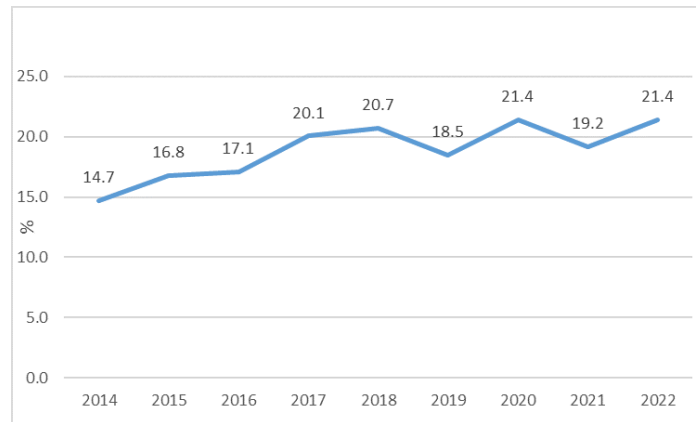
The ICT Usage Survey for Enterprises is the primary source of statistical information on CSR adoption. Indeed, the survey is representative of the non-financial business economy of Luxembourg. Since 2014, it includes a specific question on firms' engagement in CSR. Participating firms are asked whether their websites feature pages presenting the company's approach to "*Corporate Social Responsibility*" or "*sustainable development*."

Using the ICT survey data, figure 7.7 documents the proportion of firms presenting their 'Corporate Social Responsibility' or 'sustainable development' efforts on their website. The chart evidences an overall increase over time of the number of firms engaged in sustainability, which rose from 14.7% in 2014 to 21.4% in 2022. This result needs to be interpreted cautiously due to the self-reported nature of the data, which may encourage firms to overstate their sustainability practices, a practice known as *greenwashing*. Additionally, the data do not provide information on the intensity of sustainability efforts. Nevertheless, this pattern suggests **a growing awareness and reporting of sustainability practices among Luxembourg's enterprises.**

Riillo and Sarracino (2014) used the same data to explore the link between firm's features and CSR disclosure in Luxembourg. The study finds that the typical firm that adopts CSR practices is a large market leader, part of an international group, with a strong international reputation and operating in the utilities sector.

Firms reporting CSR are motivated both by their internal corporate culture and by the positive impact on their brand image.

Figure 7.7: Firms that declare having a website that shows the process 'Corporate Social Responsibility' or 'sustainable development'.



Source: Survey on ICT usage in enterprises, 2014 – 2022 waves (STATEC).

^aThe United Nations Sustainable Development Goals, Target 12.6 uses exclusively the term sustainability reporting <https://sdg12hub.org/sdg-12-hub/see-progress-on-sdg-12-by-target/126-sustainability-reporting-businesses#indicator-item-0>

^bFor examples of international standards, see ISO 14001 at <https://www.iso.org/standard/60857.html>, ISO 26000 at <https://www.iso.org/iso-26000-social-responsibility.html>, Net Zero Guidelines <https://www.iso.org/netzero>. and B-Corp at <https://www.bcorporation.net/en-us/>. Examples of labels adopted in Luxembourg are: ESR-Entreprise Responsable at <https://indr.lu/fr/les-services-aux-entreprises/beneficier-du-label-esr/entreprises-labellisees-esr/>, IMPACT LUXEMBOURG at <https://www.impactluxembourg.lu/fr/obtenir-le-label/> and LuxFLAG <https://luxflag.org/what-we-do/labels/>

7.5 Exhibit: Profile of the sustainable entrepreneur.

What are the individual traits of sustainable entrepreneurs? do they differ from those of other entrepreneurs?

To answer these questions, this exhibit estimates a regression model of entrepreneurial engagement that allows us to test whether gender, immigration status, education and age affect the choice between engaging in sustainable and non-sustainable entrepreneurship. This is based on Luxembourg's data for the years 2021 – 2023. The empirical strategy comprises two steps. Firstly, we model individuals' decision to engage in entrepreneurship. Secondly, we model the choice of starting sustainable entrepreneurship ventures. A sustainable entrepreneur is defined as an entrepreneur who has taken any steps to minimize the environmental impact or to maximize the social impact of their business over the past year.

The key finding is that women have a lower propensity to engage in entrepreneurship. However, **among individuals who start their business, there is no significant gender difference in choosing between sustainable and non-sustainable entrepreneurship.**

Figure 7.8 illustrates significant gender differences in entrepreneurship, with women being less likely than men to initiate a business. This confirms the existence of the entrepreneurship gender gap, and aligns with existing literature that discusses the barriers women face in entrepreneurship.) Immigrants show a higher propensity to starting a business compared to natives. The likelihood of engaging in entrepreneurship tends to decrease with age, but increases with higher levels of education, confirming the differences found in TEA across groups in the descriptive analysis of chapter 3. Additionally, individuals who personally know an entrepreneur, and online survey respondents, are more likely to report starting a business. These findings suggest the importance of networks for engaging in new ventures. It also suggests that survey modes play a role in capturing entrepreneurial intentions.

Figure 7.8: Determinants of starting a business.

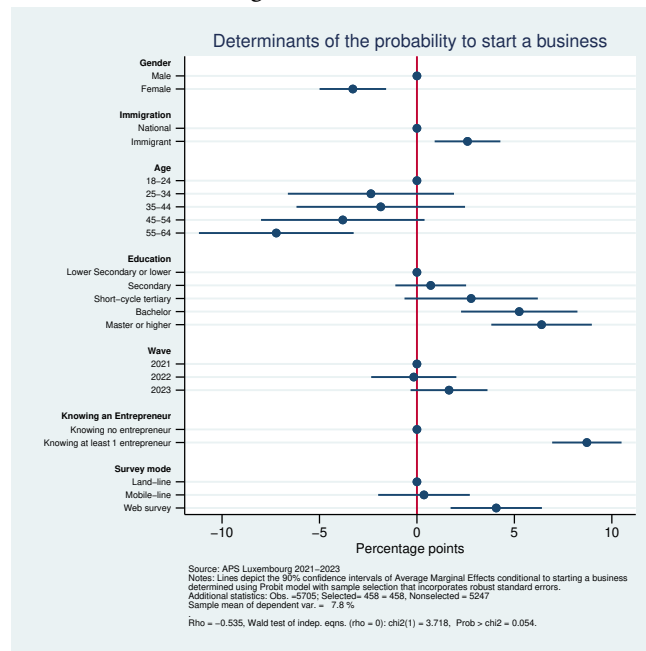
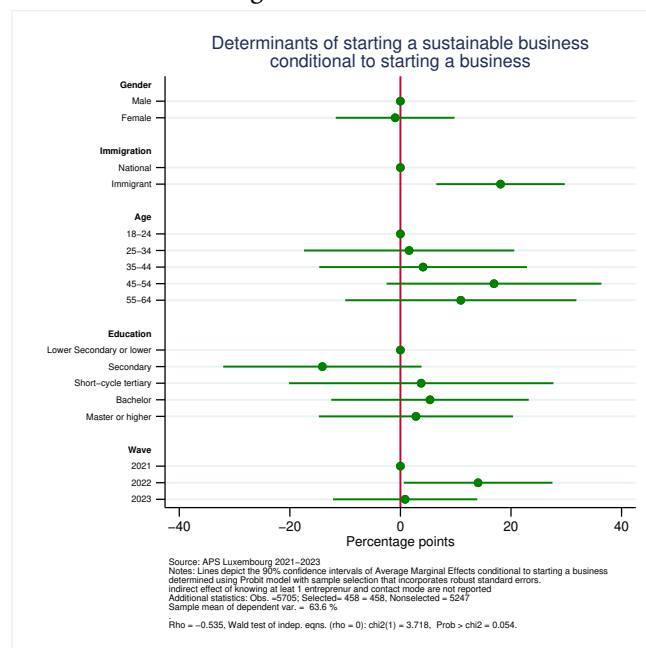


Figure 7.9 depicts the probability of starting a sustainable business (note that this is conditional on having started a business). Estimates indicate that gender does not play a statistically significant role. However, it reveals that **immigrants have a higher probability of starting a sustainable business**. (With the exception of the year dummy for 2022, other variables are not statistically significant at conventional levels.)

Figure 7.9: Determinants of starting a sustainable business.



Entrepreneurial framework conditions: the NES survey

The GEM research project places emphasis on the social, cultural and economic context — the entrepreneurial "ecosystem" — that shapes and fosters entrepreneurship. This section provides a comparative assessment of Luxembourg's entrepreneurial based on the experts' views collected through the National Expert Survey(NES).

The NES assesses national contexts using the " Entrepreneurship Framework Conditions " (EFCs), that is, factors that are known to favour a thriving entrepreneurship. EFCs refer to business opportunities, entrepreneurial policies, infrastructure and norms. Table 8.1 describes in detail the framework conditions. Each year, the NES collects the views from at least 36 national experts per country. Each expert compiles a questionnaire that includes an assessment of the extent to which the statements about the EFCs are - on an 11-point Likert scale - completely untrue (0) to completely true (11). Then, the assessments are pooled and converted into an overall score for each EFC at the country level. This provides 13 overall scores evaluating the sufficiency of each framework condition for a given country, with a score of five representing "just sufficient". As the qualitative assessments are themselves context-dependent, however, cross-country comparisons of NES results should be interpreted cautiously. (In other words, national experts may have different views of sufficiency in various countries.)

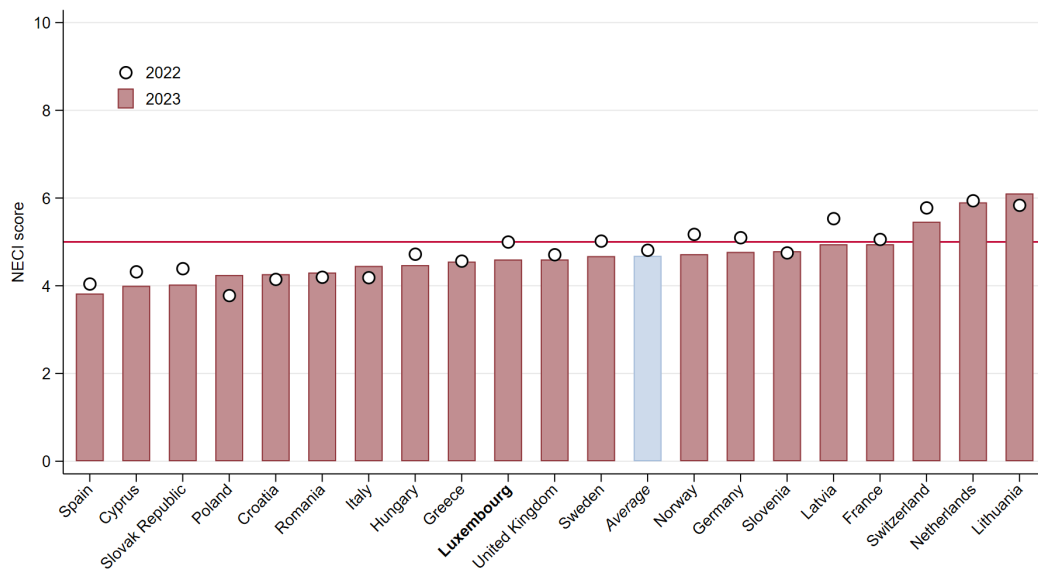
Table 8.1: GEM's entrepreneurship context: Entrepreneurial Framework Conditions

A1	Entrepreneurial Finance: there are sufficient funds for new startups
A2	Ease of Access to Entrepreneurial Finance: and those funds are easy to access
B1	Government Policy — Support and Relevance: policies promote and support startups
B2	Government Policy — Taxes and Bureaucracy: new businesses are not over-burdened
C	Government Entrepreneurial Programs: quality support programs are widely available
D1	Entrepreneurial Education at School: schools introduce entrepreneurial ideas
D2	Entrepreneurial Education Post-School: colleges offer courses in how to start a business
E	Research and Development Transfers: research is easily transferred into new businesses
F	Commercial and Professional infrastructure: quality services are available and affordable
G1	Ease of Entry — Market Dynamics: markets are free, open, and growing
G2	Ease of Entry — Burdens and Regulations: regulations encourage not restrict entry
H	Physical Infrastructure: good-quality, available, and affordable
I	Social and Cultural Norms: encourage and celebrate entrepreneurship

In 2018, GEM launched the National Entrepreneurship Context Index (NECI) to provide an overall score for an economy's entrepreneurial environment. The NECI score, calculated as the arithmetic mean of the scores from the Entrepreneurial Framework Conditions (EFCs), ranges on a Likert scale from 0 to 10. Figure 8.1 presents the NECI scores across 19 European countries for 2022 – 2023, revealing that only three countries — Lithuania, the Netherlands, and Switzerland — are above the sufficient threshold of 5 points. Among the 19 countries surveyed, 17

experienced either a marginal decline or no change in their NECI scores from 2022 to 2023, with only Poland and Lithuania showing a slight increase. Luxembourg saw a modest reduction in its NECI score from 5 in 2022 to 4.6 in 2023. Overall, NECI scores have not changed substantially between 2022 and 2023. They highlight a degree of heterogeneity in the quality of the entrepreneurial environment across the countries. Luxembourg overall score is in line with the cross-country average.

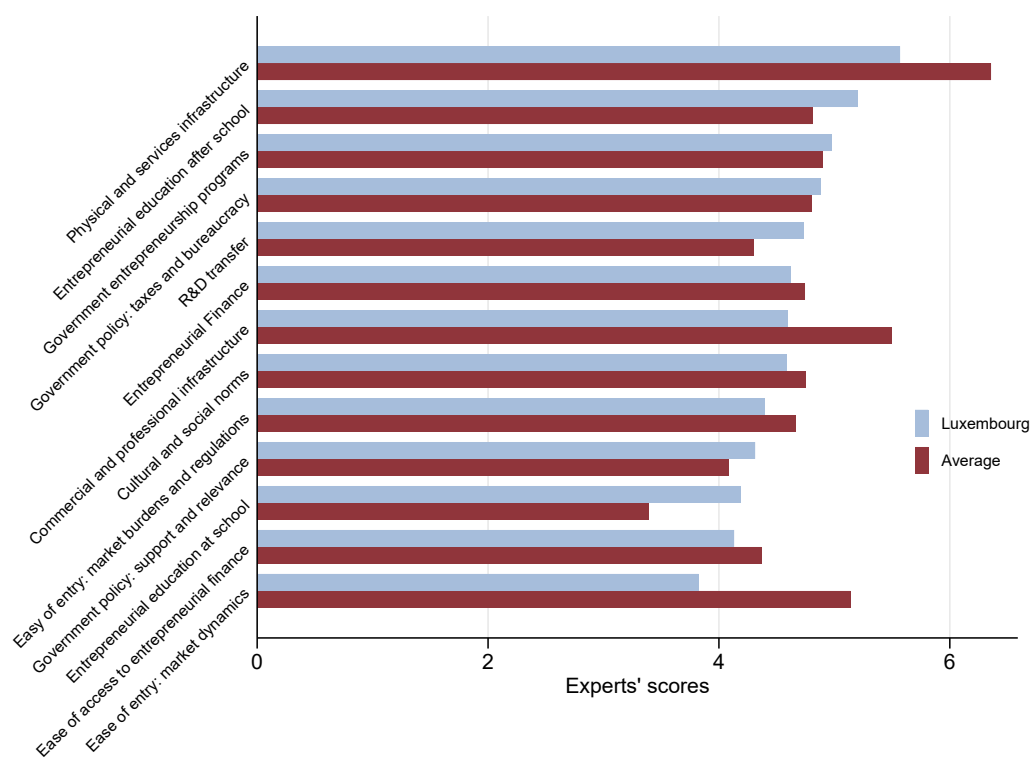
Figure 8.1: National Entrepreneurship Context Index.



Source: 2023 and 2022 GEM Global NES data.

Figure 8.2 presents Luxembourg's scores for each component of the EFCs in Luxembourg, ranking them from highest (infrastructure) to lowest (internal markets), and compares them against the European average. In 2023, Luxembourg performed better than average in 7 out of 13 indicators, an improvement from 2022, when it exceeded the average in 6 out of 13 areas (Peroni et al., 2023). Its major strengths include entrepreneurial education, as well as R&D transfer. Experts' also holds positive views of government policies. In contrast, areas where Luxembourg's scores are significantly below the European average include ease of entry in market dynamics and infrastructure (despite infrastructure being the highest-rated factor within the country), along with commercial and professional services. The evaluations provided by national experts in Luxembourg remained relatively unchanged in 2023 compared to previous years.

Figure 8.2: Experts' scores on Entrepreneurial Framework Conditions.



Source: 2023 and 2022 GEM Global NES data.

Knowing an Entrepreneur Percentage of adults aged 18–64 who personally know someone who has started a business in the past two years.

Perceived Opportunities

Percentage of adults aged 18–64 who agree that they see good opportunities to start a business within the next six months in the area in which they live.

Ease of Starting a Business

Percentage of adults aged 18–64 who agree that it is easy to start a business in their country.

Perceived Capabilities

Percentage of adults aged 18–64 who agree that they have the required knowledge, skills, and experience to start a business.

Fear of Failure Rate

Percentage of adults aged 18–64 who agree that they see good opportunities but would not start a business for fear it might fail.

Nascent Entrepreneurship Rate

Percentage of adults aged 18–64 who are currently nascent entrepreneurs, i.e., are actively involved in setting up a business they will own or co-own; this business has not yet paid salaries, wages, or made any other payments to the owners for more than three months.

New Business Ownership Rate

Percentage of adults aged 18–64 who are currently owner-managers of a new business, i.e., who own and manage a running business that has paid salaries, wages, or made any other payments to the owners for more than three months, but not more than 42 months (3.5 years).

Total Early-stage Entrepreneurial Activity (TEA)

Percentage of adults aged 18–64 who are either nascent entrepreneurs or owner-managers of a new business, i.e., the proportion of the adult population who are either starting or running a new business.

Established Business Ownership Rate (EBO)

Percentage of adults aged 18–64 who are currently owner-managers of an established business, i.e., who are owning and managing a running business that has paid salaries, wages, or made any other payments to the owners for over 42 months (3.5 years).

Business Services

Percentage of TEA respondents involved in business services.

Consumer Services

Percentage of TEA respondents involved in consumer services.

Entrepreneurial Employee Activity (EEA)

Percentage of adults aged 18–64 who, as employees, have been involved in entrepreneurial activities such as developing or launching new goods or services, or setting up a new business unit, a new establishment, or a subsidiary in the last three years.

Sponsored

Percentage of adults aged 18–64 involved in TEA and that business is part-owned with their employer.

Independent

Percentage of adults aged 18–64 involved in TEA and that business is independently owned.

Motive for Starting a Business: “To make a difference in the world”

Percentage of TEA respondents who agree that a reason for starting their business is “to make a difference in the world”.

Motive for Starting a Business: “To build great wealth or very high income”

Percentage of TEA respondents who agree that a reason for starting their business is “to build great wealth or a very high income”.

Motive for Starting a Business: “To continue a family tradition”

Percentage of TEA respondents who agree that a reason for starting their business is “to continue a family tradition”.

Motive for Starting a Business: “To earn a living because jobs are scarce”

Percentage of TEA respondents who agree that a reason for starting their business is “to earn a living because jobs are scarce”.

High Growth Expectation Entrepreneurial Activity

Percentage of adults aged 18–64 involved in TEA who expect to employ six or more people five years from now.

Internationally Oriented Entrepreneurial Activity

Percentage of adults aged 18–64 involved in TEA who anticipate 25% or more revenue coming from outside their country.

Scope (local/national/international)

Percentage of adults aged 18–64 involved in TEA having customers only within their local area, only within their country, or those having international customers.

Product/Services Impact (local/national/global)

Percentage of adults aged 18–64 involved in TEA having products or services that are new to the area, new to their country, or new to the world.

Technology/Procedures Impact (local/national/global)

Percentage of adults aged 18–64 involved in TEA having technology or procedures that are new to the area, new to their country, or new to the world.

Informal Investment

Percentage of adults aged 18–64 investing in someone else's new business in the last three years.

Business Exit Rate

Percentage of adults aged 18–64 who have exited a business in the past 12 months, either by selling, shutting down, or otherwise discontinuing an owner/management relationship with that business.

Exit, Business Continues

Percentage of adults aged 18–64 who have exited a business in the past 12 months and that business has continued.

Exit, Business Does Not Continue

Percentage of adults aged 18–64 who have exited a business in the past 12 months and that business has not continued.

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List of Figures

2.1	The GEM Conceptual Framework	11
2.2	Entrepreneurial phases and GEM entrepreneurship indicators	12
3.1	Entrepreneurship in Luxembourg (2013 – 2023).	21
3.2	The entrepreneurial environment in Luxembourg (2013 – 2023): traits and perceptions.	25
3.3	Personally know entrepreneurs by socio-demographic groups.	26
3.4	See good opportunities in the next six months by socio-demographic groups.	27
3.5	Personally have the skills by socio-demographic groups.	28
3.6	Fear of failure by socio-demographic groups.	29
3.7	Easy to start a business in Luxembourg by socio-demographic groups.	30
3.8	Potential entrepreneurs: gender, age, education and immigration (2013 – 2023).	32
3.9	TEA: gender, age, education and immigration (2013 – 2023).	33
3.10	Entrepreneurial Motivations (2019 – 2023).	35
4.1	Potential entrepreneurs in Europe.	41
4.2	Total Early-stage Entrepreneurial Activity (TEA) in Europe.	42
4.3	Established Business Ownership (EBO).	42
4.4	Share of adults discontinuing a business in the last 12 months.	43
4.5	Personally know entrepreneurs.	45
4.6	Good opportunities to start a business in next 6 months.	46
4.7	You personally have the knowledge, skills, and experience required to start a business.	47
4.8	Fear of failure: you see good opportunities, but would not start a business for fear it might fail.	47
4.9	Easy to start a business.	48
4.10	Motivation is “to earn a living because jobs are scarce” (% of TEA).	50
4.11	Motivation is “to make a difference in the world” (% of TEA).	50
4.12	Entrepreneurs with new products or services (% of TEA).	52
4.13	European Innovation Scoreboard 2023.	52
4.14	New product or process, established and TEA.	53
4.15	Growth expectations are lower than one year ago (% of TEA).	55

5.1	Business demography in Luxembourg (2013 – 2021).	60
5.2	Bankruptcies and registrations (2013 – 2023).	62
5.3	ECB key rate and Harmonized Consumer Price Index (2013 – 2023). . .	63
5.4	Trends in business entries: cross-country comparison (2013 – 2023). .	66
5.5	Business registrations: cross-country comparison (2013 – 2023).	67
6.1	Barriers according to entrepreneurs (2016 – 2023).	71
6.2	Interest in entrepreneurship raised by campaign.	75
6.3	Interest in entrepreneurship raised by campaign by TEA status.	76
6.4	Training at secondary school and after leaving school.	77
6.5	Entrepreneurship training by age group.	78
6.6	Entrepreneurship trainings at school by TEA status.	79
7.1	UN Sustainable Development Goals	84
7.2	Always consider environmental implications when making business decisions.	85
7.3	Always consider social implications when making business decisions. .	86
7.4	Prioritize social and/or environmental impact of business over prof- itability or growth.	87
7.5	Have taken steps to minimize the environmental impact of the business over the past year (% of TEA).	87
7.6	Have taken steps to maximize the social impact of the business over the past year (% of TEA).	88
7.7	Firms that declare having a website that shows the process 'Corporate Social Responsibility' or 'sustainable development'.	91
7.8	Determinants of starting a business.	93
7.9	Determinants of starting a sustainable business.	93
8.1	National Entrepreneurship Context Index.	97
8.2	Experts' scores on Entrepreneurial Framework Conditions.	98

List of Tables

1.1	Dashboard of key GEM indicators	7
8.1	GEM's entrepreneurship context: Entrepreneurial Framework Conditions	96

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