Global Entrepreneurship Monitor

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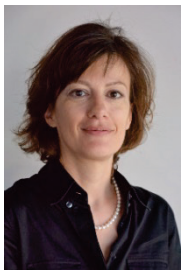

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We would like to thank colleagues at STATEC for their contributions, useful comments and advice. We are particularly grateful to Sarracino for his contribution to the box on the Social Economy.

Presentation of the 2014 Global Entrepreneurship Monitor results for Luxembourg

The results of the GEM 2014 survey were presented to the public at a press conference on the 14th of July 2015 at Nyuko's facilities in 121 rue de Hollerich, Luxembourg[1]. The press conference was opened by welcoming words to the press and a statement about the current situation of entrepreneurship in Luxembourg by secretary of state Francine Closener and the director of the Institute for statistics and economic studies (STATEC) Serge Allegrezza. The results were presented by Serge Allegrezza and afterwards the floor was open for questions from the press.

[1] Nyuko is a no-profit organization aiming to promote and support entrepreneurship in Luxembourg (see www.nyuko.lu for more info).

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1 Introduction

Entrepreneurship is regarded as an important contributor to innovation and technological progress, a driver of productivity and ultimately of economic growth (Schumpeter, 1934; Wennekers and Thurik, 1999). Successful entrepreneurship is largely recognised as a crucial source of job creation. As a result, governments have become increasingly active in designing policies to foster entrepreneurial efforts. In this context, the Global Entrepreneurship Monitor (GEM) was launched in 1997 to assess the evidence on the link between entrepreneurship and growth, and to provide support to policy actions. GEM aims to collect internationally comparable data to deepen the understanding of entrepreneurial activities and their link with countries' economic performances. Data are collected on an annual basis and are harmonised to enable international comparisons.

Since 2013, Luxembourg is part of the Global Entrepreneurship Monitor (GEM) consortium. A first data collection exercise was launched in 2013. In 2014, STATEC performed a second study, with the support of the Ministry of Economics and the Chamber of Commerce of Luxembourg.

Two surveys compose the GEM study. The first one is the National Expert Survey -NES- which collects expert's evaluation on the socio-economic context that shapes entrepreneurial abilities and aspirations. The NES consists of 36 interviews administered to people selected from interest groups, ministries, and managerial and academic bodies associated with entrepreneurship in Luxembourg.

The second survey is the Adult Population Survey - APS- which collects information on the characteristic of individuals and their involvement in entrepreneurial activities over the different stages of venturing, from start-up firms to established businesses. In 2014, the APS study consisted of 2074 interviews, carried out by administering web and telephone surveys. The APS was conducted in cooperation with the TNS-ILRES (*Institut Luxembourgeois de Sondages et d'études d'opinion*) and the GEM consortium. Results of the survey were integrated in the GEM 2014 global report.

The first entrepreneurship report for Luxembourg, GEM Luxembourg 2013, offered an overview of entrepreneurship in the country. At the time, the data permitted the first comparison of the Luxembourgish entrepreneurial activities and environment with those of other countries. An analysis of the evolution of entrepreneurship, however, was not possible.

This report uses data from the two available surveys to analyse the evolution of entrepreneurship over time. Overall, national experts evaluate that the socioeconomic context shaping entrepreneurial activities have not significantly changed from 2013 to 2014. The survey on individuals reveals that the number of entrepreneurs involved in early stage entrepreneurial activities has slightly decreased in 2014 compared to the previous year; in contrast, the number of established entrepreneurs has grown, suggesting a positive outcome of past entrepreneurial initiatives.

This report presents the GEM framework and gives a detailed account of the information contained in the surveys' data. The report is organized as follows.

Chapter 2 introduces the world-wide GEM project and outlines the methodology and framework adopted by GEM; it describes the main features of the Adult population survey (APS) and of the National Expert Survey (NES).

Chapter 3 presents results of the National Expert Survey.

Chapter 4 reports on features of Luxembourgish entrepreneurial activities from the Adult Population Survey in 2014. The analysis focuses on the individual characteristics of entrepreneurs, such as age, gender, skills and immigration background. It also describes the attributes of new businesses, such as ownership, economic activity, and innovation behaviour. In addition, the analysis compares Luxembourg to other European countries and the newly collected data to those from the 2013 wave. A dedicated analysis on youth entrepreneurship and individuals' subjective well-being concludes the chapter.

Finally, Chapter 5 summarises and gives concluding remarks.

2 The GEM research Project*

The Global Entrepreneurship Monitor (GEM) research programme is initiated in 1997 as a joint venture between academics at London Business School and Babson College in the United States. The project endeavours to study the role of entrepreneurship in fostering national economic growth, through the creation of relevant cross-national harmonised database. Traditional analysis of economic development and growth tends to focus primarily on the contribution of large corporations. In its attempt to improve the understanding of the relationship between entrepreneurial activities and economic growth, GEM, emphasises the role played by new and small businesses in the economy.[1] GEM sets the following objectives:

- the comparison of levels of entrepreneurial activity among countries;
- the determination of the influence of entrepreneurial activity on economic growth within individual countries;
- the identification of factors that encourage and/or hinder entrepreneurial activity;
- the provision of guidance for the formulation of effective policies aimed at stimulating entrepreneurship.

The first GEM study was conducted in 1999 on ten participating countries. Since then, GEM has grown into a consortium of more than 400 researchers from 99 economies. GEM is now regarded as a prominent longitudinal study of entrepreneurship in the world. In 2014, 73 economies participated in GEM, providing insights on entrepreneurship across a large sample of economies, spanning several geographic regions and levels of economic development.

Every year GEM adds a special module to the core survey, with the purpose of investigating some specific aspects of entrepreneurial activities. The lack of employment among young people is widely debated and represents a crucial concern for policy makers and scholars. As a powerful source of job creation, it is recognised that entrepreneurship could contribute to alleviate this problem, and reduce the high unemployment rates recorded among the youths. So far, however, the entrepreneurial efforts of young people have not been widely studied, and little is known on the impact of entrepreneurship on youth employment. For this reason, youth entrepreneurship has been selected as the GEM special topic for 2014. In addition, the 2014 survey for Luxembourg include questions on immigration and wellbeing, the special topics for 2012 and 2013. This is done to enable continued monitoring of these issues.

Luxembourg joined the GEM project as a full member in 2013. In spring/summer 2014, 2074 individuals were surveyed (APS). In the same period, 36 national experts on Entrepreneurship were interviewed (NES).

[1] See among others Reynolds et al. (2005).

2.1 The GEM conceptual model

The GEM research programme aims to understand the relative impact of entrepreneurship on national economic development. To this purpose, the GEM experts developed in 1998 the GEM model, "an explicit model of the relevant variables and their role in the causal processes affecting economic growth" (Reynolds *et al.*, 2005).

The GEM's model postulates that conditions that apply to established businesses differ from those that apply to new ventures. The performance of larger established firms is influenced by general business conditions, which influence firms' ability to compete effectively, to start new or ancillary businesses and to create jobs (von Broembsen *et al.*, 2005). In contrast, the creation of new firms, and hence the creation of new employment, is mainly driven by two factors: opportunity or necessity. Often the need to create a company is anti-cyclical to the economic cycles of established companies. An additional set of factors, referred to as Entrepreneurial Framework Conditions, influence individuals' decisions to pursue entrepreneurial initiatives. Both the national and the entrepreneurial framework conditions are dependent on the social, political and economic context in which they exist. These contexts are influential in creating unique business and entrepreneurial environments, and should be taken into account when analysing cross-national differences and national developments over time.

Since its inception in 1998, the GEM conceptual model has been developed and refined to incorporate advances in understanding of the entrepreneurial process, and to allow for further exploration of patterns detected in previous GEM studies.

In 2013, the GEM global report implemented the GEM conceptual framework shown in Figure 1. The model relates the framework conditions integral to the original GEM model (Reynolds et al., 1999)[1] and implicitly assumes the mutual relationships among the attitudes, the aspirations and the activities of the entrepreneurs (i.e. the Entrepreneurship Profile shown in Figure 1).

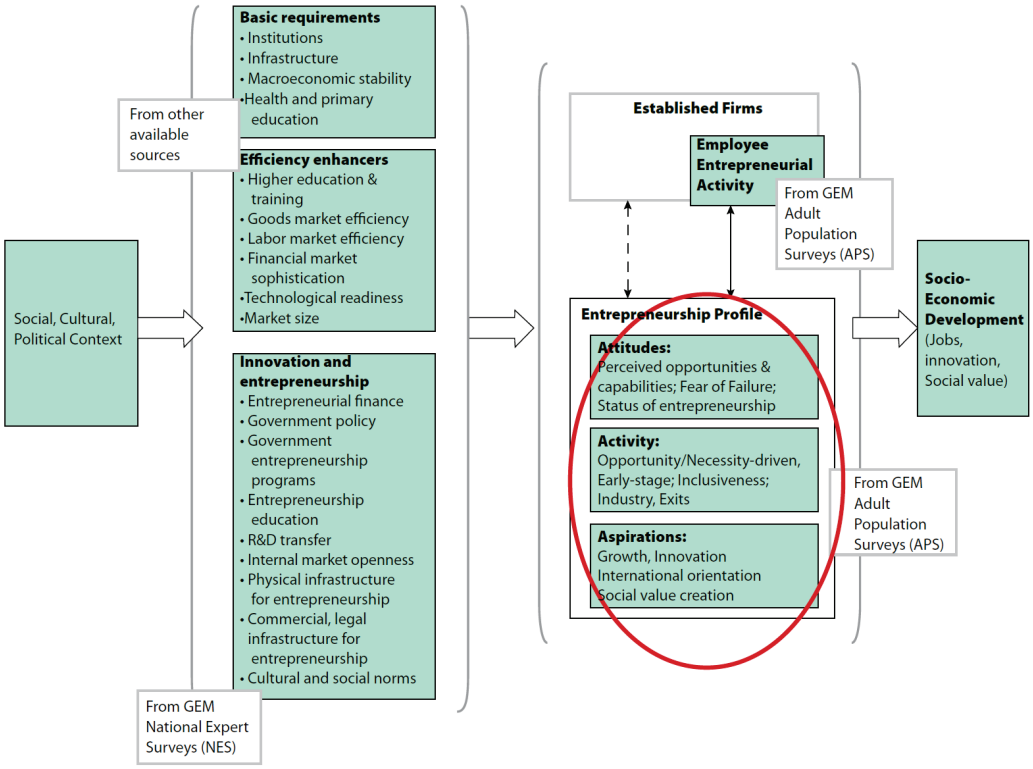
Figure 1 shows that the social and cultural context influences the conditions for economic activity distinguishing between basic requirements, efficiency enhancers and innovation /entrepreneurial conditions. The National Expert Survey conveys information on entrepreneurial conditions. Individuals and firms characteristics are explored using quantitative data from the Adult Population Survey. Overall, the GEM model emphasizes how the entrepreneurial process contributes to the socio economic development.

In 2014, the GEM model was revised and refined. The main difference from previous versions consists in the explicit modelling of the relationships among social values, personal attributes and the various forms of entrepreneurial activities (see Figure 2).

It is important to note that the 2014 revised conceptual model does not modify the scope and goals of the GEM project. GEM continues to focus on contributing to global economic development through surveying/researching entrepreneurship initiatives.

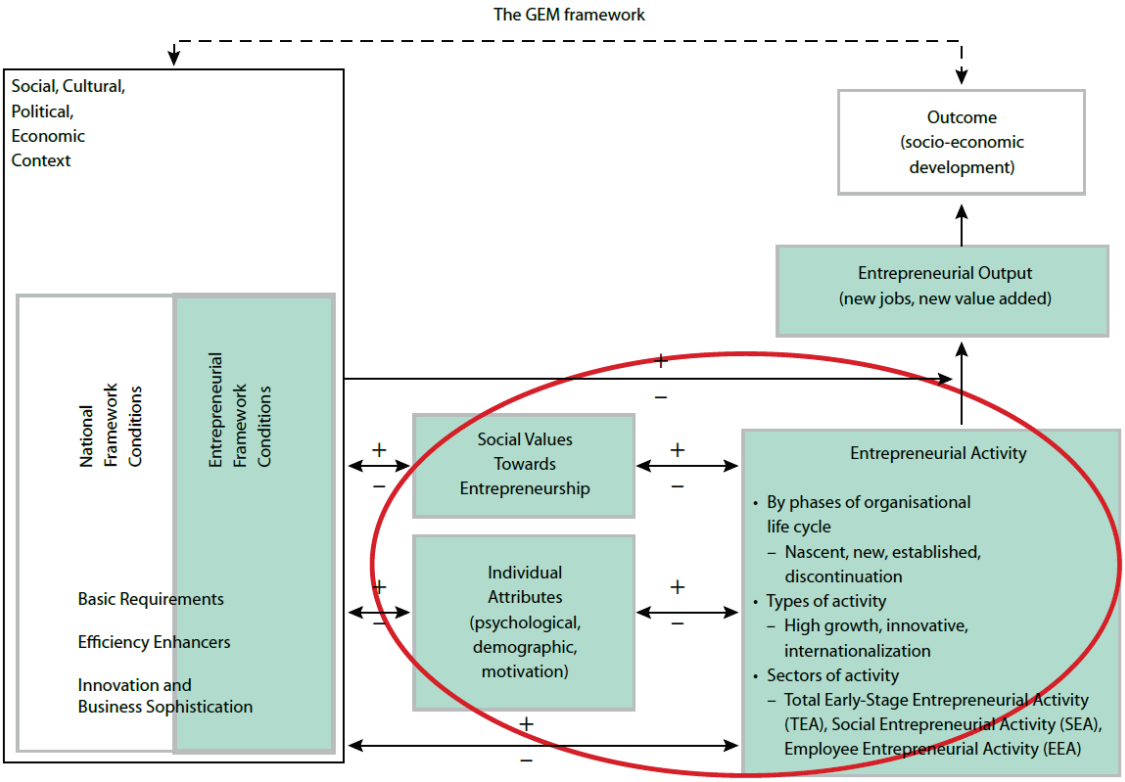
[1] The original framework emphasizes that national economic growth is the result of the individuals' ability to identify and seize opportunities, and that entrepreneurial process is taking place in the interaction with the environment.

Figure 1: The GEM Conceptual Framework (used in GEM surveys up to 2014)



Source: GEM Global Report 2014

Figure 2: The Revised GEM Conceptual Framework



Source: GEM Global Report 2014

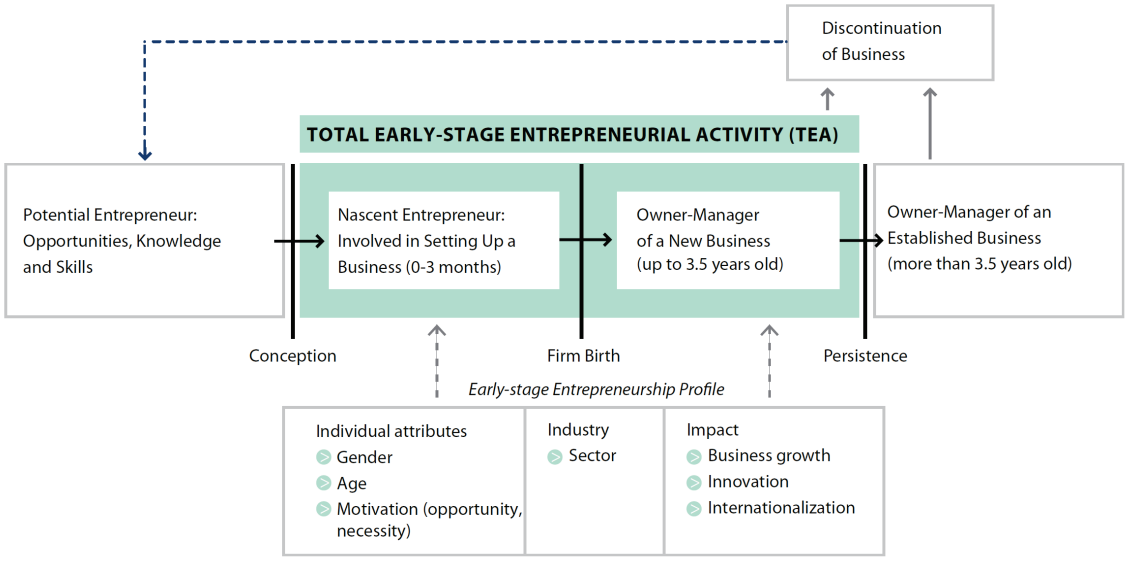
2.2 GEM measures of entrepreneurship

One of the primary objectives of GEM is to measure entrepreneurial activity in a way that allows for cross-national as well as intra-country (over-time) comparisons. The standard approach to study entrepreneurship, based on the analysis of official firm registration figures, is not suitable to this purpose. As noted by Driver *et al.* (2001), business register data do not accurately reflect different levels of informal business activities. In addition, the differences in countries' legal and institutional conventions could make the interpretation of data in cross-country comparisons difficult and misleading.

In line with its objectives, GEM focuses on the role played by individuals in the entrepreneurial process. Every person engaged in any behaviour related to new business creation, albeit modest, is regarded as having an impact on the national level of entrepreneurship.

Another important feature of the GEM model is that it represents entrepreneurship as a process rather than a static phenomenon Figure 3 presents an overview of the entrepreneurial process and the GEM operational definitions adopted at each stage. The GEM survey collects data on people in the process of setting up new businesses as well as those who own and manage running businesses. Thus, it captures information on entrepreneurial attitudes, activity and aspirations in different phases of entrepreneurship, from general intentions through early-stage entrepreneurial activity to status as established firms. An important measure of entrepreneurship used by GEM is the Total Early-Stage Entrepreneurial Activity (TEA) index, indicated by the shaded area in Figure 3. TEA shows the prevalence of business start-ups (or nascent entrepreneurs) and new firms in the adult (18 to 64 years of age) population – in other words, it captures the level of dynamic entrepreneurial activity in a country.

Figure 3: The entrepreneurial process and GEM operational definitions



GEM OPERATIONAL DEFINITIONS:

Total Early-stage entrepreneurial activity (TEA)

Percentage of individuals aged 18-64 who are either a nascent entrepreneur or owner-manager of a new business.

Nascent entrepreneurship rate

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

New business ownership rate

Percentage of individuals aged 18-64 who are currently an owner-manager of a new business, i.e., owning and managing a running business that has paid salaries, wages, or any other payments to the owners for more than three months, but not more than 42 months.

Characteristics of early-stage entrepreneurial activity

Opportunity-based early-stage entrepreneurial activity

Percentage of individuals involved in early-stage entrepreneurial activity (as defined above) who claim to be purely or partly driven by opportunity as opposed to finding no other option for work. This includes taking advantage of a business opportunity or having a job but seeking better opportunity.

Necessity-based early-stage entrepreneurial activity

Percentage of individuals involved in early-stage entrepreneurial activity (as defined above) who claim to be driven by necessity (having no better choice for work) as opposed to opportunity.

Improvement-driven opportunity early-stage entrepreneurial activity

Percentage of individuals involved in early-stage entrepreneurial activity (as defined above) who (1) claim to be driven by opportunity as opposed to finding no other option for work; and (2) who indicate that the main driver for being involved in this opportunity is being independent or increasing their income, rather than just maintaining their income.

High-growth expectation early-stage entrepreneurial activity: relative prevalence

Percentage of early-stage entrepreneurs (as defined above) who expect to employ at least 20 people five years from now.

New product-market-oriented early-stage entrepreneurial activity: relative prevalence

Percentage of early-stage entrepreneurs (as defined above) who report that their product or service is new to at least some customers and that not many businesses offer the same product or service.

International-oriented early-stage entrepreneurial activity: relative prevalence

Percentage of early-stage entrepreneurs (as defined above) who report that at least 25% of their customers are from foreign countries.

Established business ownership rate

Percentage of individuals aged 18-64 who are currently an owner-manager of an established business, i.e., owning and managing a running business that has paid salaries, wages, or any other payments to the owners for more than 42 months.

Business discontinuation rate

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

Note: this is NOT a measure of business failure rates.

Individual attributes of a potential entrepreneur

Perceived opportunities

Percentage of individuals aged 18-64 involved in any stage of entrepreneurial activity excluded who see good opportunities to start a business in the area where they live.

Perceived capabilities

Percentage of individuals aged 18-64 involved in any stage of entrepreneurial activity excluded who believe they have the required skills and knowledge to start a business.

Entrepreneurial intentions

Percentage of individuals aged 18-64 involved in any stage of entrepreneurial activity excluded who are latent entrepreneurs and who intend to start a business within three years.

Fear of failure rate

Percentage of individuals aged 18-64 involved in any stage of entrepreneurial activity excluded who report that fear of failure would prevent them from setting up a business.

Source: GEM Global Report 2014

A primary objective of GEM is to explore differences in national levels and types of entrepreneurship, and to link these differences to job creation and economic growth. Thus, survey respondents are interviewed about their motivation for starting a business. A distinction is made between those who are motivated primarily by a lack of other options for making a living (necessity entrepreneurship) and those who are starting a business to take advantage of an opportunity (opportunity entrepreneurship). Opportunity entrepreneurs may include those who wish to maintain or improve their income, or to increase their independence. In line with this qualitative approach, interviewees are also asked questions on market innovativeness and expected employment growth.

2.3 GEM surveys

To provide reliable comparisons across countries, GEM data is obtained using a research design that is harmonised over all participating countries. The data is gathered on an annual basis from two main sources:

- **Adult population survey (APS)**

This data set is a survey of the adult population, namely people at least 18 but younger than 65 years. Each of the participating countries conducts the survey among a random representative sample of at least 2 000 adults (In Luxembourg's 2014 sample, 2074 adults were sampled). The survey for

Luxembourg was conducted in summer 2014 using a standardised questionnaire provided by the GEM consortium. [1] In the interests of maximum uniformity and control, the international GEM project team can contact directly each country's chosen APS vendor. Waves of raw data were sent regularly during the survey to the GEM-data team for checking and uniform statistical calculations before being made available to the participating countries. To increase reliability of the reported results, the observations are weighted to assure that the join distribution of the gender and age of the respondents is equal to the distribution of the reference population[2].

- **National experts survey (NES)**

The national experts' survey is an important component of the GEM project as it provides insights into the entrepreneurial start-up environment in each country. GEM provides a number of criteria which must be met when selecting experts, in order to construct a balanced and representative sample.

Four experts from each of the nine entrepreneurial framework condition categories[3] must be interviewed, summing up to a total of 36 experts per country.

Additional aspects such as geographical distribution, gender, the public versus private sector, and level of experience should also be taken into account when balancing the sample.

[1] As detailed in chapter 4, GEM Luxembourg team retained some ad-hoc questions of standardized questionnaire 2013 (such as immigration) in the survey 2014. These questions are retained because provide insights on particular important issues for Luxembourg.

[2] Figures about reference population are drawn from the statistical office of Luxembourg STATEC.

[3] See table 1

3 National Expert Survey (NES)

Entrepreneurship dynamics are linked to conditions that enhance (or hinder) the new business creation. In the GEM´s methodology these conditions are known as Entrepreneurial Framework Conditions (EFCs). These conditions affect the existence of business opportunities, entrepreneurial capacities and individuals' preferences, which, in turn, determine business dynamics and entrepreneurial success. By collecting information from the national experts' interviews on EFCs, GEM captures informed judgments regarding the entrepreneurial "ecosystem" (GEM 2014).

This chapter presents a comparative assessment of the entrepreneurial "ecosystem" of Luxembourg based on data from the National Expert Survey –NES-. The analysis first compares Luxembourg's environment in 2013 and 2104; then it focuses on the difference between Luxembourgish entrepreneurship "ecosystem" and that of neighbouring countries.

National Expert Survey

The aim of the National Expert Survey –NES- is to assess the entrepreneur "ecosystem" through the measurement of a set of 9 Entrepreneurial Framework Conditions (EFC) indicators. These EFCs are: Entrepreneurial Finance, Government Policy, Government Entrepreneurship Programs, Entrepreneurial Education, R&D transfer, the Commercial and Legal Infrastructure Barriers to entry, Physical Infrastructure and the Cultural and Social Norms. Table 1 describes in detail the various framework conditions. Each EFC is measured on the basis of answers to a set of questions. Answers are recorded using a five points Likert scale (from 1 *Completely False* to 5 C*ompletely True*).

The following provides some information on respondents' individual characteristics, and presents descriptive statistics on the entrepreneurial environment indicators.

Luxembourg's NES sample

Luxembourg's NES sample includes 36 experts from various Luxembourgish private and public institutions. Most of the experts are male (11 female and 23 male) hold a university degree and the average age is 44.5 years.[1] Finally, 16 experts described themselves as "entrepreneur", 24 as a "Business and support service provider", 11 as "Educator, teacher, and researcher on entrepreneurship", 15 as "Policy-maker" and 9 as "Investor-banker"[2].

[1] 8 national experts refused to provide information about their gender or age. Nearly 90% of the respondents hold an academic degree.

[2] The national experts can report different definitions to describe themselves.

Table 1: The 9 GEM's Entrepreneurial Framework Conditions-EFC-that describe the entrepreneurial ecosystem

1) **Entrepreneurial Finance.** This conditions aims to capture the availability of financial resources — equity and debt — for small and medium enterprises (SMEs). It includes grants and subsidies).
2) **Government Policy.** The extent to which public policies support entrepreneurship. This condition has two components: a) General: Government perceives entrepreneurship as a relevant economic issue and b) Regulation: Taxes or regulations are either not discriminating on the grounds of size or encouraging new ventures and SMEs.
3) **Government Entrepreneurship Programs. The** presence and quality of programs directly assisting SMEs at all levels of government (national, regional, municipal).
4) **Entrepreneurship Education.** The extent to which training in creating or managing SMEs is incorporated within the education and training system at all levels. This EFC has two components: a) **Entrepreneurship Education at primary and secondary school,** and b) **Entrepreneurship Education at post-secondary levels** (higher education such as vocational, college, business schools, etc.).
5) **R&D Transfer.** The extent to which national research and development will lead to new commercial opportunities and is available to SMEs.
6) **Commercial and Legal Infrastructure.** The presence of property rights, commercial, accounting and other legal and assessment services and institutions that support or promote SMEs.
7) **Barriers to entry.** This EFC includes two components: a) **Market Dynamics**: the level of change in markets from year to year, and b) **Market Openness:** the extent to which new firms are free to enter existing markets.
8) **Physical Infrastructure.** Ease of access to physical resources and infrastructure, such as communication networks, utilities, transportation, land or space—. This also captures cost of accessing such infrastructure faced by SMEs: prices should not discriminate against SMEs.
9) **Cultural and Social Norms.** The extent to which social and cultural norms encourage or allow actions leading to new business methods or activities that can potentially increase personal wealth and income.

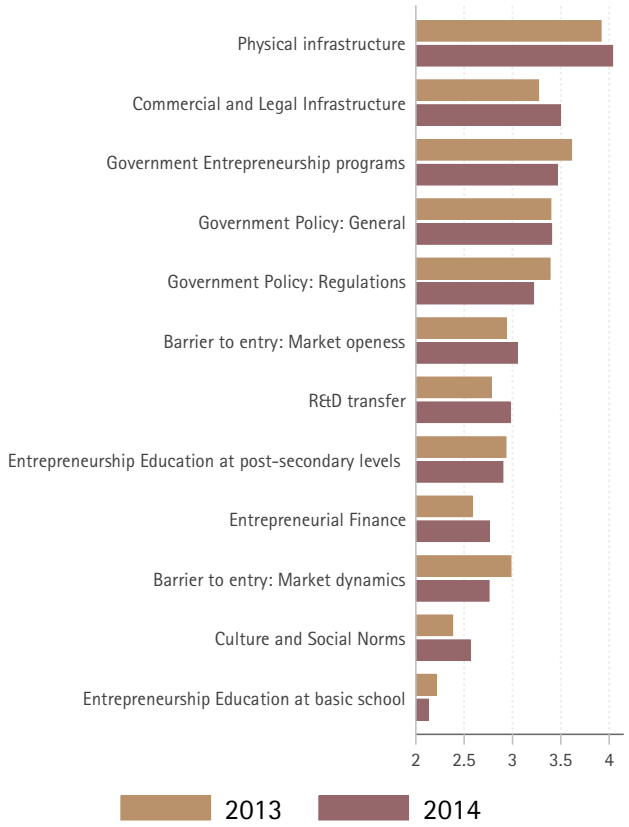
Source: adapted from GEM Global Report 2014

3.1 Luxembourg's NES results

Figure 4 presents average scores for the 9 Luxembourg's EFCs for 2013 and 2014. Overall, the evaluation of the experts is stable along time. However, results suggest that the availability of funding for entrepreneurs has improved in 2014 (from nearly 2.6 to 2.8). This figure suggests that the availability of financial resources for new ventures is increased in 2014.

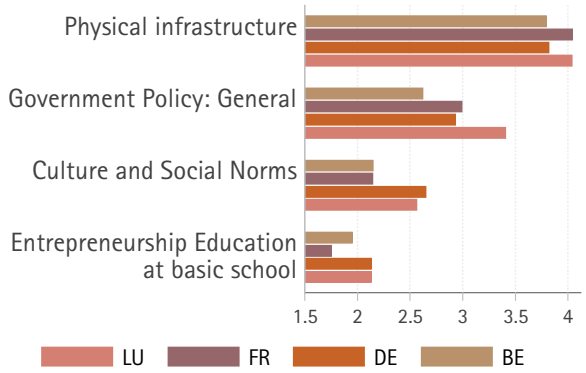
Looking at 2014 data, the Physical Infrastructure (4.04), the Commercial and Legal Infrastructure (3.50) and Government Entrepreneurship Programs (3.47), are the 3 EFCs with the highest values. In contrast, the Entrepreneurship Education at primary and secondary school (2.13), Cultural and Social norms (2.56), and Barriers to entry: market dynamics (2.76) are the 3 EFCs with the lowest values. In other words, in 2014, entrepreneurship experts suggest that the infrastructures and the government policies are the main strengths of the Luxembourgish entrepreneurial system. The education, the social norms, and the barriers to entry are the weak points, or "bottlenecks" of the Luxembourgish entrepreneurial environment.

Figure 4: Average expert scores for Luxembourg's EFCs



Source: GEM NES Luxembourg 2013-2014, STATEC

Figure 5: Average experts scores on EFCs: comparison of Luxembourg to neighbouring countries



Source: GEM NES Luxembourg 2014, STATEC

The following compares findings from the Luxembourg's NES to those for other neighbouring countries (France, Germany and Belgium). This exercise gives insights on the relevance of the results and may facilitate the identification of best policies. [1] For this purpose, Figure 5 shows the cross-country comparison of relevant Entrepreneurial Framework Conditions (the two EFC where Luxembourg is scoring the best and the two where is scoring the lowest).

The experts of neighbouring countries consider that their country is scoring high with respect to Physical Infrastructure. The main difference between Luxembourg and other countries essentially lies in the evaluation of the role of the Government. Luxembourgish experts evaluate much better the governmental policies of their country (nearly 3.5) than other experts do for their countries (no more than 3). The entrepreneurship Education in primary and secondary school is identified as the weakest condition for the entrepreneurial ecosystem by all experts of Luxembourg and neighbouring countries (GEM GLOBAL REPORT 2014, p 59).

The Figure 5 indicates that among the neighbouring countries, Luxembourg and Germany are scoring the best. One can observe similar patterns with respect to the cultural and social norms. These norms are perceived as not particularly favourable but France and Belgium are scoring even lower.

Overall, **the survey on Luxembourgish experts suggests that Luxembourg has a general institutional framework that is perceived as supporting of entrepreneurial activities**. The access to infrastructure is also positively evaluated by experts. There seems to be some problems with respect to education system and market structure such as barrier to entry. These results are largely consistent with the main findings of the OECD

[1] In 2014, the three EFCs with the highest average scores in European countries were Physical Infrastructure (3.91), the Commercial Infrastructure (3.25) and the barriers to entry: Market Dynamics (2.91). In contrast, the Entrepreneurship Education at Secondary School (2.12), the Regulations government Policies (2.44) and the R&D transfer (2.57) were the three EFCs for which the lowest scores were recorded (GEM GLOBAL REPORT 2014, p 59).

Economic Surveys for Luxembourg (2015 p.35) that identifies "Restrictive labour regulations" and "Inadequately educated workforce" as the most problematic factors for doing business[1].

[1] An important source of the OECD 2015 is The Global Competitiveness Report 2014-2015 that investigates business "ecosystem" in general and has not a focus on entrepreneurship. While the respondent of the NES are informed expert of entrepreneurial conditions, respondents of Global competitiveness report are business executives from small- and medium sized enterprises and large companies.

4 Adult Population Survey (APS) Luxembourg 2014

The Adult Population Survey (APS) targets the whole adult population (18-64) to collect information about entrepreneurship. The first APS for Luxembourg is conducted in 2013. The second wave is performed in 2014. The availability of two consecutive waves allows us to perform the first analysis of the evolution of the entrepreneurship in Luxembourg.

Based on GEM survey 2014, this chapter presents the most recent facts on the entrepreneurial perceptions, the attitudes, the intentions, the fields of economic activity and the aspirations of entrepreneurs in Luxembourg. It also provides an overview of the evolution of the entrepreneurship in the same country between 2013 and 2014.

A further section of this chapter offers a cross-country perspective on entrepreneurship. Luxembourg is benchmarked with neighbouring countries and other E.U. countries.

The analysis continues focusing on the relationship between entrepreneurship and immigration that is of particular relevance to Luxembourg. Nearly half of the resident population (43%) has not the Luxembourgish nationality and Immigrants from 168 different nationalities are resident in Luxembourg. A large majority of the migrants come from another EU-country (94.5%), mainly Portugal (16.4% of the total population), France (7 %), Italy (3.5%), Belgium (3.5%) and Germany (2.3%) (STATEC, 2015a). Luxembourg is a small and open economy and the cross-border workers are a consistent part of the total labour force (44.4%) (STATEC, 2015b). This fact, and its economic consequences, has been the subject of several studies in recent years. Such studies have highlighted how migrants and cross-border workers[1] largely contribute to form a dynamic economic environment and to the entrepreneurial efforts (STATEC, 2012b; Stawinska, 2012). Figures presented in the section about immigration are based on a special module of the survey. Indeed, every year GEM consortium includes a topic of major relevance for public debate. The GEM consortium has chosen to collect information on immigration and entrepreneurship in the 2013 survey. In Luxembourg, in light of the relevance of the topic, the GEM team has decided to record this information also for the year 2014.

Aside immigration, two other special topics are included in 2014 survey: youth entrepreneurship and well-being. These topics can have a considerable impact on growth and economic dynamics and are currently ranking high in the public debate. Indeed, young people are experiencing particularly high level of unemployment (STATEC, 2013a) and entrepreneurship could be a tool to promote employment among young. With respect to well-being, we note that several studies emphasize that income and happiness are not necessarily correlated (this is known are Easterlin Paradox (Easterlin, 1972)) and new research suggest that conventional indicators (i.e. GDP) may be not enough to capture all the implication of the economic activity.[2] Youth and well-being may have large implication for the economic growth, the employment and the entrepreneurship but their relationship with the entrepreneurship is not fully understood.

Based on 2014 data, the final section of this chapter gives some insights on how entrepreneurship is interrelated with youth and well-being.

4.1 Respondents characteristics

Before proceeding to a characterisation of the entrepreneurship in Luxembourg, this section gives a concise overview of the individual traits of the participants in the Luxembourg APS survey.

APS individual data has been collected by interviewing 2074 individuals, using in an equal proportion telephone-interviews and the administration of on-line questionnaires.[3] The target population is made of

[1] Cross-border workers and cross-border entrepreneurs are currently not part of the GEM sample.

[2] For example in Luxembourg the project PIBien-être is attempting to develop an index capturing happiness and well-being) whereas "PIB" in French stands for Gross Domestic Product and "ien-être" for "wellbeing.

[3] It should be noted that the Luxembourg team's reasoning for the use of the on-line questionnaires for part of the survey is two-fold. Firstly, this allowed for an adjustment of the present survey methods to an ever-changing information and telecommunication environment. Secondly, the online service enables its participants to fill in the questionnaire at their convenience and facilitates the

resident adult population 18-64 years old. To increase reliability of reported results, observations are weighted using official statistics about gender and age).[1]

Table 2 summarises information on age, gender, income, and place of residence of respondents. One can see that slightly more women than men (51% versus 49%) are interviewed and nearly half of the interviewed are 35-54 year old (48%). The largest educational group are persons with upper secondary education (34% of the sample). Concerning the income structure of households, the groups between 40.000 and 60.000 Euro and 60 000-80 0000 are the largest (respectively 18 % of the sample). Nevertheless, about one fifth of the interviewees refused to give the information or did not know their household income (21%). Finally, we observe that the large part of respondents is resident in the South and in the centre of Luxembourg (36% and 35%, respectively).

Some figures in Table 2 provide some indications about the substantial correspondence between the traits of survey respondents and target population[2].

The distribution of the education of respondent is largely consistent with census data for 2011 (STATEC, 2013b). Even if with some difference into the definitions, the distribution of education in GEM and official statistics is considerably close. For example, census data reports that 35.5% of the reference population hold an upper secondary degree compared to 34% of the APS respondents.

Looking at income distribution, one can note that 58% of the household of APS respondents have an income of at least 60 000 € while official statistics reports that at least 50% of all household have yearly income of 53,784 € in 2013[3].

Finally, we note that the residence of APS responded and Luxembourgish population are very similar with respect to the place of residence. The official statistics 2014 (STATEC, 2015d) show that 37 % of Luxembourgish population leaves in the South (compared to the 35% of APS respondents), 36% in Centre (36% of APS), 16% in the Nord (15% of APS respondents) and remaining 12% in the Est (12% of APS respondents)[4].

Overall, we conclude that despite some minor differences, **Table 2 indicates a substantial correspondence between the traits of APS survey respondents and target population**. This fact increases our confidence in GEM data. Further information about immigration status and employment status are reported below.

Table 2: Respondents' individual traits

Gender	%
Male	51
Female	49
Tot.	100
Age	
18-24	13
25-34	22
35-44	24
45-54	24
55-64	17
Tot.	100
Education	
Early childhood education	0

involvement of the younger population as the actual users of new IT technologies. This decision is supported by Statec's recent survey which registers a decrease in fixed or landline connections within households but an increase of internet connections via cable or mobile devices in Luxembourg over the last years.

[1] It is important to note that unweighted data shows an under-representation of respondents in the age group of 18-34 years and a corresponding over-representation of those aged 45 and above.

[2] As gender and age are used as auxiliary variables for the weighting process, their weighted distribution is identical among respondents and target population by construction.

[3] We calculated the distribution of the income for APS only for respondents that agreed to answer to the question.

We calculate the official annual median income as the household disposable monthly median income multiplied by12 months because of availability of the most recent official statistics. In 2013, the monthly median income is 4,482€ (STATEC, 2015c) It is important to note that STATEC reports median income of all population while APS include only households of 18-64 excluding households of adults aged more than 65 years.

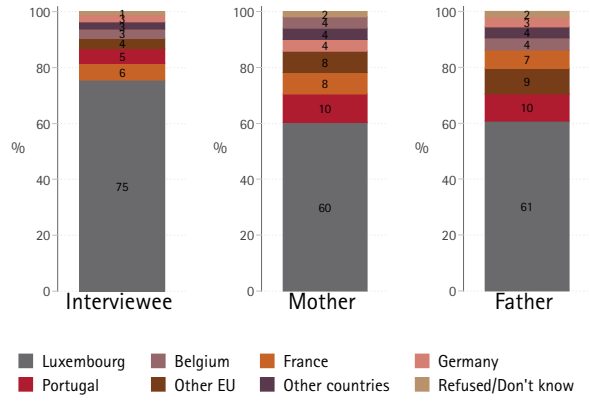
[4] South is defined as cantons of Capellen and Esch; centre is made of cantons of Luxembourg and Merch, North is defined as Canton of Clervaux, Diekirch, Redange, Vianden, Wiltz. Est is defined as Echternach, Grevenmacher and Remich.

Primary education or first stage of basic education	4
Lower secondary or second stage of basic education	13
(Upper) secondary education	34
Master craftsman's diploma	5
Short-cycle tertiary (2-3 years)	7
Bachelor or equivalent (3-4 years)	18
Master or equivalent	14
Doctoral or equivalent	3
Not know/refused	3
Tot.	100
Income	
€ 0 to € 20,000	3
€ 20,001 to € 40,000	12
€ 40,001 to € 60,000	18
€ 60,001 to € 80,000	18
€ 80,001 to € 100,000	12
More than € 100,000	16
Not know/refused	21
Tot.	100
Place of residence	
Centre	35
South	36
North	16
East	12
Tot.	100

Source: GEM APS 2014 weighted observation

Figure 6 presents the breakdown of survey's participants by the country of birth[1]. 75% of the respondents were born in Luxembourg. Interestingly, about 40% of these respondents have at least one parent born not in Luxembourg which demonstrates the multicultural landscape of Luxembourg.

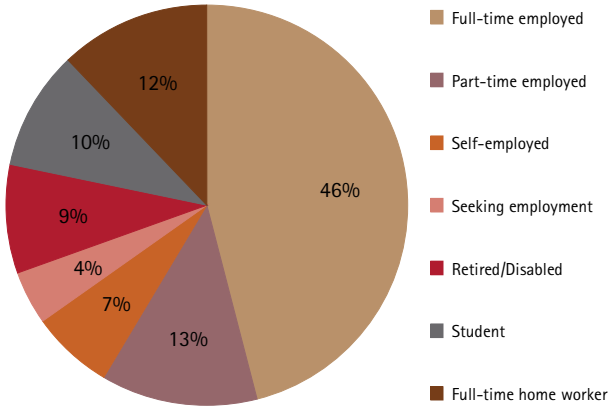
Figure 6: Respondents' Country of birth



Source: GEM Adult Population Survey Luxembourg 2014, STATEC

Finally, Figure 7 shows the different employment status of the respondents[2]. The most common employment status is: "full time employed" and "full time home worker" (46% and 13% respectively). Only 7% are self-employed.

Figure 7 Respondents employment status



Source: GEM Adult Population Survey Luxembourg 2014, STATEC

4.2 Entrepreneurship in Luxembourg

This section gives an overview of entrepreneurial activities in Luxembourg. The analysis is structured according to the framework in Chapter 2.

Firstly, it presents the evolution of the indicators of entrepreneurial process (from conception to persistence) in year 2013 and 2014.

Then, it examines individuals' attributes of entrepreneurship with respect to gender, age and

[1] To define the migration background of participants, the APS survey asks to state their country of birth, rather than the nationality. This measurement is less sensitive to possible changes of nationality or naturalizations.

[2] In defining the employment status the survey is facing some problems as multiple answers where possible. However the majority of the survey population is employed, full- or part-time.

individual motivations in Luxembourg, to create a business.

The following section analyses the types of new ventures in Luxembourg highlighting the type of the activity (economic sector of activity and innovativeness) and ownership structure. Sources of funding of the Luxembourg business start-ups are also considered.

The final section shows how the respondents perceived the Luxembourg's economic environment and how this can change the employment growth of the firms.

4.3 The entrepreneurship process indicators

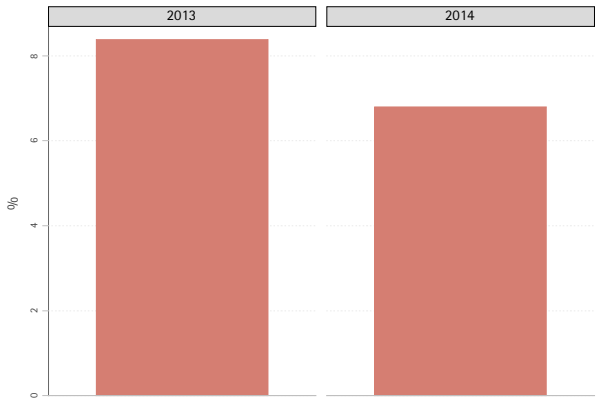
The GEM framework models entrepreneurship as a process, whereby an individual moves along four consecutive stages. The main phases are:

- Potential entrepreneur (expecting to start a new business within the next three years);
- Nascent entrepreneur (involved in setting up a new business that has paid wages for less than three months);
- New entrepreneur (owner-manager of firm than has paid wages for 3 months but less than 42 months);
- Established entrepreneur (owner-manager of firm older than has paid wages for more than 42 months).

GEM framework groups the nascent and new entrepreneurs to sum up the level of dynamic entrepreneurial activity: Total Early-Stage Entrepreneurial Activity (TEA). Figure 8 looks at the evolution of this synthetic indicator. The Figure 8 shows that TEA decreased from 8.7% in 2014 to 7.1% in 2014.

Some tests are computed to verify whether the levels of TEA are statistically different in 2013 and 2014. Result show that TEA is lower 2014 than in 2013 at the significance level of 10%.[1]

Figure 8 Total Early-Stage Entrepreneurial Activity (TEA) 2013-2014



Source: GEM APS Luxembourg 2013-2014, STATEC

Figure 9 disentangles the TEA indicator looking at all various stages of the entrepreneurial process and offering a more detailed view of the entrepreneurship. The figure shows how many respondents have achieved at least a specific entrepreneurial stage for both 2013 and 2014 waves. It is important to note that an individual may be engaged in several phases simultaneously (i.e. owning a business and starting another stat-up). For example, in 2014, around 18% of all respondents are at least potential entrepreneurs, 10% are engaged in any form of entrepreneurial activity (nascent, new or established), 6% are new entrepreneurs and around 4% are established entrepreneurs.

Comparing the 2013 and 2014 surveys, the number of potential entrepreneurs is decreasing from 21 % in 2013 to 18% in 2014. In contrast, the percentage of established entrepreneurs increased from nearly 2.5% in 2013 to about 4% in 2014. Other indicators are relatively unchanged.

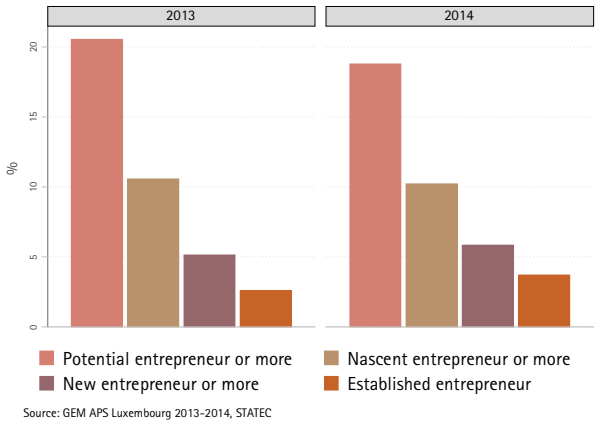
For each entrepreneurship phase, some tests are computed to verify whether the entrepreneurial levels change significantly in 2013 and 2014. The results show that only the proportion of established firms is larger in 2014 than in 2013.[2]. Other phases of the

[1] Pearson chi2 statistics corrected for the survey design (F(1, 4078) = 3.1171 P = 0.0775))

[2] Results are significance at 5%. Pearson chi2 statistics corrected for the survey design are computed (F(1, 4078) = 6.011 P = 0.014.

entrepreneurial process are not statistically significant at conventional significance level (10 %).

Figure 9 Entrepreneurship stages indicators 2013-2014



Source: GEM APS Luxembourg 2013-2014, STATEC

Overall, **one can conclude that the entrepreneurship process in Luxembourg is relatively stable in 2013 and 2014.** A more refined analysis shows that the number of early stage entrepreneurs has decreased but the number of established entrepreneurs has grown.

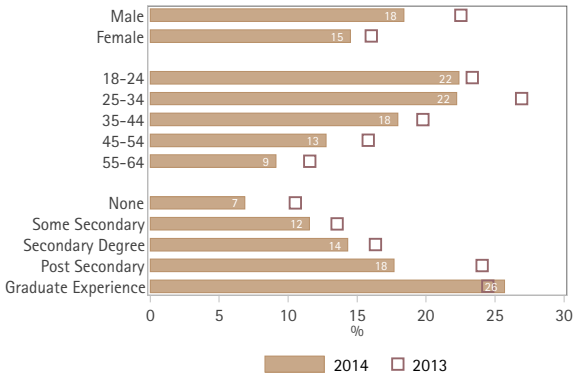
4.4 Individual attributes of entrepreneurs.

Following the GEM framework, this section shows the individual attributes of entrepreneurs (e.g. gender, age) that characterize the entrepreneurial phases and how these attributes evolve along time. The following figures give better insights on the evolution of entrepreneurs in Luxembourg.

Figure 10 shows the percentages of the respondents who expect to start a business in the next 3 years (potential entrepreneurs) by gender, age, and education level. In 2014, more males intend to start a business than females (18% versus 15%). With respect to age, individuals between 18-24 and 25-34 years old are the more prone to engage in entrepreneurial activities (22 % of these groups expect to start a business) and for education Graduate experience[1] is in the first place (26 % of this group expect to start a business). Compared to 2013, Figure 10 indicates that individuals have a lower intention to start a business in 2014 along all entrepreneurial attributes.

Overall, there are less potential entrepreneurs in 2014 than 2013 and the sharpest drops are observed among males, 25-34 year-old and individuals with post-secondary degree (respectively 5, 6, and 8 percentage points less).

Figure 10: Potential entrepreneur by gender, age and education level



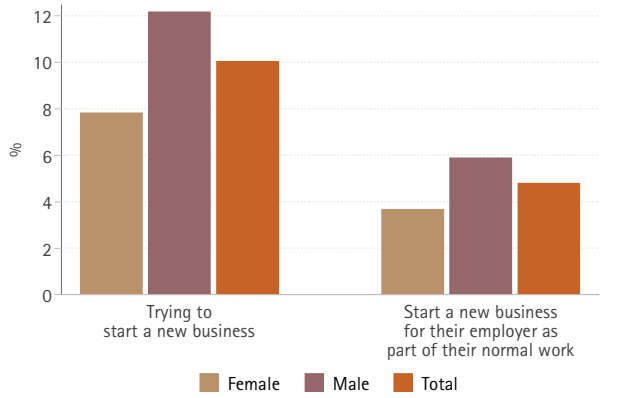
Source: GEM Adult Population Survey Luxembourg 2013-2014, STATEC

Figure 10 describes the intention of starting a new business while Figure 11 displays the percentage (total and by gender) of the respondents that are currently involved in setting up (creation phase) a new business[2]. One can see that 10 % of all respondents try to create a new business. Interestingly, 4.8% of all interviewed are setting up a new business as part of their normal work of employees. This fact suggests that nearly half of the entrepreneurial activity, as defined in previous section, (around 48%) is taking place in established firms.

[1] Post-secondary includes any post high school college/Bachelors, graduate experience correspond to a masters or doctorate

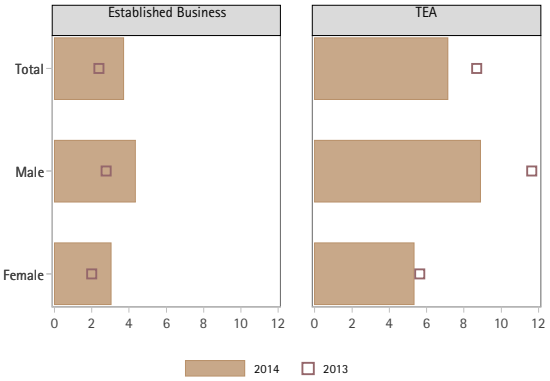
[2] These figures are very similar in 2013.

Figure 11: Share of respondents involved in setting up a business



Source: GEM Adult Population Survey Luxembourg 2014, STATEC

Figure 12: TEA and Established Business by gender



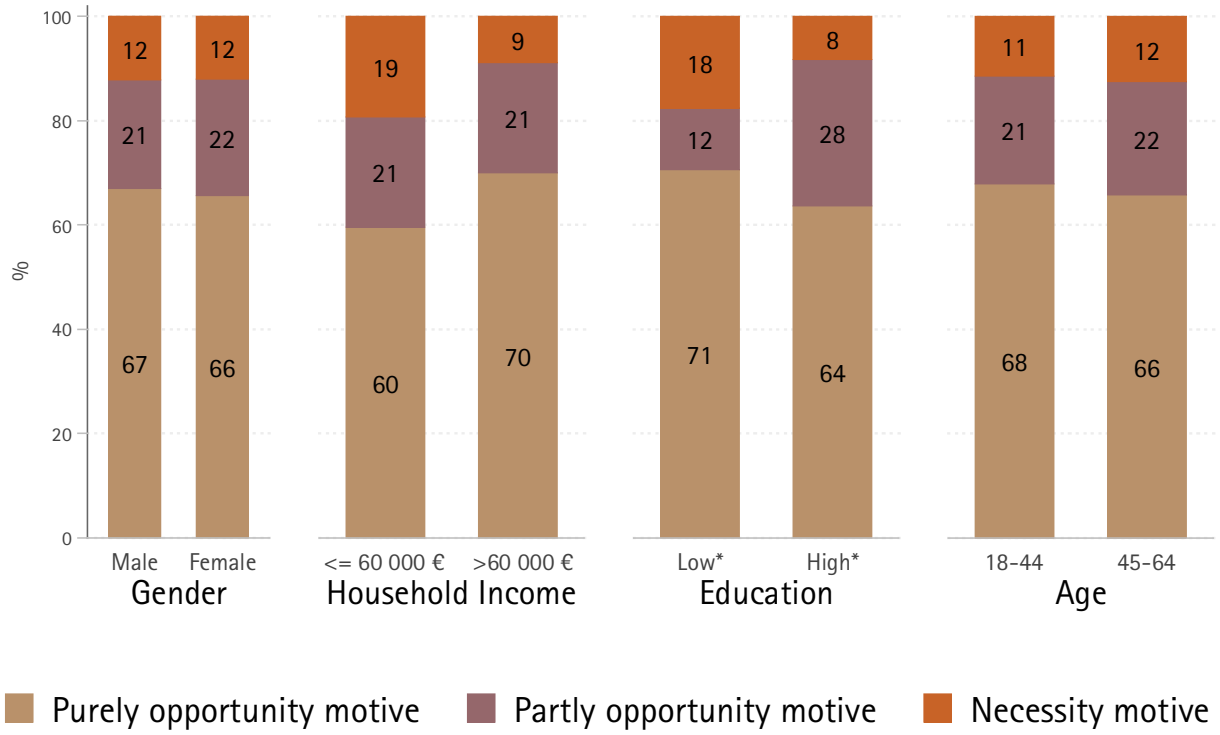
Source: GEM Adult Population Survey Luxembourg 2013-2014, STATEC

For both 2013 and 2014, Figure 12 shows the percentage of individuals that are entrepreneurs of a new business (TEA) and of an Established Business (older than 42 months). Additionally, the Figure 12 reports the diffusion of TEA and established businesses by gender. In 2014, 7.1% of the active population (10-64 years) is involved in TEA compared with the 8.7% of 2013. The decrease of individuals active in TEA is compensated by the increase of individuals in Established business (nearly 2.1% in 2013 and 3.7 in 2014). Finally, we note that this evolution is mainly driven by male entrepreneurs while the percentage of female entrepreneurs remains almost stable in 2013 2014.

4.4.1 Entrepreneurial motivations

It is important to investigate why people decided to create a business in Luxembourg, because the reasons behind entrepreneurial activity can considerably influence the success of the new businesses (Block and Wagner 2010). Thus, as shown in Figure 13, nearly 66% of respondents involved in TEA are driven by the 'opportunity'. Only 12% of them are driven by necessity. Large part of the entrepreneurs is, at least partly motivated by the opportunity. There is no apparent relation between age and motivation, as the distribution of the motivation does not change over the age characteristics of individuals. In contrast, the education and the income seem correlated with motivations to engage in entrepreneurial activities. The share of respondents involved in TEA because of necessity is 19% for lower income households (less than 60 000€ per year) compared to 9% of those with higher revenues. Low income entrepreneurs are nearly twice more likely to be driven by necessity. Considering education, among respondents with at least upper secondary, 18% are engaged in TEA by necessity while among entrepreneurs with higher education they are only 8%.

Figure 13: Entrepreneurial motivation to get involved in TEA



High*: Greater than Upper Secondary
Low*: Lower or equal to Upper Secondary

Source: GEM Adult Population Survey Luxembourg 2014, STATEC

4.5 Attributes of new ventures: ownership structure, industry, innovativeness and funding

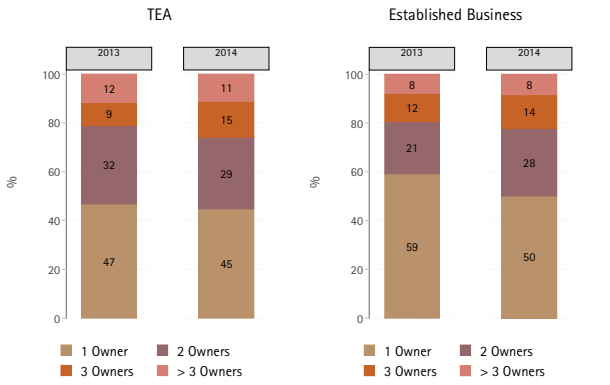
While previous section presents the attributes of the entrepreneurs in Luxembourg, the followings present the attributes of the "businesses" in Luxembourg with respect to the ownership structure and the type of the activity (ownership, industry, innovativeness and funding).

4.5.1 Ownership structure

Several factors can influence the success of new firms, including the ownership structure. The sole entrepreneur may have not enough resources to finance the new venture or not enough skills for setting up and develop a new firm. Some sectors may offer better opportunities than others. Figure 14 presents the ownership structure both for the TEA (0-42 months of activities) and for the established businesses (more than 42 months) in 2013 and in 2014. One can see that 45% of the TEA and 50% of the EB have only one owner. The share is relatively the same as in 2013 for the TEA. However, looking at the established businesses, we observe that the percentage of the sole owners' decreases of about 10% points (from 59% in 2013 to 50% in 2014).

The pattern shown in Figure 14 suggests that the sole ownership is the main structure in Luxembourg and this percentage increases among established firms. This pattern may suggest that the difficulties of coordination of more than one owner may be intense. However further research on this topic is advisable.

Figure 14: Ownership structure of TEA and Established businesses by year.



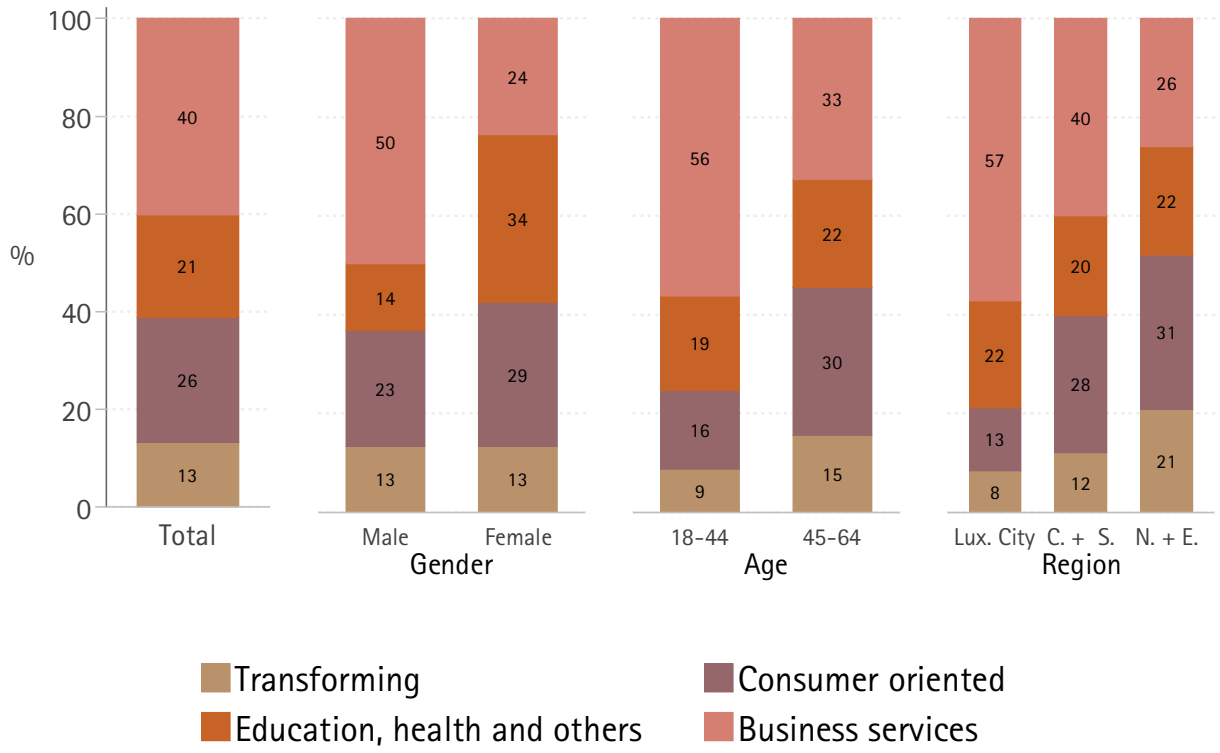
Source: GEM Adult Population Survey Luxembourg 2013-2014, STATEC

4.5.2 Industry

Focusing on economic activities of new ventures, Figure 15 reveals interesting patterns in 2014[1]. Firstly, the early business activities (TEA), with 40%, mostly take place in business services followed by consumer-oriented services. Secondly, the gender breakdown shows that one male out of 2 is mainly operating in business services and almost a quarter in consumer oriented services whereas females are more represented in the education, health and other services (34%) and consumer-oriented services (29%). Thirdly, with increasing age, participants are increasingly active in consumer-oriented services and less in business services. Finally, looking at the geographic landscape of Luxembourg it is interesting to see that Luxembourg City has a proportionally higher share of Business services than the rest of Luxembourg.

[1] Economic Activities are defined according to the International Standard Industrial Classification of All Economic Activities (ISIC Rev.4). The classification in this report is the following: Transforming stands for agriculture, forestry, fishing, mining and construction manufacturing, utilities, transport, storage and wholesale trade; Consumer Oriented stands for retail trade, hotels & restaurants and personal/consumer services; health, education and others services stands for health, education and social services and finally Business services stands for information and communication, financial intermediation, real estate activities, professional services and administrative services.

Figure 15: TEA by activity sector (by gender, age and region)



Source: GEM Adult Population Survey Luxembourg 2014, STATEC

Lux. City : Luwembourg City, C + S : Centre & South; N+E :North & East

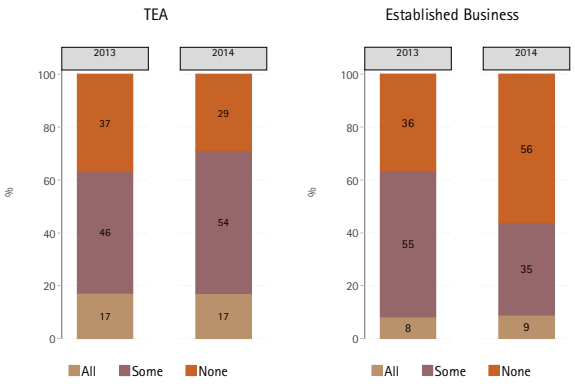
4.5.3 Innovativeness

Start-ups are generally considered radical innovative being able to identify and explode business and technological opportunity better than older firms.

Figure 16 presents the share of customers perceiving the main product of the new or established venture as new or unfamiliar. One should note that managers of the ventures are answering to this question and not the customers. Thus, the answers do not reflect the market's perception but the managers' believes.

Figure 16 suggests that 17% of the TEA and only 9% of the Established businesses think that all of their customers see their product as new or unfamiliar, those shares remain stable compared to 2013. The early entrepreneurs tend to perceive their products more innovative than the established (more experienced) entrepreneurs. This pattern is confirmed in both 2013 and 2014.

Figure 16: Percentage of the customers considering your product new or unfamiliar.

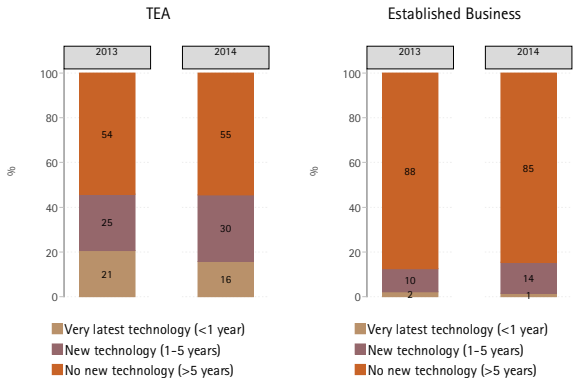


Source: GEM Adult Population Survey Luxembourg 2013-2014, STATEC

Leaving aside the innovativeness of the products and services provided by the new firms, another measure of innovativeness may be the novelty of technology used (process innovation).
Figure 17 provides some insights on the innovativeness exploring the age of technology used. This measure can be a good proxy of the level of innovation of the TEA and the Established businesses in Luxembourg. More than half (55%) of the enterprises younger than 42 months answered that

they use no new technology (i.e. technology older than 5 years). This percentage is even more significant if we look at the Established business (85%). This pattern is nearly unchanged in 2013 and 2014.

Figure 17: Age of the technology or procedure used to provide the services/products

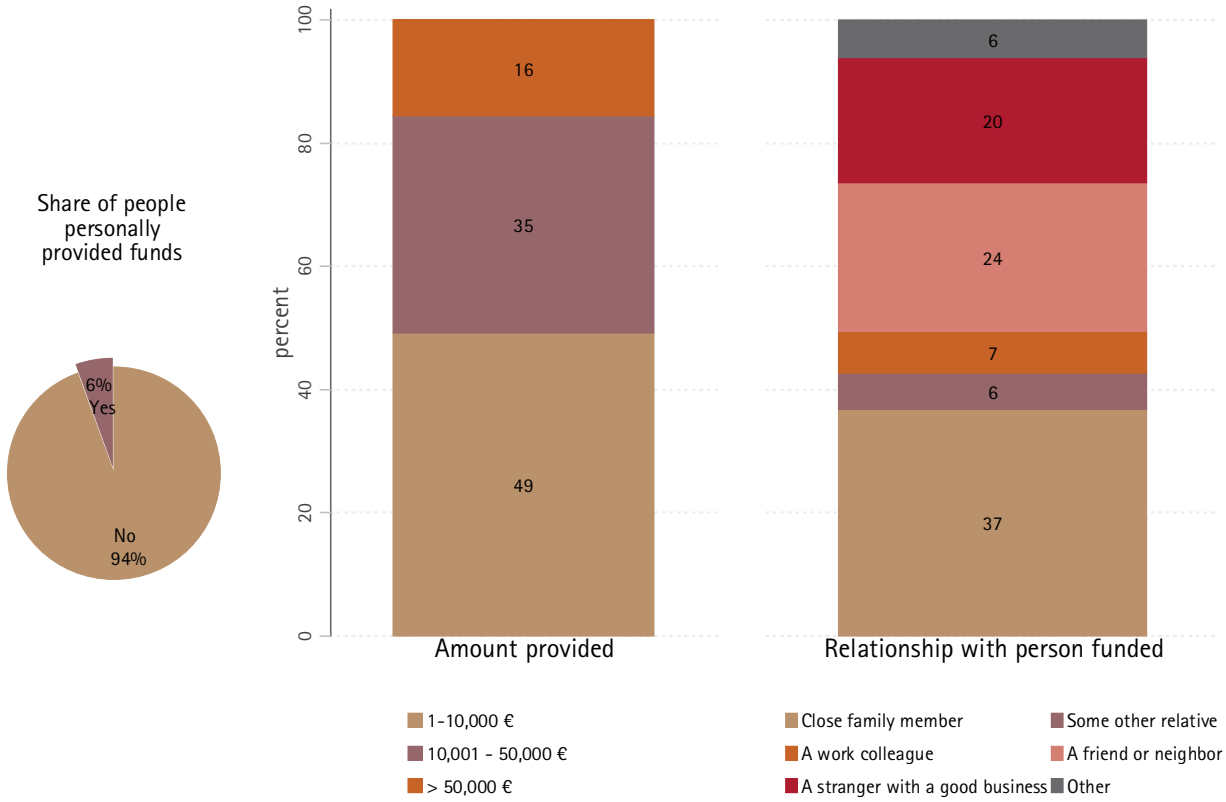


Source: GEM Adult Population Survey Luxembourg 2013-2014, STATEC

4.5.4 Funding

The lack of funding may hinder the starting of new firms and slow down the development of new ventures. Figure 18 provides information on the amount and the funding source of the Luxembourg business start-ups. One observes that, in the past three years, 6% of respondents y provided funds for a new business started by someone else. 27% of respondents, who declared to provide funding, refused to communicate or did not know the precise amount of their investment. Out of those who declared the amount of their funding, 49% provided less than 10,000 €; a further 35% provided between 10,000 and 50,000 €, and only 16% provided more than 50,000 €. One can see that close family and friends are receiving most of the funding. This result is in line with the argument that the primary source of finance for start-up funding comes from family and friends (Kotha and George, 2012).

Figure 18: Funding of start-ups in Luxembourg



Source: GEM Adult Population Survey Luxembourg 2014, STATEC

4.6 Entrepreneurship: a comparative perspective

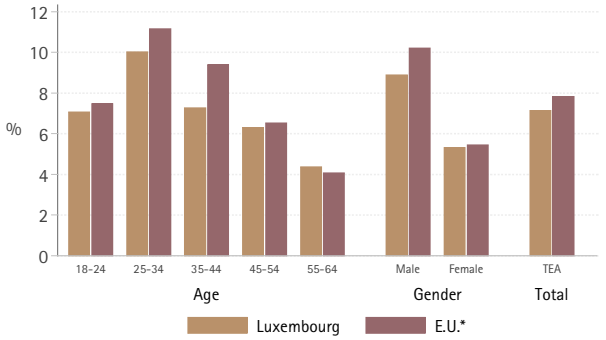
This section compares entrepreneurial attitudes and activities in Luxembourg to those of neighbouring countries and the E.U. countries. Such comparisons allow us to rank Luxembourg with respect to several entrepreneurship indicators and facilitate the identification of entrepreneurial gaps.

As describe above, 7.1 % of the 18-64 years old population of Luxembourg is either setting up a firm or is owner of a young firm (Total Entrepreneurial Activity, TEA) in 2014. Even if this rate has decreased since 2013 (8.7%), it remains a relatively high rate compared to other developed country. Luxembourg's neighbours had a rate about 5 percent in 2013 and 2014. Belgium is reporting 5.4 % of TEA, France and Germany 5.3% (GEM Global report 2014 p.36).

Figure 19, reports the TEA share in Luxembourg and in other European countries distinguishing between gender and age classes. Luxembourg has a slightly lower TEA share of the population aged 18-64 years than the average of E.U. countries (7.1% and 7.9%, respectively). This difference is mainly driven by a lower share of TEA among males. Indeed, TEA entrepreneurs in Luxembourg are 9 % of males compared to 10% of other E.U. countries. The share of female TEA entrepreneurs is close to other E.U. countries (nearly 5%).

Figure 19 reveals that among persons between 25 and 44 years, TEA is lower in Luxembourg than in other European countries. Other age classes have a similar TEA share.

Figure 19: Luxembourg and E.U. countries: TEA in % of age group and Gender.



Source: GEM Adult Population Survey Luxembourg 2014, STATEC

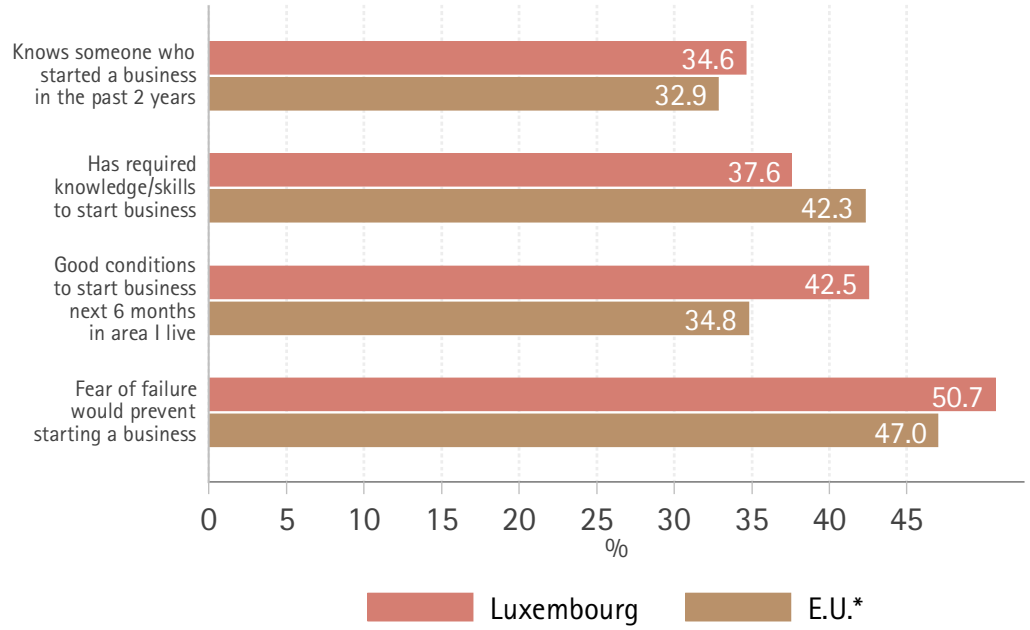
EU* : Austria, Belgium, Croatia, Denmark, Estonia, Finland, France Germany, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Netherlands Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom

Figure 20 allows us to compare Luxembourg and E.U. countries with respect to Entrepreneurial intention, Entrepreneurial skill perceptions, and the fear of failure.

In 2014, 34.6% of respondents in Luxembourg reported that they personally knew someone who had started a business in the past 2 years. Similar percentage is observed in other European countries and in France (35.9%) but it is higher than in Belgium (19.5%) and Germany (24.0%). These patterns are not dissimilar in 2013. With respect to the business climate conditions, Figure 20 indicates that 42.5% of the Luxembourgish respondents perceive that there are good opportunities to start a business in the area they live within the next 6 months. This figure is much higher than in the neighbouring countries where it varies from 28% to 37% and the average of E.U. countries (34.8%). The rate of persons reporting that they have the knowledge and skills to start a business is 37.6% in Luxembourg and 42.3% in the E.U. countries. Luxembourg's neighbouring countries have a rate between 30% and 36% (BE 30.4%; FR 35.4%; DE 36.4%). Finally, the fear of business failure seems more present in Luxembourg (50.7%) than in E.U. countries (47%) or other neighbouring countries (BE 49.8%; FR 42.8%; DE 46.4%).

In summary, Luxembourgish individuals perceive themselves as more risk adverse and less skilled than other neighbouring countries do even if they perceive better opportunities to start a business.

Figure 20: Luxembourg and E.U.* countries: Intention, skills and fear of failure



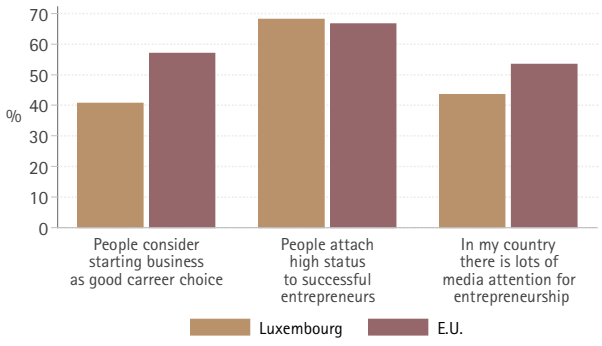
Source: GEM Adult Population Survey Luxembourg 2014, STATEC

EU* : Austria, Belgium, Croatia, Denmark, Estonia, Finland, France
Germany, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Netherlands
Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom

One noticeable difference between Luxembourg and other E.U. countries concerns **the social perception of entrepreneurs and the entrepreneurial careers**. The Figure 21 shows that the Luxembourgish respondents do not see an entrepreneurial career as a good choice in comparison to the average E.U. countries' respondents (40.6% versus 56.9%). These figures are comparable to figures for 2013 (39.4% vs 53.5%) reported in the Global Entrepreneurship Monitor Luxembourg (2013, p. 20).

Media attitudes are a crucial factor in shaping the public perception of entrepreneurs. Media coverage of successful entrepreneurs can influence perception and values of audience.[1] Examples of entrepreneurial success can generate imitative process and then influence carrier choices of the audience. Empirical studies (Hindle and Klyver, 2007) evidence that mass media are capable of *reinforcing* their audience's existing values on entrepreneurship, but are less effective to radically *change* those values. Figure 21 shows that only 43.5% of the Luxembourgish's respondents (versus 53.3% in E.U. countries) declared that the media gives a lot of information about entrepreneurship. Even if it is less than one respondent over two, this share has increased since previous year when it was 36.3% (Global Entrepreneurship Monitor Luxembourg 2013, p. 20). Finally, as in 2013, successful entrepreneurs are similarly regarded in Luxembourg and E.U. countries. In fact, 68.2% and 66.6% respectively for Luxembourg and E.U. countries give a high social status to successful entrepreneurs.

Figure 21 Luxembourg and E.U. countries: Perception of entrepreneurship (% of 18-64 years old)



Source: GEM Adult Population Survey Luxembourg 2014, STATEC

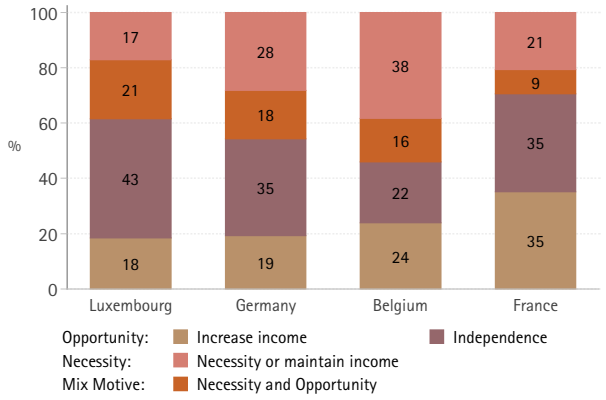
EU* : Austria, Belgium, Croatia, Denmark, Estonia, Finland, France
Germany, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Netherlands
Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom

[1] For example, Steve Jobs, successful entrepreneur, died from pancreatic cancer and media have largely covered the event, influencing the attitude about cancer (Myrick et. al, 2013).

In the following we are presenting the reasons for starting a new business in a cross-country analysis to complement the analysis already done for Luxembourg.

Figure 22 shows the most important motives (such us increase income, more independence or maintain income) for engaging in entrepreneurial activities. The most important reason to start a business is "to have more independence" (43% for Luxembourg, 35% for Germany and France). In Belgium the main motivation is the "Necessity or need to maintain income". As in 2013, the mixed reasoning citing both "necessity and opportunity" is the most important in Luxembourg (21%). Finally it can be noted that compared to neighbouring countries, Luxembourgish entrepreneurs are less motivated by the need to increase the income.

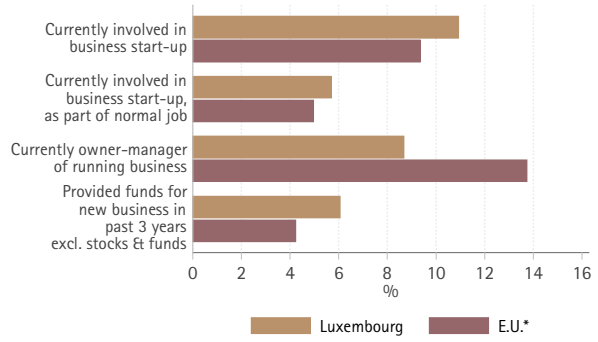
Figure 22: Luxembourg and neighbouring countries: Reasons and related motives for starting a business (% TEA)



Source: GEM Adult Population Survey Luxembourg 2014, STATEC

Figure 23 below outlines the share of persons actively involved in entrepreneurship activities (owning/managing a business or providing funds to them). In Luxembourg the share of persons involved in a business start-up (as an owner or part of their job) is higher than the average E.U. countries. However, when looking at the share of persons being an owner or manager, the Luxembourgish share is lower than the average of E.U. countries. Finally, the proportion of people who provide funds for someone else's new business is at 6.1%, two percentage points higher in Luxembourg than the average E.U. countries.

Figure 23: Luxembourg and EU: % of the 18-64 years old population

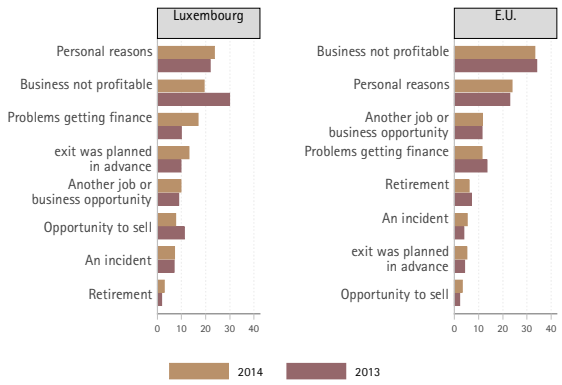


Source: GEM Adult Population Survey Luxembourg 2014, STATEC

EU* : Austria, Belgium, Croatia, Denmark, Estonia, Finland, France Germany, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Netherlands Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom

Finally, Figure 24 presents the most important reasons for exiting a business in Luxembourg in 2013 and 2014. These figures are compared with average E.U. countries. In Luxembourg, like in other E.U. countries, the two main reasons to close the business are personal reasons (24% for both) and lacking of profitability (19% and 33% respectively). In 2013, lack of profitability was the first reason to quit while now it is second behind personal reasons. Moreover, the third reason to exit entrepreneurship is "problems getting finance" (17%) when this share was only 10% in 2013. On the other hand, the opportunity to sell the business in Luxembourg, even if it is lower than in 2013, is more than twice higher than for the E.U. countries (8% and 3% respectively). Interestingly, 13% of the market exits were planned in advance in Luxembourg (compared to 5% for the average E.U. countries).

Figure 24: Luxembourg and E.U.* countries: Entrepreneurial exit reasons



Source: GEM Adult Population Survey Luxembourg 2013-2014, STATEC

4.7 Entrepreneurial activity and immigration in Luxembourg

This section examines the relationship between entrepreneurship and immigration in Luxembourg.

As discussed above, the issue of immigrants' involvement in entrepreneurial activities is of great relevance in view of Luxembourg's labour force and population structure. Luxembourg is a very small open economy with a large service industry, and also hosts several European institutions. The rapid growth of the financial and service industries has accompanied sustained growth of output and employment. As labour demand is higher than internal labour supply, Luxembourg depends on foreign workers. Foreign are nearly half of the population (43%), mainly from EU-countries (94.5% of all immigrants) (Peltier et al., 2013). Luxembourg experienced large flow of immigrants in the last decades and the proportion of Luxembourgish citizens with some immigration background is considerable (In 2011, according to last census data, 49% of residents are Luxembourgish at birth (Peltier et al. 2012a). Distinguishing between individuals with different migration background could help to understand the link between immigration and the entrepreneurial process[1].

The migrant "self-made" entrepreneur has often raised the public interest, and anecdotal evidence suggests that migrants positively contribute to start-up and new business creation. At the same time, data and scientific evidence are scarce. The following gives some insights on the contribution of migrants to entrepreneurship in 2014. The figures highlight how the immigrant background is related to entrepreneurship indicators, attributes of the entrepreneurs and the new ventures.

The box 1 shows the main results of a dedicated investigation conducted on GEM data for Luxembourg 2013 and 2014 (Peroni et al. 2015). The study investigates whether migrants are more willing than native to engage in entrepreneurship, and whether they face more difficulties than natives in the entrepreneurial process. The results show that first generation immigrants are more interested in starting a new business than non-immigrants, but they do not differ in subsequent entrepreneurial stages.

[1] First generation immigrants are defined as person not born in Luxembourg. Second generation immigrants are born in Luxembourg and at least one parent is not born in Luxembourg. Finally, non-immigrants are the person born in Luxembourg with both Luxembourgish parents.

Entrepreneurship and immigration: evidence from GEM Luxembourg

Economie et Statistiques n. 81 Working papers du STATEC May 2015[1]

Population movements and entrepreneurship are regarded as drivers of economic growth, but so far have been mainly analysed separately. Economists have recently turned to investigate the economic consequences of migration, suggesting a positive impact of migrants on innovation activities and productivity. Media and entrepreneurial organisations suggest that the contribution of migrants to entrepreneurial efforts is strong. Empirical studies conducted at the national level find that immigration increases total factor productivity. The analysis of finer data, collected at firm level, show that migration of skilled people has a beneficial effect on the skills of the hosting organisation's labour force, and boosts firm's innovation rates. The positive effect of migrants on innovation may be due to the migrants' provision of management and entrepreneurial skills. Empirical evidence on the link between immigration and entrepreneurship, however, is scarce. This is because it is difficult to observe the immigrants' direct contribution to entrepreneurial activities.

Scholars have proposed theories seeking to explain the relationship between immigration and entrepreneurial involvement. These can be categorised into two broad groups: the first group relies on specific features of immigrants to explain differences in the propensity to start a business compared to non-migrants; the second group focuses on the institutional and cultural environment of the host country. According to the theories in the first group, immigrants have higher chances to start a new business because various kinds of disadvantages (linguistic, racial, and educational) encourage them to become entrepreneurs. The second group of theories explains immigrants involvement in entrepreneurship based on the interaction between migrants' individual features and the institutions and characteristics of the hosting societies and markets.

The present study uses individual GEM data to study the role of migration background on entrepreneurship. Namely, it analyses the role of immigration background and education in creating new business initiatives in Luxembourg, a country where 44% of the resident population is immigrant. The study investigates the features of entrepreneurs using the GEM surveys of 2013 and 2014 and implements a sequential logit model. This empirical strategy allows researchers to model the entrepreneurial process as a sequence of stages. The effect of immigration is studied through all the stages of the entrepreneurial process: interest in starting a new business, effectively starting, running a new business and managing an established business. The model controls for the interactions of individual aspects --- skills, education, previous experiences, risk attitude, income, and networks --- with the immigrant status. In practise, the model gives the probabilities to progress through the stages of the entrepreneurial process, depending on the immigration status and the skills of the potential entrepreneur.

Results of this investigation show that a considerable proportion of first-generation immigrants is willing to engage, or is already engaged, in entrepreneurial activities. In fact, 9% of immigrants are engaged in entrepreneurial initiatives against only 6% for non-immigrants. Highly skilled first generation migrants are more motivated to start a business than non-immigrants (13.6%). At subsequent stages of the entrepreneurial process, the immigration effect disappears. In other words, migrants do not have higher chances to succeed in starting a business and running a start-up or an established business than nationals.

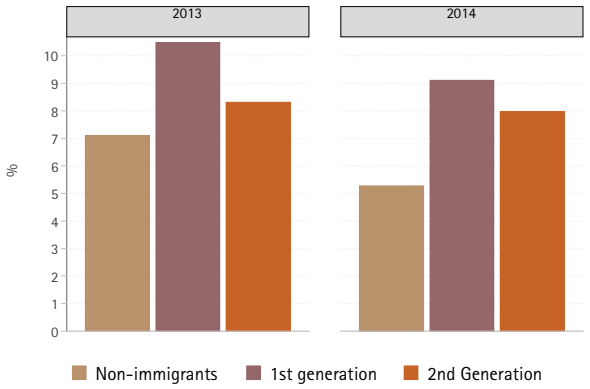
Our findings suggest that there is a large potential of entrepreneurship among first generation immigrants, and especially among highly educated people. This is relevant to policy as it suggests a link between immigrant entrepreneurs, skills, and, possibly, start-up in knowledge intensive sectors. Since innovation contributes to the long-term economic growth of a country, policies aiming to attract highly educated migrants, as well as migrants willing to create new businesses, are desirable. Policies for entrepreneurship and for immigration are often considered separately. Yet, our study shows that smart policies for immigration strengthen Entrepreneurship, and thus promote growth and development.

[1] Available at http://www.statistiques.public.lu/catalogue-publications/economie-statistiques/2015/81-2015.pdf

4.7.1 *Entrepreneurial indicators by immigration background*

As shown in Figure 25, immigrants are more likely to engage in early entrepreneurial activities –TEA-. In 2014, among respondents that have no immigration background, nearly 5% are in TEA. The proportion among first and second generation is 9% and 8% respectively. In 2013 these figures are 7%, 10% and 8% respectively.

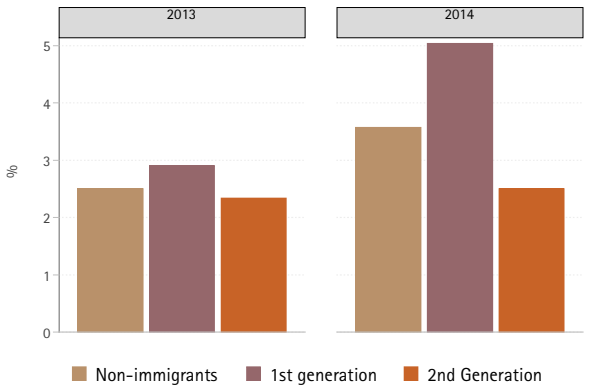
Figure 25: Immigration background: TEA rates



Source: GEM Adult Population Survey Luxembourg 2013-2014, STATEC

As already observed in section 4.3 the rate of established business increases in 2014 compared to 2013. Figure 26 highlights how immigrations contributed to this pattern. Figure 26 shows that the rate of established business in 2014 is higher than the rate in 2013 regardless the immigration background. However, we note that the share of established business increases particularly among first generation immigrants (from nearly 3% to 5%) while it remains stable for second generation nearly 2.5% in 2013 and 2014.

Figure 26: Immigration background: established business rates

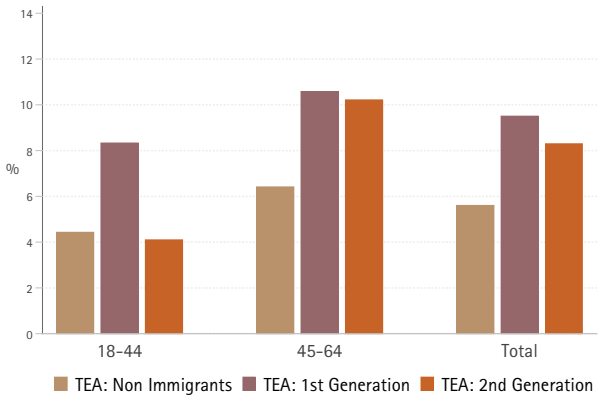


Source: GEM Adult Population Survey Luxembourg 2013-2014, STATEC

4.7.2 *Individual attributes of entrepreneurs by immigration background*

Age can influence the relationship between immigration and entrepreneurship. The success of new ventures requires some knowledge of the local market, local network and expertise. Young nationals may more easily gather these knowledge and social resource and thus, they may develop a new venture more easily than immigrants. At the same time, young individuals are more likely to risk and invest in new ventures compared to older and possibly more risk adverse individuals. To shade some light on the relationship between age, immigration, and entrepreneurial success, Figure 27 highlights the relation between TEA and immigration at different age classes. First generation immigrants are reporting higher proportion of TEA in all age classes and the highest is 11% among 45-65 years old individuals. Second generation TEA is nearly 4% in the age class 18-44, this percentage is more similar to non-immigrants (nearly 4%) than to first generation immigrants (nearly 8%). In the age class 45-64, the pattern changes; first and second generation are reporting similar entrepreneurship proportion (both nearly 10%) while non-immigrants report a lower TEA (6%).

Figure 27: Immigration background: % of age group involved in the TEA

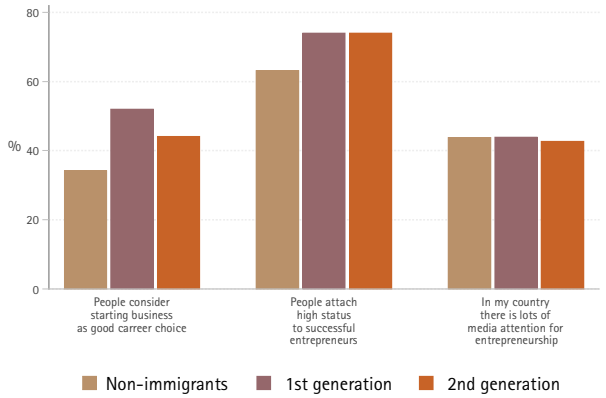


Source: GEM Adult Population Survey Luxembourg 2014, STATEC

The perception of desirability of entrepreneurial choice can differ among immigrants and non-immigrants and this can influence the chances of engaging in entrepreneurial activities. Figure 28 shows that immigrants have an higher perception of entrepreneurship. The first (52%) and second (44%) generation immigrants report that the entrepreneurial career is a good choice in comparison to the non-immigrants (34%). In contrast, to non-immigrants, first generation and second generation respondents see the successful entrepreneurs rather similarly. Indeed, 74% of the first generation and second

generation (versus 63% of the non-immigrants) give a high social status to successful entrepreneurs. Finally, concerning the role of the media, no clearly differences emerged between the three groups. The results from entrepreneurial perception are similar to those from 2013.

Figure 28: Immigration background: Perception of entrepreneurship (% 18-64 years old)

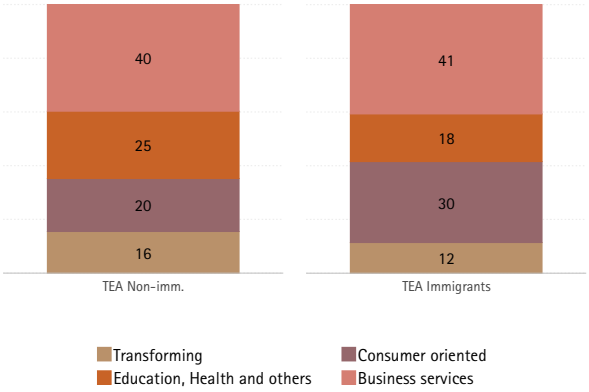


Source: GEM Adult Population Survey Luxembourg 2014, STATEC

4.7.3 Activity sector by immigration background

Industries can be at different stages of technological development and offer different entrepreneurial opportunities. Fast developing sectors (e.g. IT) may offer more opportunities than other sectors and thus, host more start-ups and possibly higher entrepreneurial success. Moreover, some degree of industry specialization is observed among nationals and immigrants (Logan et al. 2003). Figure 29 and Figure 30 show the relationship between immigration background and economic activity of TEA and established business.[1] Several patterns emerge. Firstly, in Figure 29, one can see that in the early business activities (TEA), business services (45%) are the most common industry for both non-immigrants and immigrants (40% and 41%, respectively)[2]. We observe that the proportion of entrepreneurs active in consumer-oriented services (e.g. trade, hotels & restaurants) with immigration background (30) is higher than the proportion among non-immigrants.

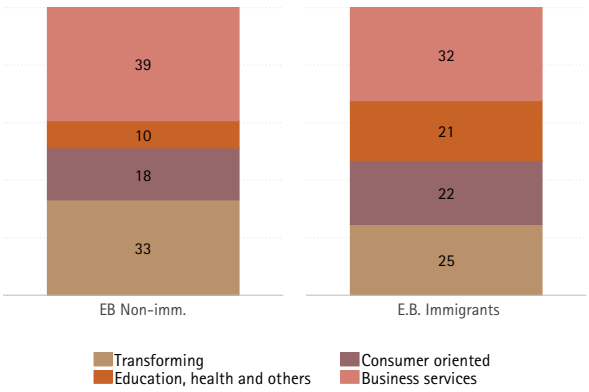
Figure 29: Immigration background: Activity sector of TEA



Source: GEM Adult Population Survey Luxembourg 2014, STATEC

Considering established businesses, (Figure 30) the business services (39%) remains the major activity for both non-immigrants and immigrants (39% and 32% respectively). Comparing Figure 29 and Figure 30, we note that the TEA and establish companies are active in different industries. Interestingly, while 16 % of new firms (TEA) of non-immigrants are active in the transforming/ extractive sector, among firm older than 42 months, this percentage increases up to 33%. For immigrants, the percentage of transforming firms passes from 12% in early stages to 25% in later stages. This fact suggests that entrepreneurs in transformation/extractive industry are more likely to survive compared to other firms in other industries.

Figure 30: Immigration background: Activity sector in Established Business -E.B.



Source: GEM Adult Population Survey Luxembourg 2014, STATEC

[1] Consistently with classification in the footnote at page 23, Economic Activities are defined according to the International Standard Industrial Classification of All Economic Activities (ISIC Rev.4). The classification in this report is the following: Transforming stands for agriculture, forestry, fishing, mining and construction manufacturing, utilities, transport, storage and wholesale trade; Consumer Oriented stands for retail trade, hotels & restaurants and personal/consumer services; health, education and others services stands for health, education and social services and finally Business services stands for information and communication, financial intermediation, real estate activities, professional services and administrative services.

[2] The first and second generation are grouped together because of the low number of observations.

4.8 Special topics: young entrepreneurs and Well-being

Youth entrepreneurship and well-being topics have attracted the attention of policy-makers and the business community. Youth entrepreneurship is often seen as possible way to alleviate youth unemployment. Moreover, well-being is emerging as a key measure to complement traditional income-based measures of economic activity, and a factor capable of influencing economic performance at the individual level. These factors however have seldom been studies in conjunction with entrepreneurship.

In 2014, in addition to the standard GEM survey, the Adult Population Survey 2014 in Luxembourg focuses on youth entrepreneurship and well-being. This section is highlighting the main results of these two specials topics.

4.8.1 Young entrepreneurs

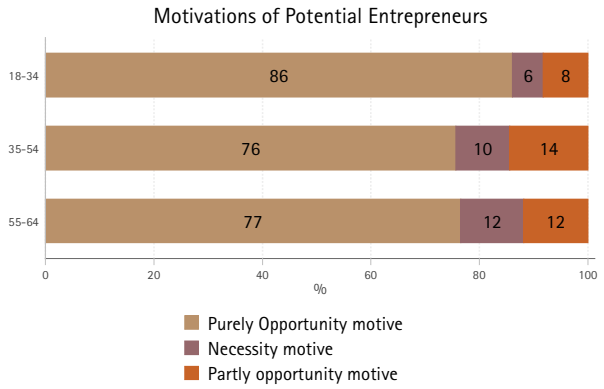
The financial crisis and subsequent sovereign debt crisis have determined an increase the general level of unemployment. The lack of jobs among young people is intense. In 2012, the unemployment rate for young people(15 to 24 years old persons) was 18.8%, substantially higher than the4.5% recorded for people aged from 25 to 54 years old(STATEC, 2013a)[1]. Youth entrepreneurship is often seen as an additional way of allowing the youth into the labour market and promoting job creation. If successful young entrepreneurs have more chances to start a business in new (high growth) sectors, youth entrepreneurship can promote dynamism and growth. Better understand youth entrepreneurship is important to support creativity and innovativeness of young entrepreneurs.

First part of this section (Figure 31, Figure 32 and Figure 33) focuses on of the motivations of youth people along the entrepreneurial process (potential, nascent and established) as previously described in section 1.2. The second part explores the relationship between dedicated entrepreneurship training and the engagement in entrepreneurship activities.

Figure 31 shows the distribution of motivations of potential entrepreneurs by age class. 86 % of 18-34 years old respondents intending to start a new business in the next three years are "opportunity driven". These entrepreneurs are taking advantage of a business opportunity or having a job they search for better opportunities. The proportion of purely opportunity driven employers is higher among young people (18-24 years-old) than in other age classes.

Looking at "necessity-driven" (i.e. entrepreneurs with no better choices for work) entrepreneurs, we note that they are just 6% among 18-34 years old respondents. Compared to other age classes, this proportion is the lowest.

Figure 31 Motivations of Potential entrepreneurs by age class

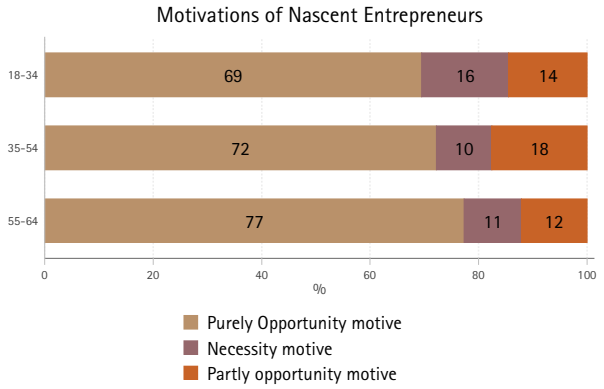


Source: GEM Adult Population Survey Luxembourg 2014, STATEC

While Figure 31 shows the distribution of motivations among potential future entrepreneurs, Figure 32 focuses on entrepreneur that are actually involved in setting up a business (nascent). One can note that the proportion of "necessity driven" entrepreneurs increases considerably among young entrepreneurs (16% compared to 6%) while it generally remains the same for older entrepreneurs (10% and 11% compared to 10% and 12%). This fact suggests that young potential entrepreneurs are over confident on their abilities to operate businesses before facing the actual problems of setting a new business.

[1] The youth unemployment rate is the proportion of active young people who are unemployed and not the proportion of all the young people who are unemployed. Indeed many young are inactive because they are student.

Figure 32 Motivations of Nascent entrepreneurs by age class

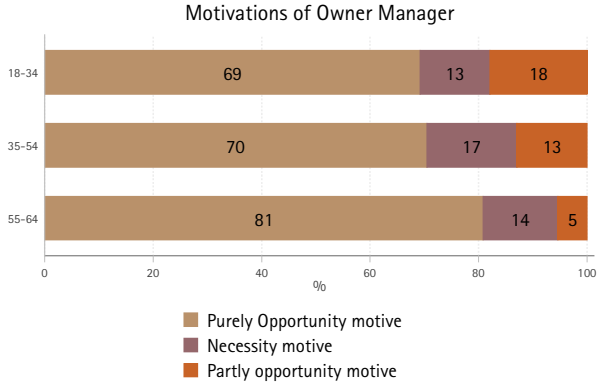


Source: GEM Adult Population Survey Luxembourg 2014, STATEC

The Figure 33 reveals that 69 % of young owner/managers of new firms (3-42 months) are "purely opportunity driven" while 13% of them are "necessity driven". Interestingly, the proportion of "necessity driven" entrepreneurs decreases when age increases. The share of necessity driven entrepreneurs is 13% among 35-54 years entrepreneurs and only 5% among 54-64 years old.

Overall, these figures suggest that young people are largely engaging in entrepreneurship process aiming to take advantage of business opportunity. The proportion of young that are "purely opportunity driven" decreases along the entrepreneurship process. A possible explanation for this pattern is that young perspective entrepreneurs are particularly motivated by the exploitation of business opportunities but at the same times they are facing raising difficulties to succeed, possibly because of the lack of experience.

Figure 33 Motivations of Owner Manager by age class

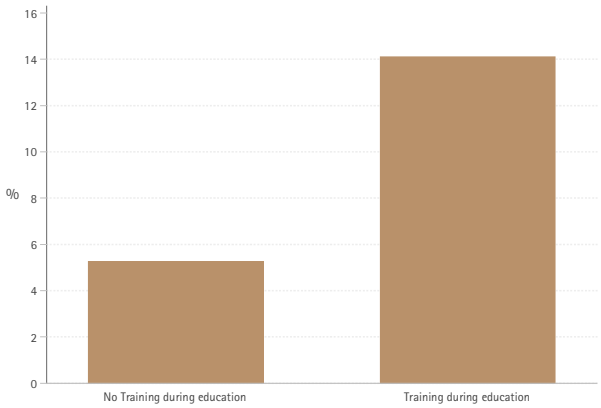


Source: GEM Adult Population Survey Luxembourg 2014, STATEC

One question of the special topic about youth entrepreneurship is investigating the influence of specific training during the education[1].

Figure 34 shows that, among all respondents that attended a specific training, 14 % are active in early entrepreneurship activities (TEA)[2]. Among those who have not attended any training, the percentage of entrepreneurs is nearly one-third (5%). This figure could be interpreted as a first evidence of a positive impact of policies aiming to increase entrepreneurship providing dedicated training. However, much cautions is needed interpreting this result. The participation to training is on a voluntary bases and it is not random. Individuals that are more motivated to start a new business may be more likely to attend the training. This, in turn, could generate a spurious correlation between attending the training and the entrepreneurship success. Further investigations are needed to properly evaluate the causal impact of training on entrepreneurship success.

Figure 34 TEA by Training during education



Source: GEM Adult Population Survey Luxembourg 2014, STATEC

[1] Some associations are actively promoting entrepreneurship among young people with dedicated training during education such as Jonk Entrepreneuren http://jonk-entrepreneuren.lu The "Jonk entrepreneuren Luxembourg" is the Luxembourg partner of the Junior Achievement Young Enterprise that is the Europe's largest provider of entrepreneurship education programmes.

[2] A similar figure is reported for individual attending training after the education (16%).

4.8.2 *Subjective well-being*

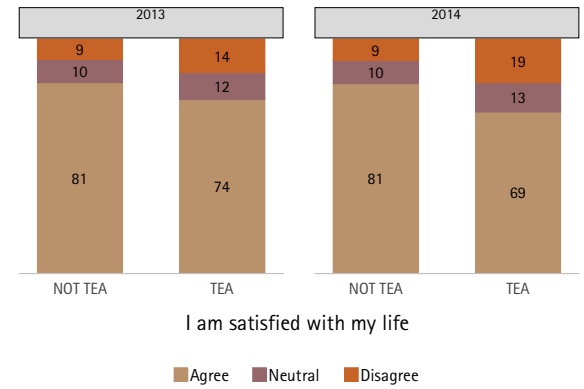
Subjective well-being (SWB) is related to the manner in which people experience the quality of their lives, and it comprises both emotional reactions and cognitive judgments (Diener, 1984). A common instrument to measure SWB is the global cognitive judgments of satisfaction with one's life. Based on this instrument, information about SWB in Luxembourg is collected for 2013 and 2014[1].

This section presents relevant statistics on well-being and entrepreneurship and the main results of a dedicated study on social and solidarity economy on well-being (Sarracino and Gosset, 2015). The authors merge GEM data and register data and shows that the activity of social enterprises has an effective and lasting positive correlation with people's well-being. More detailed results are presented in box 2.

The professional choices and work satisfaction affects subjective well-being. Figure 35 shows that the life satisfaction of entrepreneurs is worst in 2014 than in 2013. In 2014, 19 % of the total early active entrepreneurs disagree with the statement "I am satisfied with my life" compared to 14% in 2013. We note that only 9% of the individuals not engaged in entrepreneurial activities are reporting to be unsatisfied 2013 and 2014. Focusing on 2014 only, the percentage of respondents that are satisfied with their life is lower for the entrepreneurs than for non-entrepreneurs (68% and 81% respectively). This figure suggests that on average, entrepreneurs perceive their life as less satisfactory than others people, especially in 2014[2].

Following graphs attempt to identify the features of entrepreneurs that may explain lower life satisfaction with respect to gender (Figure 36) and to age (Figure 37).

Figure 35 Subjective Well-Being by TEA



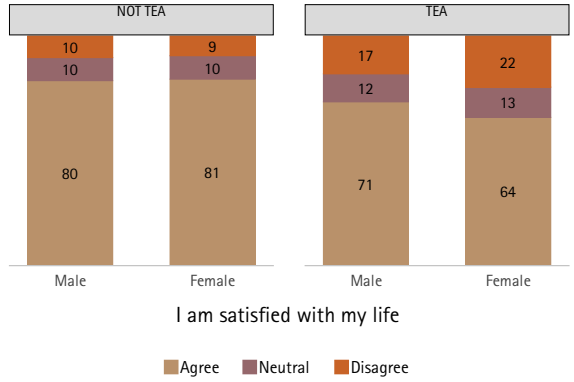
Source: GEM Adult Population Survey Luxembourg 2013-2014, STATEC

Figure 36 shows that in 2014, the proportion of satisfied entrepreneurs is different among male and female. Among female entrepreneurs, 22% are not satisfied with their life while this proportion is 17 % for male. Among not entrepreneur, gender is not showing any particular influence.
Figure 37 suggests that age is not influencing life satisfaction among adults not engaged in entrepreneurship. The proportion of non-entrepreneurs declaring to be not-satisfied with their life is nearly the same for 18-44 years-old and 45-65 (10% and 9% respectively). Looking at the entrepreneurs there are only small differences. The percentage of satisfied entrepreneurs is 72% among 18-44 years and decreases to 67% among 45-64 years old entrepreneurs. However, the percentage of non- satisfied is really similar among older and younger entrepreneurs (19% and 18%).
A possible interpretation of patterns shown in Figure 36 and Figure 37 is that entrepreneurs, especially if female, may face particular problems to manage their business and family and childcare. This interpretation is in line with the literature emphasizing the importance of Work-family interface (Jennings and McDougald, 2007), but further studies are required to better understand the relationship between entrepreneurship and Well-being.

[1] In 2013, SWB was a special topic for all members of the GEM consortium. Given the relevance of this topic, Luxembourg decided to collect information about SWB in 2014 too. For this reason, international comparison with other countries is not possible in 2014.

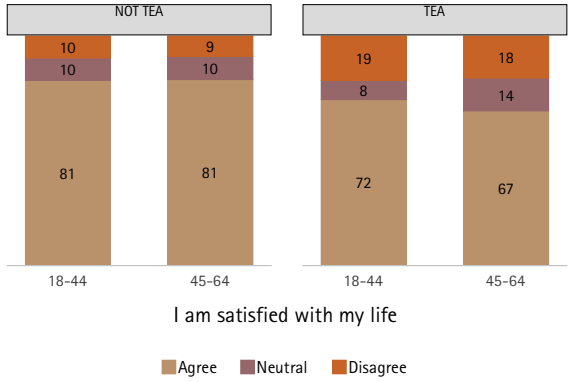
[2] This pattern is rather robust. Even considering only opportunity driven entrepreneurs, entrepreneurs are statistically less satisfied than other individuals (Pearson's test F (2.00, 4121.98)=3.5639 P = 0.0284). Finally we note that other developed countries experience a similar pattern (GEM GLOBAL REPORT 2013).

Figure 36 Subjective well-being by gender



Source: GEM Adult Population Survey Luxembourg 2014, STATEC

Figure 37: Subjective Well-being by age class



Source: GEM Adult Population Survey Luxembourg 2014, STATEC

Social and solidarity economy for a better quality of life in Luxembourg

Economie et Statistiques n. 84 Working papers du STATEC July 2015

The GEM (Global Entrepreneurship Monitor) survey provides information on people's well-being and, in particular, on life satisfaction in Luxembourg. Present study merges such data with those from the Business Registry to evaluate the impact of the social and solidarity economy on Luxembourgish' residents' well-being. The social and solidarity economy includes companies, associations, cooperatives and foundations whose aim is to address social and/or environmental problems.

Data on life satisfaction have been used in various ways in the literature: to analyse the determinants of well-being, to evaluate the impact of policies, and to estimate shadow prices, as well as estimating the impact of various social, environmental and institutional conditions for well-being. A possible application is evaluating the non-economic outcomes of the social economy. The literature on the social economy focuses either on typology and definition issues, or on the economic' impacts of the sector, for example its impact on employment, while the evidence of the non-economic role of social enterprises remains anecdotal. In Luxembourg previous literature attempts to identify the firms that are part of the social economy and to study their characteristics.

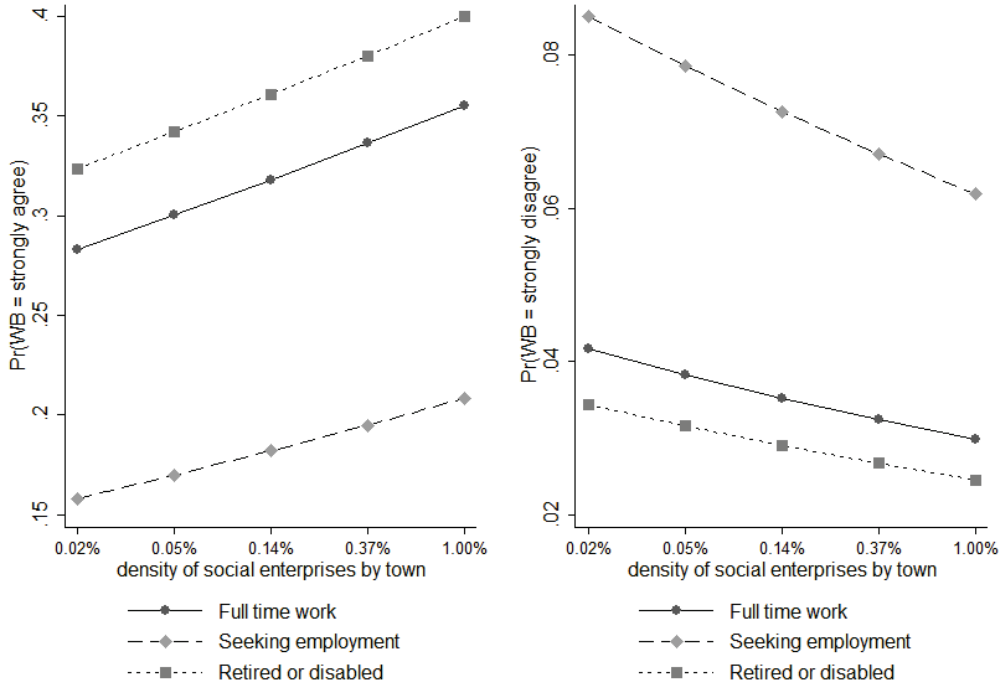
The study adopts econometric techniques to estimate a happiness equation where the share of social enterprises on total companies by town predicts life satisfaction, along with a set of standard control variables. The equation is estimated via ordered probit with canton fixed-effects and clustered standard errors. Its robustness has been checked by mean of a multilevel ordered probit model with random intercept, and an alternative proxy of well-being.

Results document that social and solidarity enterprises improve the quality of life of residents in Luxembourg and, in particular, of the most vulnerable people, such as the unemployed[1]. The two charts in figure 1 document that the higher is the share of social enterprises, the higher are the predicted probabilities to be very satisfied with life, while lower are the predicted probabilities to be very dissatisfied with own life. The strong decline of the upper curve in the right panel suggests that the share of social enterprises decreases the probabilities that unemployed people are very dissatisfied with

[1] For more details, refer to http://www.statistiques.public.lu/catalogue-publications/economie-statistiques/2015/84-2015.pdf

their life. In particular, when the share of social enterprises is high, the differences in the probabilities of being very dissatisfied by occupational status are smaller than when the share is low.

In sum, the study documents that the activity of social enterprises has an effective and lasting positive correlation with people's well-being. Whether these are companies to recycle and reuse waste, consumer associations, health and mutual insurance foundations, associations to learn foreign languages, or cooperatives of farmers, the activity of social enterprises as a whole has a public impact. In particular, they contribute to significantly alleviating the bad-being of most vulnerable people, such as unemployed, poor people and immigrants, whose integration within the society might be challenging. According to this study, a higher presence of social enterprises reduces the bad-being of socio-economically disadvantaged people and it constitutes an important factor of well-being. Hence, promoting social economy contributes to improving Luxembourgish residents' quality of life.



5 Conclusions

Entrepreneurship is an important dimension of innovation and a driver of productivity, and ultimately an engine of economic growth. On an early basis, GEM (Global Entrepreneurship Monitoring) collects internationally comparable data to better understand the evolution and the characteristics of entrepreneurial activities across countries. Based on GEM data, this report gives an overview of the state of the Luxembourgish entrepreneurship, discussing its features in a comparative perspective. This section draws the main conclusions.

Strengths and constraints of the entrepreneurial "ecosystem"

Institutional and cultural differences shape the entrepreneurial "ecosystem" and concur to determine the outcome of the entrepreneurial process. Results of the survey show that infrastructures and governmental policies are the main strengths of the Luxembourgish system of entrepreneurship. In contrast, the low level of entrepreneurial education in primary and secondary school is identified as the main weaknesses of the system. Experts perceive that the primary and secondary education system is not sufficiently encouraging and supporting the undertaking of personal initiatives. Adverse social and cultural norms are also cited as barriers towards the pursuit of an entrepreneurial career. Furthermore, the access to finance represents an important constraint faced by entrepreneurs, although experts note that the situation has slightly improved in 2014 compared to 2013.

Luxembourg features relatively well compared to other countries

Cross- country comparisons highlight the strengths and weaknesses of the entrepreneurial "ecosystem" and identify best practices in promoting entrepreneurship and new start-ups. The key indicator provided by the GEM dataset of the entrepreneurial activity is the early-stage entrepreneurial activity (TEA). This measure is defined as the proportion of entrepreneurs on total resident population. In 2014, the proportion of entrepreneurs in Luxembourg (7.1%) is slightly higher compared to neighbouring countries (around 5%). Nonetheless, the Luxembourgish early-stage entrepreneurial activity is comparable to the one of other developed countries. The United States rank the highest (14%) and Japan ranks the lowest (4%).

Entrepreneurship is relatively stable over time

The comparison of GEM data from the two available surveys shows that entrepreneurial conditions have remained generally unchanged. New data from the GEM 2014 survey confirm that the entrepreneurs in Luxembourg are primarily motivated by the desire for independence rather than by necessity. Figures show that the proportion of the new entrepreneurs on the total population declined slightly in 2014 (7.1%) compared to 2013 (8.7%), the proportion of established entrepreneurs has increased from 2.4% in 2013 to about 3.7% in 2014. Finally, nearly 10% of the adult population are expecting to start a new venture in the next 3 years.

The profile of the entrepreneur and start-ups

Efficient policies aiming to promote entrepreneurship require a deep knowledge of different typologies of entrepreneurs. Given the budget constraints faced by governments, it is important that policies target groups of individuals and new business that may benefit the most. The main features and the different typologies of entrepreneurs and start-ups emerging from the GEM surveys are summarized and presented below.

"The cherry-picking": residents in Luxembourg are more risk averse and opportunity driven (only 17% of entrepreneurs are driven by the needs).

"Male": The share of male entrepreneurs (9%) is higher than the share of female entrepreneurs (5%).

"Stressed": on average, entrepreneurs describe themselves more often as dissatisfied with their lives (19%) than others (9%).

"Well trained" the proportion of entrepreneurs is higher among those who have received training on entrepreneurship (14%) than those who did not (5%).

"Immigrant": especially first generation immigrants play a major role in entrepreneurial activity (9% of first generation immigrants are engaged in entrepreneurship, against 5% of non-immigrants).

In addition to providing information on individual characteristic of entrepreneurs, GEM allows us also to describe characteristics of start-up firms in Luxembourg. The typical start-up has one owner (47%) or two owners (32%) and 40% of the businesses running for less than 42 months are providing business services and about 26% are consumer-oriented; this confirms the strong service orientation of Luxembourg's economy. Concerning the funding of new businesses, 6% of the interviewees answered that they provided funds for a new business started by someone else. Out of those who declared the amount provided, 49% provided less than 10,000 €; a further 35% provided between 10,000 and 50,000 €, and 16% provided more than 50,000 €. One can see that close family and friends are receiving most of the funding suggesting some difficulties of new firms to access bank and other traditional funding.

Future developments

This report confirmed the importance of collecting GEM data to investigate all aspects of entrepreneurship: the "ecosystem", the individual entrepreneurs, and new businesses. GEM data complement business register data and provide a more comprehensive picture of entrepreneurship. Collecting data on an annual basis is particularly important to evaluate the evolution of entrepreneurship.

This report shed lights on important aspects of entrepreneurship, such as the evolution over time and the relevance of individual motivations. It also allowed us to study the link between entrepreneurship and immigration background and life satisfaction.

Other important aspects of entrepreneurship in Luxembourg remain to be explored. They will be investigated using future GEM surveys.

The number of entrepreneurs that attempt to combine society needs and profit (i.e. social entrepreneurs) is augmenting in Luxembourg (Sarracino and Gosset, 2015). Social entrepreneurship is attracting attention of the policy makers, but little is known about this phenomenon. APS survey 2015 will include dedicated questions to shed some lights on social entrepreneurship in Luxembourg.

Descriptive statistics show that attending entrepreneurship training is positively correlated with the chance of starting a new business. Yet, this information does not allow us to take into account the selection effect. That is, individuals that are more motivated to start a new business may be more likely to attend the training. Future investigations will evaluate econometrically the causal impact of training on entrepreneurship success. Additionally, activities supported by institutional players (i.e. Ministry and Chamber of Commerce) and aiming to promote entrepreneurship will be evaluated based on a dedicated questionnaire included in the 2015 survey.

Finally, the current survey covers adult resident in Luxembourg, but largely neglects the potential contribution of cross-border entrepreneurs. Several thousands of individuals commute on a daily basis to Luxembourg to work. Their contribution to entrepreneurship may be important. Future surveys will attempt to evaluate the magnitude of cross-country entrepreneurship in Luxembourg.

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