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Facts and figures on gender in entrepreneurship and innovation

Internal report for WP1 T1.2.

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Gender equality context of the GILL countries

Gender equality in the specific labour market, availability of services and work-life balance options, investment in employment, family and research and innovation policies, as well as the gender culture in particular countries have a significant impact on the barriers and opportunities for women in innovation and entrepreneurship. It is therefore important to be aware of these contexts in order to assess the state of gender equality in innovation and entrepreneurship, to identify existing good practices and to develop tools to support Gender Responsive Smart Innovation and Entrepreneurship (GRSIE). This chapter summarises key available data on the gender innovation and entrepreneurship context in GILL countries. The ten GILL consortium countries (BE, CZ, DE, DK, FR, GR, IT, RO, SP, UK), which are used as the research fields for the opportunities, barriers and good practices for GRSIE, are very diverse. Although all GILL countries represent developed economies, they also represent the diversity of welfare regimes, employment, entrepreneurship and research support, as well as different gender regimes and gender cultures. The chapter consists of three parts. The first part presents data from the Gender Equality Index produced by the European Institute for Gender Equality and Eurostat data on employment and entrepreneurship. The second part focuses on entrepreneurship, using data from Eurostat and the Global Entrepreneurship Monitor. The third part focuses on research and innovation and uses data from She Figures (2021) on women in science and innovation in the EU.

We use available statistics and data for the selected GILL consortium countries, as well as the EU average where available. We also use the most recent data available, sometimes the most available data for different countries is from different years and in these cases we note the year.

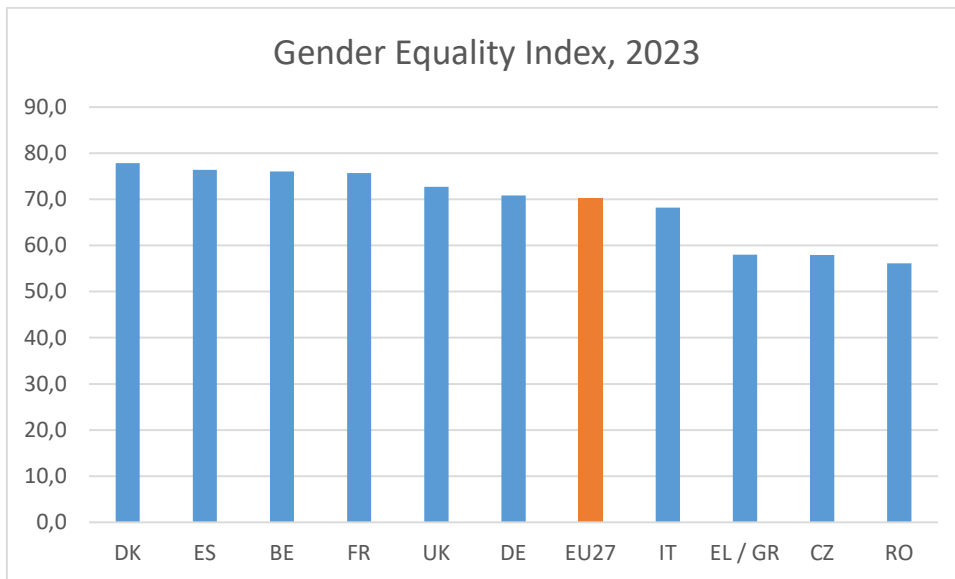
Gender Equality Indicators: employment, power, and care

The Gender Equality Index (hereafter GEI), produced by the European Institute for Gender Equality (EIGE), ranks the EU Member States in many areas relevant to gender equality. It provides a rough assessment of the state of gender equality in each country and in the EU as a whole, and allows comparisons with other countries, either overall or for individual indicators.

Although the GEI does not include a separate domain focusing on entrepreneurship and innovation (GRSIE), it does show the general state of gender equality in the country and in the domain of paid work, which is a highly relevant context for entrepreneurship and innovation. The GEI has seven domains (work, money, knowledge, time, power, health, violence) and each of these has several sub-domains. For this report, we use indicators that provide evidence of inequalities in the labour market, the economic situation of men and women, and other areas, such as women's and men's care and domestic work, that may influence men's and women's entrepreneurial strategies.

Figure 1 shows the score of the overall GEI in the GILL countries and the average score for the EU-27. Denmark, Spain, France and Belgium had the highest scores (70 - 80), while Greece, Romania and the Czech Republic had the lowest scores (below 60).

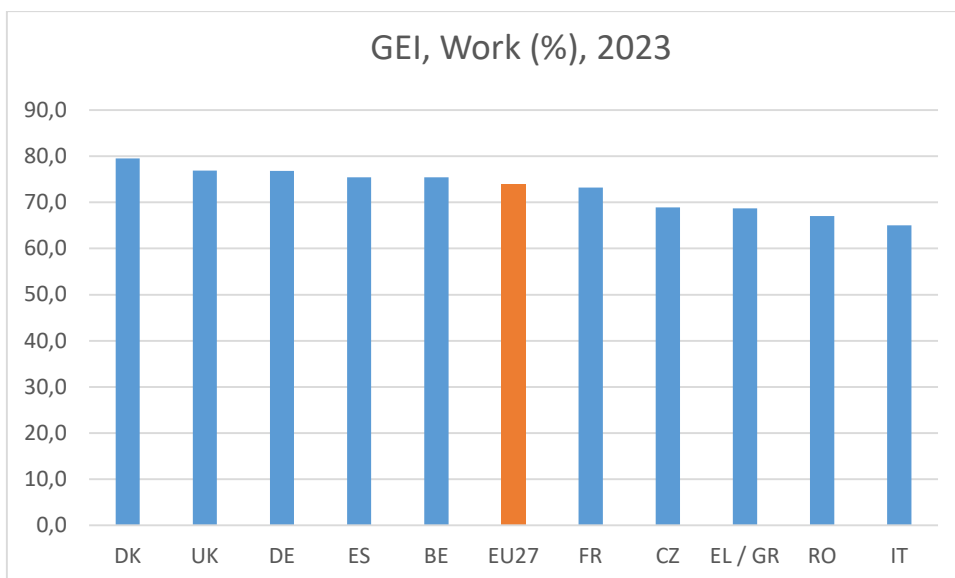
Figure 1: Gender Equality Index in 2023



Source: GEI, 2023, <https://eige.europa.eu/gender-equality-index/2023>

The Work domain of the GEI assesses the extent to which women and men benefit from equal access to employment and good working conditions (Figure 2). Again, Denmark scored highest, followed by the United Kingdom and Germany and Belgium, while Italy, Greece, the Czech Republic and Romania scored lowest.

Figure 2: GEI for the domain of Work, 2023

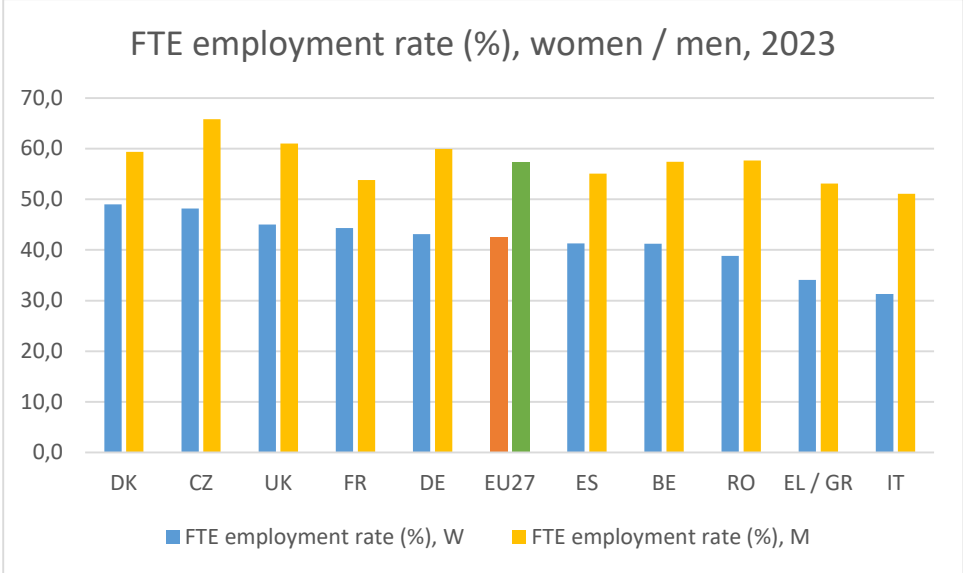


Source: GEI, 2023, <https://eige.europa.eu/gender-equality-index/2023>

This domain has two sub-domains, the participation rates in full-time equivalent (FTE) employment for men and women (see Figure 3). The data in Figure 3 also take into account the higher incidence of part-time employment among women and are obtained by comparing the average number of hours worked by each employee with the average number of hours worked by a full-time employee. The Czech Republic has the highest full-time equivalent employment rates for men (almost 70%) and

women (almost 50%), while Italy and Greece have some of the lowest employment rates for men and women. Italy and Greece also have very high unemployment rates for both women and men, and high inactivity rates for women due to the high incidence of informal care within families.

Figure 3: Full-time employment rate (%), women/men, 2023

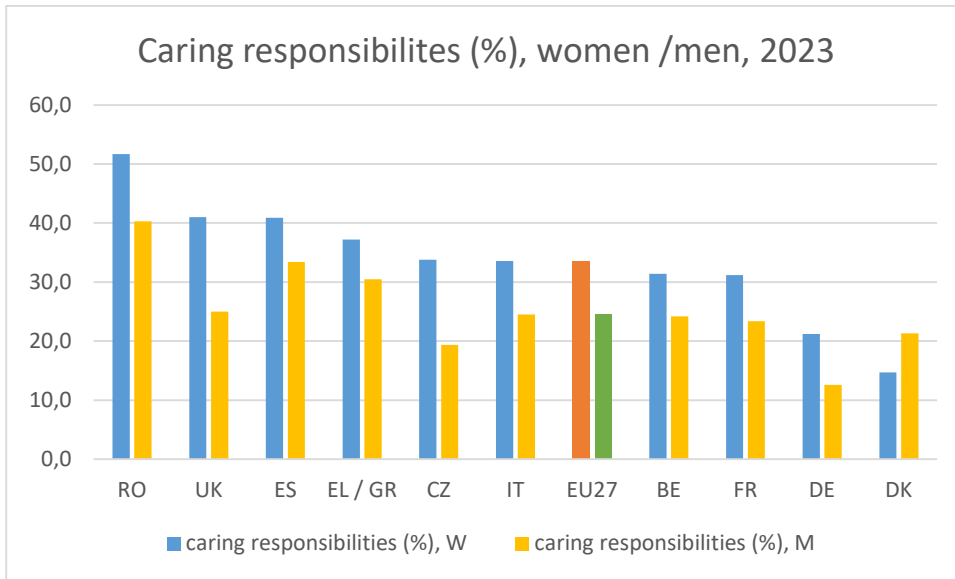


Source: GEI, 2023, <https://eige.europa.eu/gender-equality-index/2023>

Another GEI domain is Money, which refers to the economic situation of men and women and gender inequality in access to financial resources and the economic situation of women and men. One of the indicators is monthly earnings from work, as the amount of monthly income earned by men and women is also an indicator of gender equality in a country. The GEI uses a purchasing power standard (PPS), which is an artificial currency that takes account of differences in price levels and currencies between EU Member States. In Belgium, Germany and Denmark, men and women have some of the highest wages among the selected countries, and in Belgium the gender pay gap is the lowest of the three. Conversely, countries such as Greece, Romania and the Czech Republic have the lowest wages (for both men and women) and Romania has the lowest gender pay gap among the three countries. The gender pay gap is highly dependent on the employment rate, so if only very highly educated women are employed, the GPG can be very low because women with potentially lower wages are out of the labour market.

Another GEI domain is the time domain, which focuses on gender inequalities in the allocation of time, e.g. for care, domestic work and social activities. The first sub-domain, on caring activities, measures women's and men's involvement in caring for and educating their children or grandchildren, caring for elderly and disabled people (Figure 4) and their involvement in daily household tasks (Figure 4). Romania, UK and Belgium have the highest proportions of women caring daily for children or other family members (over 40%), while the proportion of men is much lower (around 25-30%). Germany and Denmark have the lowest proportion of women caring daily (around 20%), while the proportion of men caring daily is 10 - 20% - showing one of the smallest gender gaps in caring responsibilities.

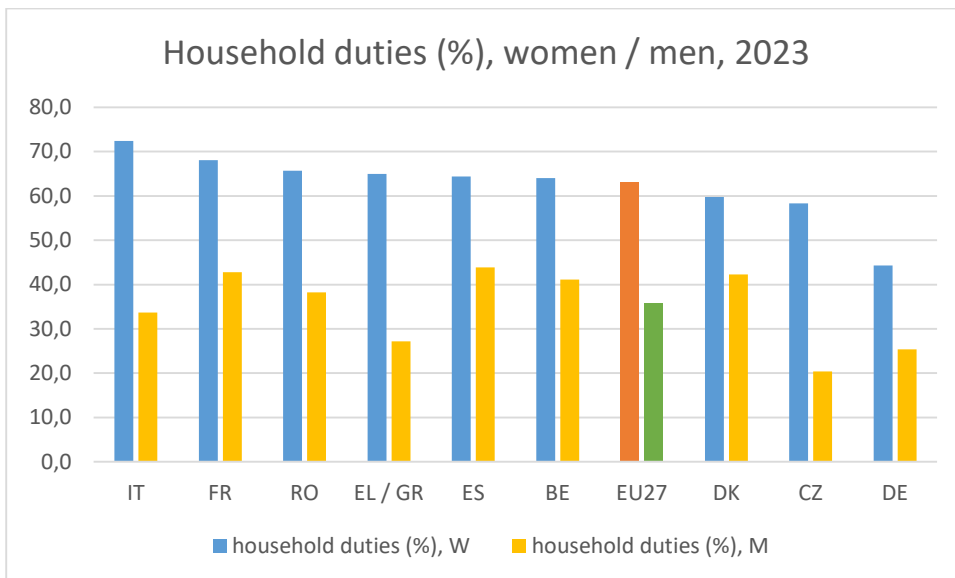
Figure 5 – The % of men and women caring daily for and educating their children or grandchildren, elderly or people with disabilities, 2023



Source: GEI, 2023, <https://eige.europa.eu/gender-equality-index/2023>

The proportion of women doing housework every day is much higher than the proportion of women with daily caring responsibilities (ranging from 45% to over 70% in the GILL countries). On the other hand, there is considerable variation among men, with Denmark, the United Kingdom and Romania having the highest proportions of men doing housework daily, and the Czech Republic, Greece and Germany having the lowest proportions of men doing housework daily.

Figure 6 - The % of men and women doing cooking and/or housework every day, 2023



Source: GEI, 2023, <https://eige.europa.eu/gender-equality-index/2023>

The domain of power measures the equality of women and men in political, economic and social decision-making positions. The sub-domain of political power examines the representation of women and men in national parliaments, governments and regional/local assemblies. The sub-domain of gender balance in economic decision-making is measured by the proportion of women and men on

the boards of the largest nationally registered companies listed on stock exchanges and national central banks. The social power sub-domain includes data on decision-making in research funding organisations, media and sport. Spain and France score highest in all three areas of gender equality. In comparison, the Czech Republic and Romania have the lowest levels of gender equality in all three areas.

On the basis of both the overall GEI and the selected specific GEI indicators, among the GILL countries, Denmark has the highest scores, followed by France, Spain, the UK, Belgium and Germany, while Greece, Romania, the Czech Republic and Italy have rather low levels of gender equality across the indicators monitored.

Employment rates in Eurostat statistics

Employment rates are important indicators of gender equality in the country. Employment rates can also provide a context for women's participation in entrepreneurship, science and innovation. High participation rates of women and men in the labour market are a good starting point for analysing their situation in entrepreneurship and innovation. Significant gender gaps in the employment rates of women and men in a given country may also indicate strong gender inequalities in access to economic resources and opportunities.

Employment rates of women and men and the gender employment gap

In all EU Member States, the employment rate is higher for men than for women. The EU-27 average employment rate is 69.3% for women and 80% for men, with a gender employment gap of 10.7 percentage points. Among the GILL countries, the employment rate for women is highest in Denmark (77.4%), followed by Germany (76.8%) and the Czech Republic (73.7%); however, the incidence of part-time work is much higher in Denmark and Germany than in the Czech Republic. The gender employment gap is lowest in Denmark (5.4%), followed by France (5.8 p.p.). The highest gender employment gaps among the GILL countries are found in Greece (21 p.p.), Italy (19.7 p.p.) and Romania (18.6 p.p.) (See Figure 7).

Figure 7: Employment rates by sex and gender employment gap, 2022

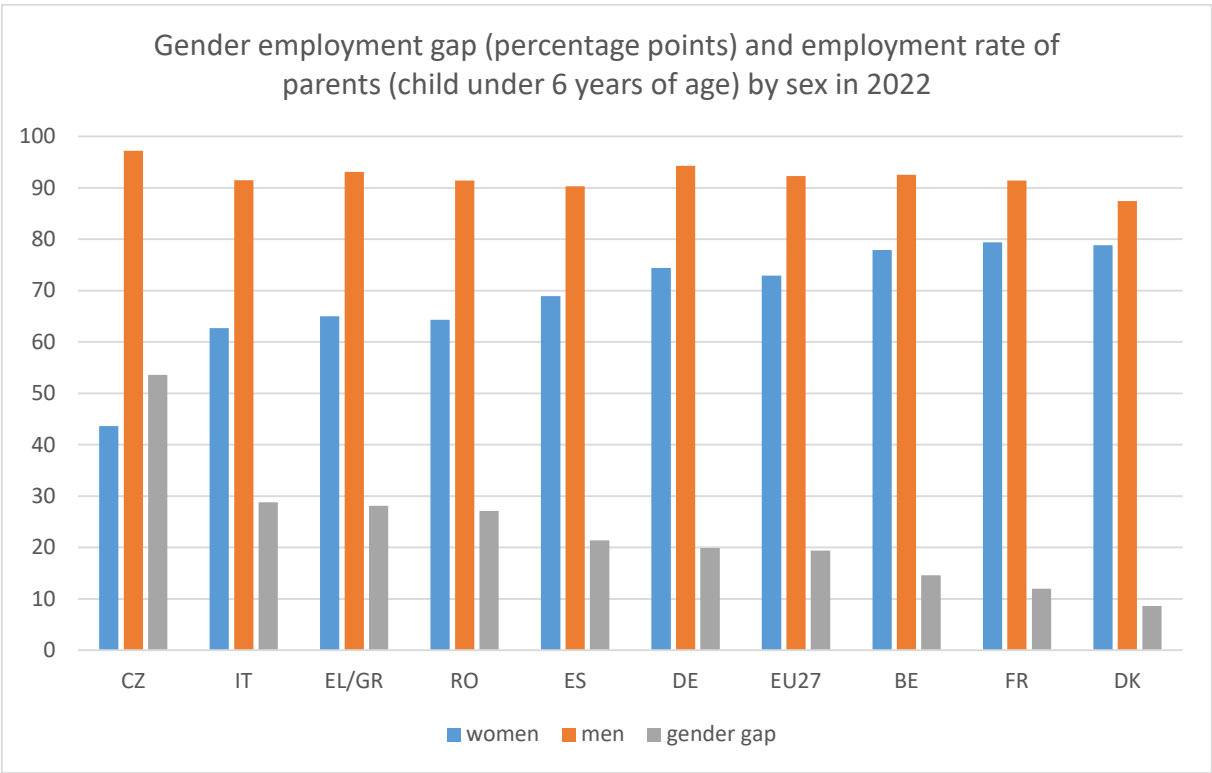


Source: Eurostat, 2022

Employment rates of parents

Compared to the gender gap in employment for the total population, the gender gap in employment for parents with children under six is almost double (19.4 p.p. for the EU-27). Women's employment rates fall significantly when they have young children in countries with more traditional gender regimes. In these countries, fathers are expected to be the main breadwinners and increase their employment rates significantly, while mothers remain out of the labour market for long periods. The low availability of childcare facilities for children under six, the low motivation of fathers to share childcare with mothers, and the low availability of flexible and part-time work are important factors in the low employment rate of women with young children in the Czech Republic, Italy, Greece and Romania. In the Czech Republic, the gender employment gap for parents with young children is particularly high at 53.6%, compared with 8.6% in Denmark and 12% in France (see Figure 8).

Figure 8: Employment rates of parents by sex and gender employment gap, 2022



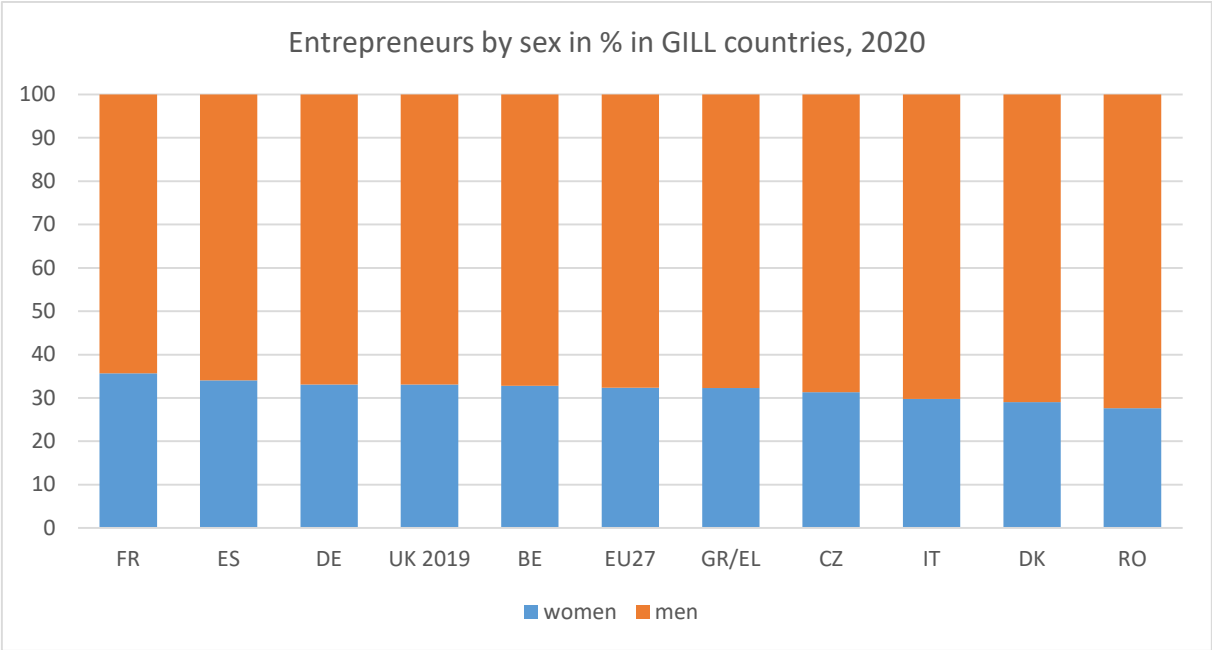
Source: Eurostat, 2022

Entrepreneurship rates and other indicators of entrepreneurship

In the EU countries, on average, about one third of entrepreneurs are women (32.4% as EU-27 average), while about two thirds of entrepreneurs are men (67.6%). Among the GILL countries, France has the highest share of female entrepreneurs (35.7%), followed by Spain (34.1%), Germany and the

United Kingdom (both 33.1%). The lowest proportions of women entrepreneurs are found in Romania (27.6%) and Denmark (29%) (See Figure 8).

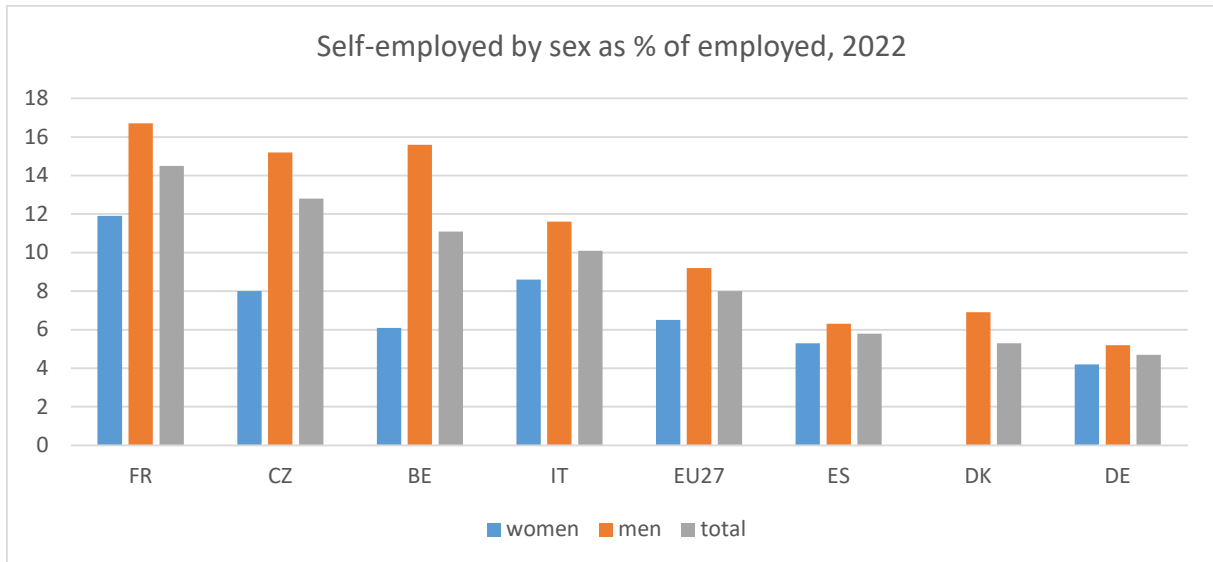
Figure 8: 3 Entrepreneurs by sex



Source: Eurostat, 2020

In the EU-27 on average 8% of all those in paid employment (9,2% of men and 6,5% of women) are self-employed (entrepreneurs without employees). The highest proportion out of the GILL countries is again in France with 14,5% (16,7% for men and 11,9% for women) and in Czechia with 12,8% (15,2% for men and 8% for women). Lowest proportion is in Germany with only 4,7% (5,2% for men and 4,2% for women).

Figure 9: Self-employed by sex as % of employed

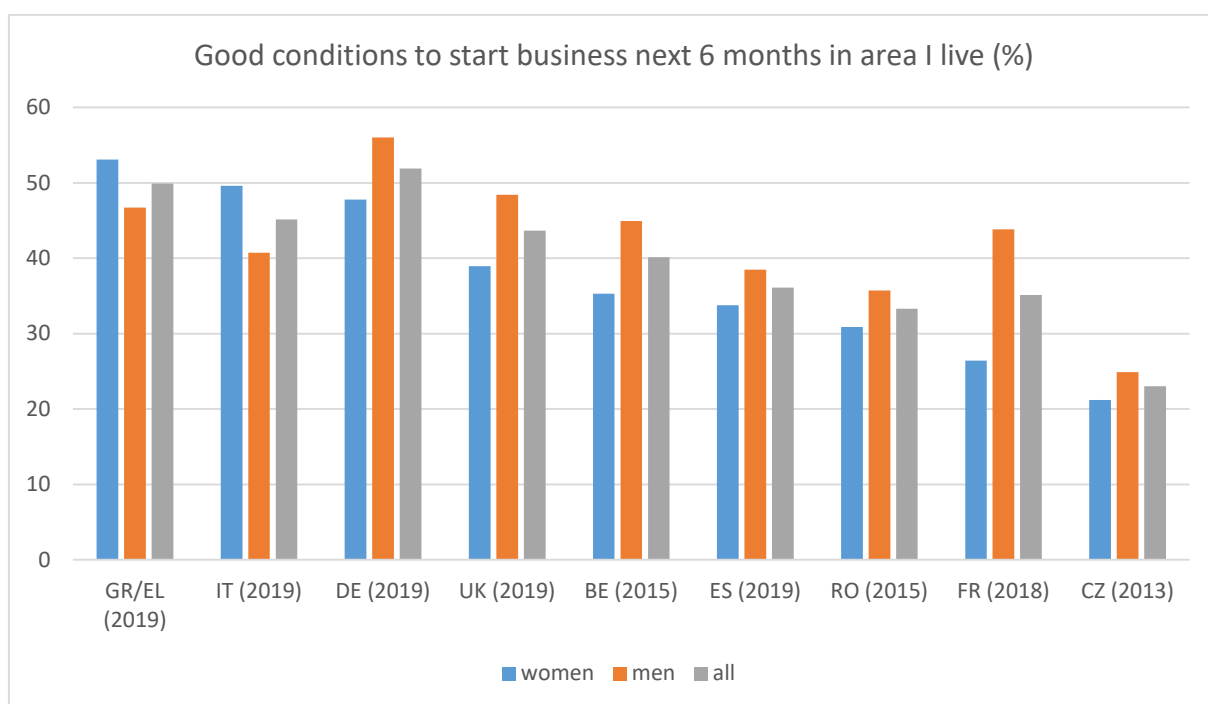


Source: Eurostat, 2022, data for DK women not available.

Perceived opportunities for starting a business

The Global Entrepreneurship Monitor (GEM) focuses on people's perceptions of the quality of the business environment, in particular whether they consider the environment in which they live to be conducive to starting a business. Not all countries are continuously included in the GEM, so in the following graphs and in the text based on the GEM, we always show the latest available country year results. Among the countries represented in the GILL project, the most business-friendly environments are found in Germany and Greece, where more than half of people have a positive perception of the business environment. Conversely, the biggest barriers to starting a business are perceived in Romania and the Czech Republic, where only around a fifth of people perceive the environment as favourable to entrepreneurship (see Figure 10).

Figure 10: Good conditions to start a business in the next 6 months in the area I live (%)



Question: In the next six months, will there be good opportunities for starting a business in the area where you live?

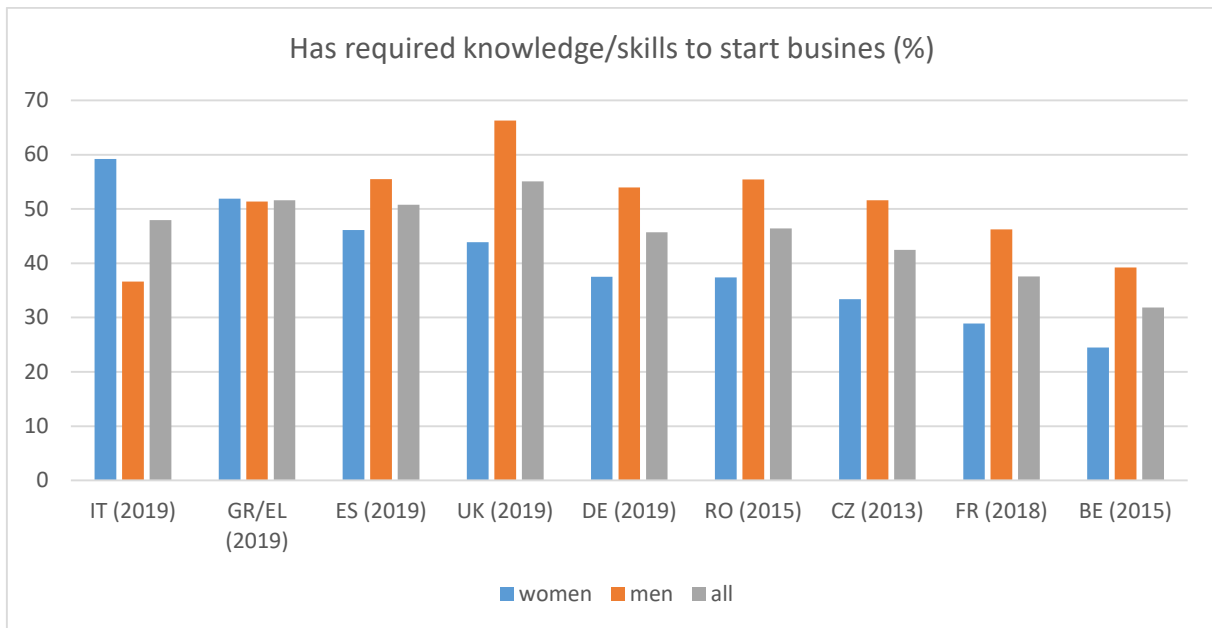
Source: Global Entrepreneurship Monitor, latest available data

Comparing men's and women's attitudes to the business environment in a given country, only in Greece and Italy do women perceive conditions as more favourable than men. In all other GILL countries, men perceive conditions for starting a business in the next six months as more favourable than women.

Perceived knowledge and skills for starting a business

When looking at the entrepreneurial environment and the propensity to start a business in general, the question of entrepreneurial skills and confidence in being able to start a business is crucial. This issue is covered by the data in the GEM survey with a question focusing on whether people consider their knowledge and skills to be sufficient to start a business, asking only those who are not in business. As shown in Figure 11, in the United Kingdom, Greece and Spain more than half of the respondents consider their knowledge and skills to be sufficient to start a business. In France and Belgium, on the other hand, just over a third consider their skills to be sufficient. Only in two of the GILL countries - Greece and Italy - do a higher proportion of women than men consider their skills and knowledge to be suitable for starting a business (more than 50% of women). At the same time, only between 20 and 30% of women in Belgium, France and the Czech Republic consider their skills and knowledge to be suitable for starting a business.

Figure 11: Share of respondents having required knowledge/skills to start a business (population aged 18-64, except of those in any stage of entrepreneurial activity)

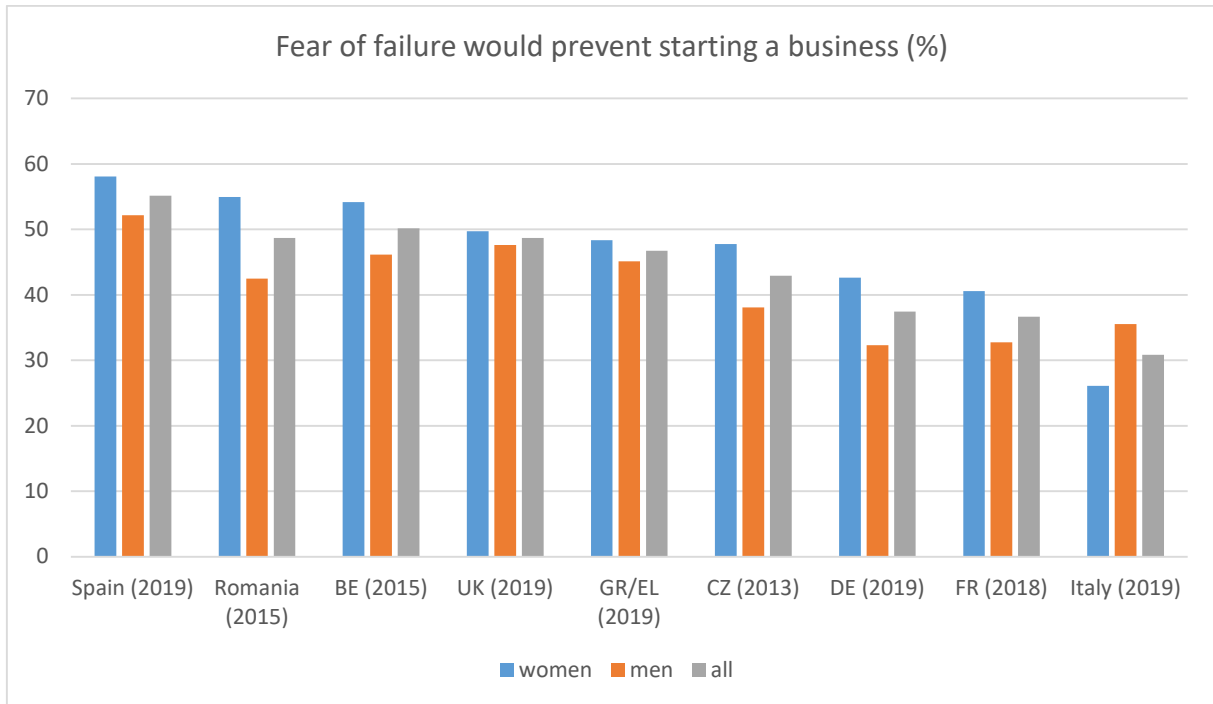


Question: Do you have the knowledge, skill and experience required to start a new business?
 Source: Global Entrepreneurship Monitor, latest available data

Fear of failure as a barrier to starting a business

The GEM survey also includes questions that focus on risk taking as a fundamental aspect of entrepreneurship, in particular the fear of failure that would prevent people from starting their own business. Among the GILL countries, fear of failure is least prevalent in Italy and most prevalent in Spain (see Figure 12). For women, fear of failure was the most common reason for not starting a business in Spain, Romania and Belgium. The exception is Italy, where more men than women cite this reason for not starting a business.

Figure 12: Fear of failure that would prevent starting a business (in % of 18-64 population except of those in any stage of entrepreneurial activity)

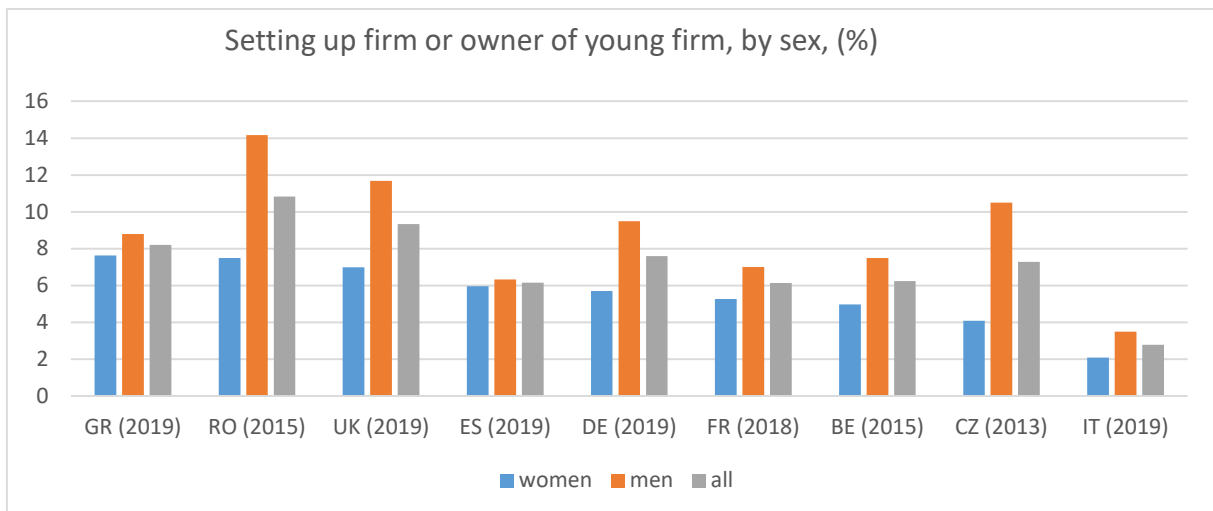


Question: Would fear of failure prevent you from starting a business?
 Source: Global Entrepreneurship Monitor, latest available data

Setting up firm or owner of young firm

The GEM research examines the share of start-ups. Romania and the UK have the highest proportions of new entrepreneurs among the survey respondents at around 10%, while Italy has the lowest among the GILL countries at around 3% (See Figure 13).

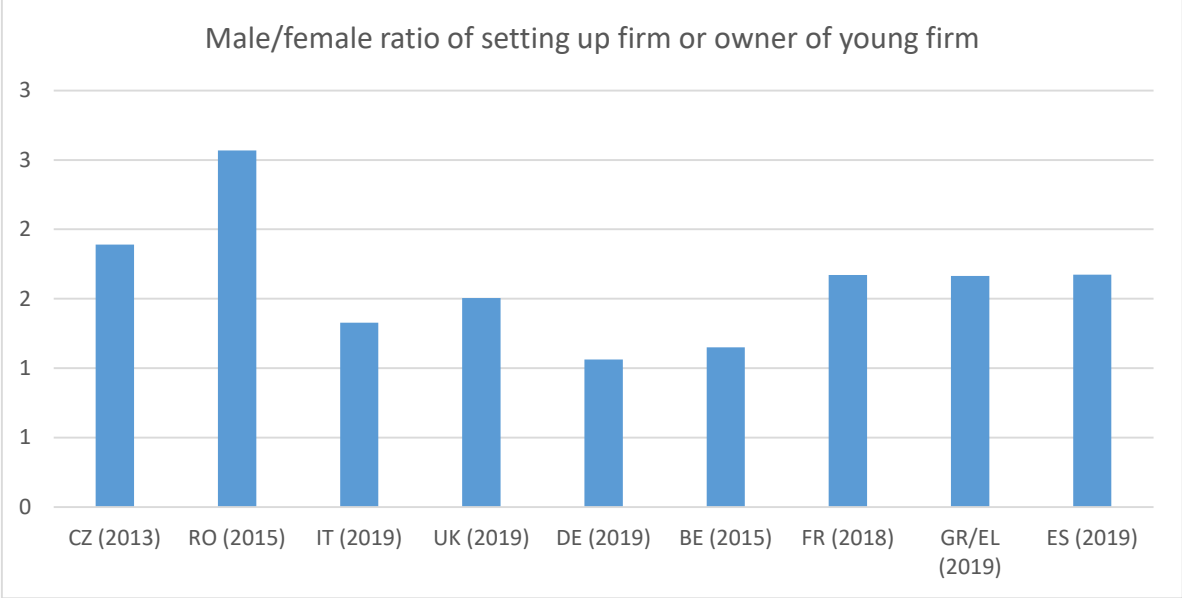
Figure 13: Setting up firm or owner of young firm (%)



Source: Global Entrepreneurship Monitor, latest available data

Among start-ups, men predominate in all countries, with the Czech Republic being the country with the highest male dominance (2.5 times) and Spain the country with an almost equal gender ratio (See Figure 14).

Figure 14: Male/female ratio of setting up a firm or owner of young firm

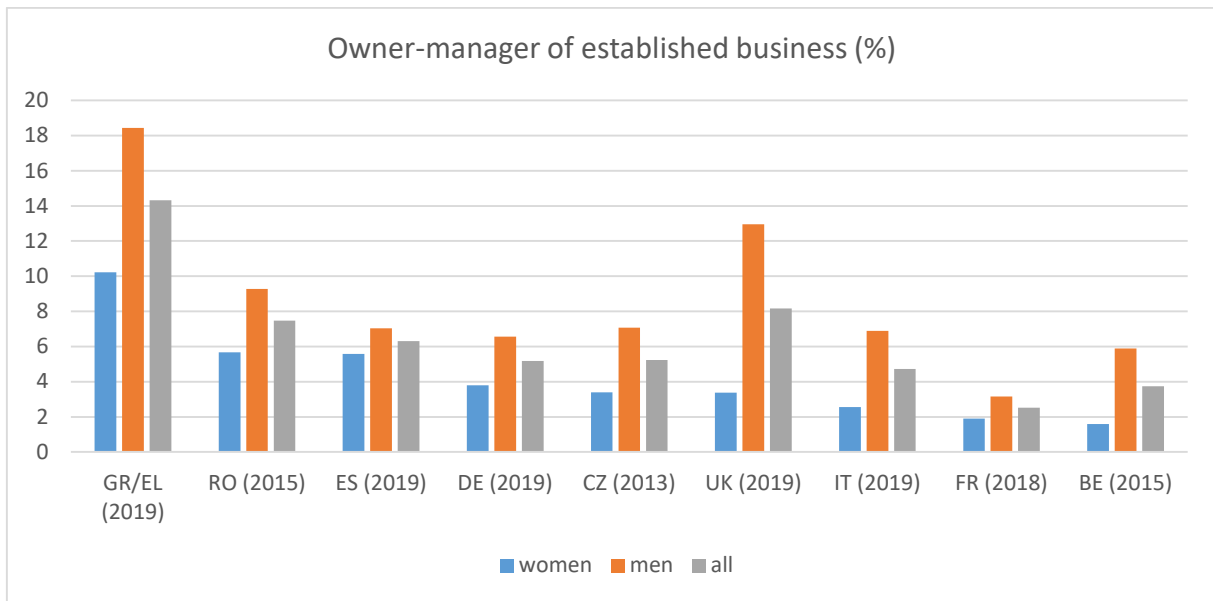


Source: Global Entrepreneurship Monitor, latest available data

Proportion of owners of an established business

The GEM survey also measures the proportion of the population that owns an established business. The highest proportions are found in Greece, where 14% of the population own an established business, and the United Kingdom, where 8% of the population own a business. The lowest proportions of people with an established business were found in Belgium and France (just over 2% of respondents) (See Figure 15).

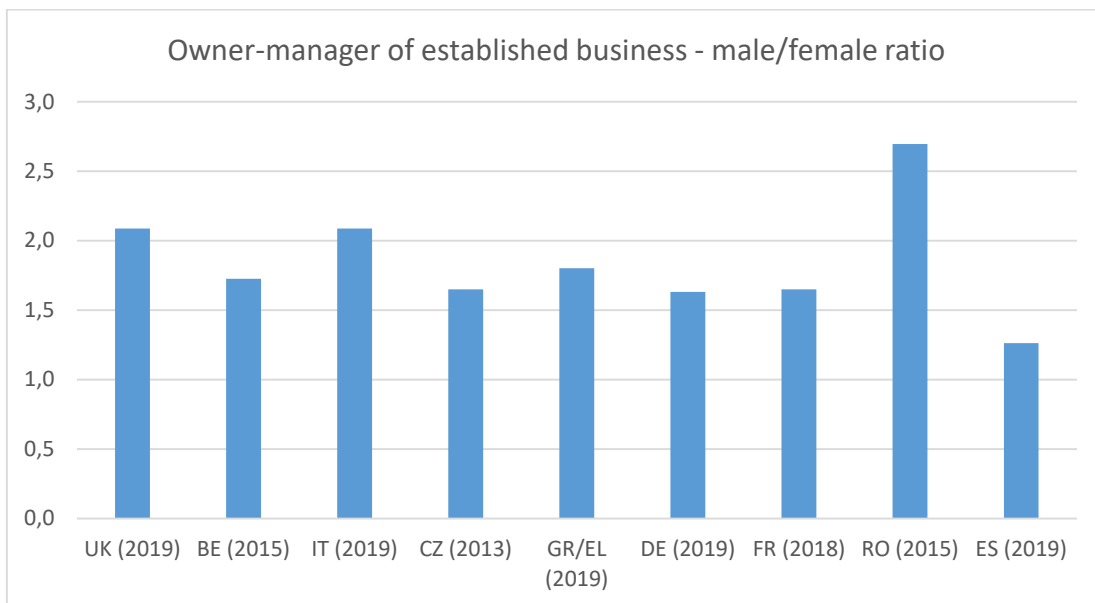
Figure 15: Proportions of owner-manager of established business (for more than 42 months) in %, by sex.



Source: Global Entrepreneurship Monitor, latest available data

There are significantly more men established business owners in the UK (men outnumber women almost four times) and the least gender difference is in Spain, where the ratio of male to female established business owners is close to one (see Figure 16).

Figure 16: Owner-manager of established business - male/female ratio



Source: Global Entrepreneurship Monitor, latest available data

Overall, there are more male than female entrepreneurs, with women accounting for only about one third of entrepreneurs in the GILL countries. This is probably the result of the perception of the conditions for entrepreneurship, as men perceive the conditions for starting a business as more favourable than women in most of the GILL countries, with the exception of Greece and Italy. Among the GILL countries, the highest proportions of people who perceive the environment as favourable to

starting a business are in Germany and Greece, where more than half of the people have a positive perception of the business environment. Conversely, the greatest obstacles to starting a business are perceived in Romania and the Czech Republic, where only around a fifth of people perceive the environment as favourable to entrepreneurship. When assessing their entrepreneurial skills, only in two of the GILL countries - Greece and Italy - are women more likely than men to perceive their skills and knowledge as suitable for starting a business. Entrepreneurship is often perceived as risky and this is a reason for not starting a business for the majority of women in the sample in Spain, Romania and Belgium. The exception is Italy, where more men than women cite this reason for not starting a business. In all countries, men predominate among entrepreneurs who start a business, with the Czech Republic being the country with the highest dominance of men over women (2.5 times) and Spain being the country where the ratio between men and women is almost equal. The highest gender gap in ownership of established enterprises is found in the United Kingdom, followed by Belgium, and the lowest in Spain, followed by Romania and France.

Women in the Research and Innovation sector

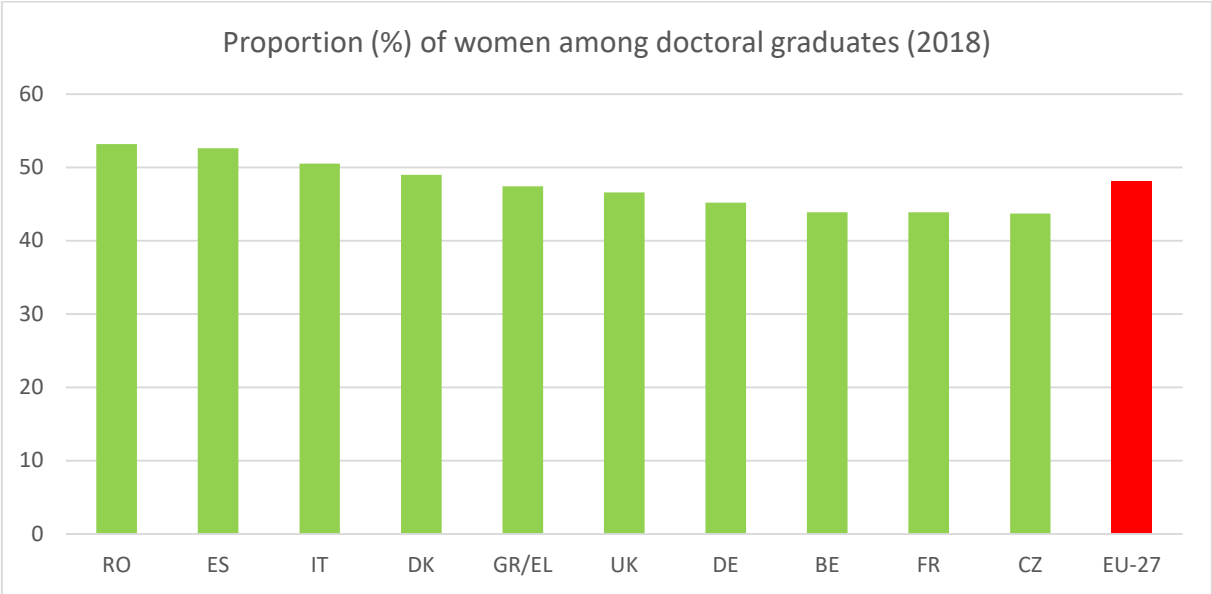
Although women now outnumber men among university graduates in developed countries, their representation among researchers (in both the private and public sectors) and senior academics is still much lower than that of men. Although much attention has been paid to this fact at European level over the last decade, this area seems to be rather resistant to possible changes in favour of gender equality. As science and research are closely linked to innovation, the disadvantaged position of women in this sector may have an impact on the production and nature of innovations. This part therefore summarises the main statistics on the role of women in research, science and innovation for the GILL countries. We rely mainly on data published in *She Figures (2021)*, a publication that regularly monitors various indicators of the position of women in science and innovation in the EU.

Data on PhD graduates show that most European countries have a large pool of qualified female talent for the research and innovation sector, even in sectors that were previously strongly dominated by men. Women now account for around half of all PhD graduates in EU countries (48.1% for EU-27). Among the GILL countries, Romania (53.2%), Spain (52.6%) and Italy (50.5%) have above-average proportions of female graduates. In Denmark, the proportion of women and men is about the same (49% women). The lowest proportions of women among doctorate graduates are found in Belgium, France and the Czech Republic (see Figure 17 below).

There is still a significant segregation of women and men into different fields among PhD graduates. Women dominate fields such as education, health and social work, where they account for more than 60% of graduates in the EU-27; in the case of education, they account for 66% of PhD graduates. Women also account for more than 50% of doctorate graduates in agriculture, forestry, fishing and veterinary medicine, arts and humanities, and social sciences, journalism and information. Less than 45% of graduates are women in business, administration, law and STEM fields, i.e. science, mathematics and statistics. Around 29% of women are in engineering, manufacturing and construction, and the lowest in information and communication technologies (22% in the EU) (*She Figures 2021*, p.36). However, the gender segregation of sectors varies between countries. Detailed data published in the *She Figures* comparing different EU countries (see *She Figures 2021*, p. 36) show

that there is significant variation, particularly in ICT, where the share of female graduates ranges from 4% in the Czech Republic and 16% in Germany to around 29% in Italy, 30% in Greece and 37% in Belgium.

Figure 17: Proportion (%) of women among doctoral graduates (2018)

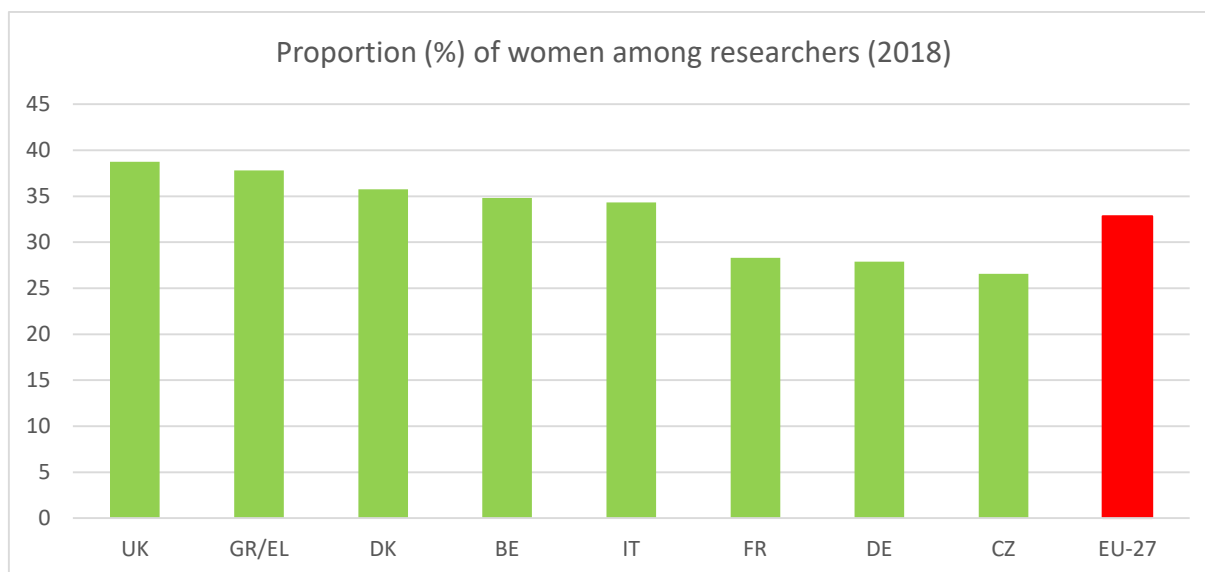


Source: She Figures 2021

However, the high proportion of women among PhD graduates is not strongly reflected in their under-representation among researchers. In 2018, women accounted for almost a third of all researchers in the EU-27. However, even in this case there are significant differences between the GILL countries, with Romania (46.7%) and Spain (40.5%) being the countries with the highest proportion of women among researchers, and France (28.3%), Germany (27.9%) and the Czech Republic (26.6%) being the countries with the lowest proportion of women among researchers (see graph below).

The representation of women in research and innovation is partly related to R&D expenditure. Countries that invest less in R&D tend to have more women researchers than countries that spend more on R&D. However, this relationship is not perfect. According to She Figures 2021 (p. 166), in 2018 the highest expenditures per researcher (counted in purchasing power parities) were in Germany (more than 200 000 points), Italy, France and Belgium (more than 150 000 points). While Germany (27.9%) and France (28.3%) have one of the lowest proportions of women researchers, other countries score higher (see Figure 18). Denmark, the United Kingdom, the Czech Republic and Spain are in the middle (with expenditure slightly below 150 000 points). While the Czech Republic has the lowest proportion of women researchers in the EU-27 (only 26.6%), women account for more than 40% of researchers in Spain and almost 36% of researchers in Denmark. Romania and Greece are the countries with the lowest R&D expenditure among the GILL countries. However, there are significant differences between these countries, with Romania having the highest proportion of women among researchers (46.7%), while Greece, which has one of the lowest levels of R&D expenditure in the EU, has around 38% of women among researchers.

Figure 18: Proportion (%) of women among researchers (2018)

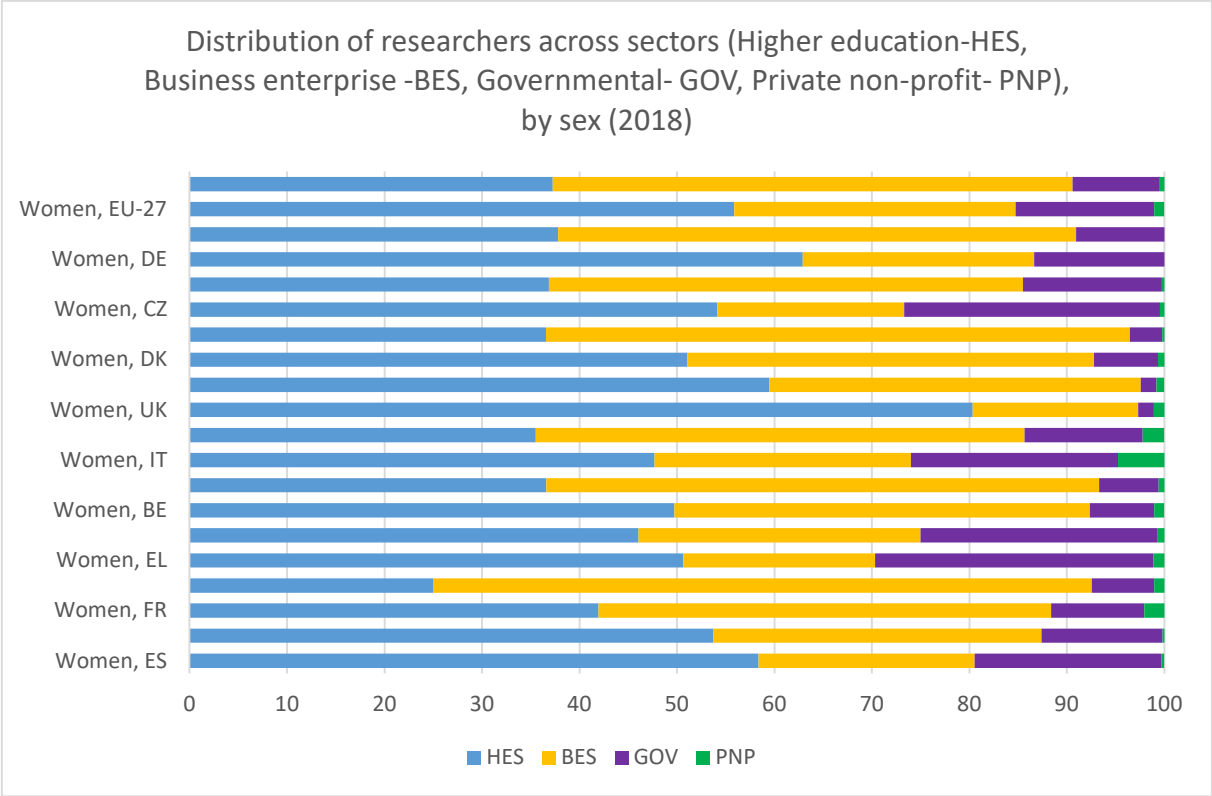


Source: She Figures 2021

There are noticeable differences between countries in terms of the sector in which research is carried out and therefore which sector is a potential source of innovation. This information can be gleaned from statistics showing the proportions of researchers working in different sectors such as higher education (HES), business enterprise (BES), government (GOV) and private non-profit (PNP). Both at EU-27 level and in most GILL countries, men are much more likely to work in the BES than women, who are more likely to work as researchers in HES or GOV. (While in the EU-27 53% of male researchers work in the BES sector and 37% in the HES, the situation is almost reversed for women, with almost 56% of female researchers working in the HES and only 29% in the BES). Nevertheless, some countries show a rather high percentage of both male and female researchers working in the BES sector, such as France (46% of female researchers, 67% of male researchers), Belgium (43% of female researchers, 57% of male researchers) or Denmark (42% of female researchers, 60% of male researchers) (See Figure 19).

On the other hand, Greece (17% of female researchers, 29% of male researchers) and Spain (22% of female researchers, 34% of male researchers) have low proportions of researchers working in the Business Enterprise Sector. This may indicate that in these countries, higher education institutions and the government sector are the leading actors in the field of research and potential innovation, whereas in Belgium, Denmark and France, the BES sector plays an important role. The highest degree of segregation of men and women into research sectors can be found in Germany, the Czech Republic and the United Kingdom, where the share of men working in the BES is about twice as high as the share of women researchers working in this sector.

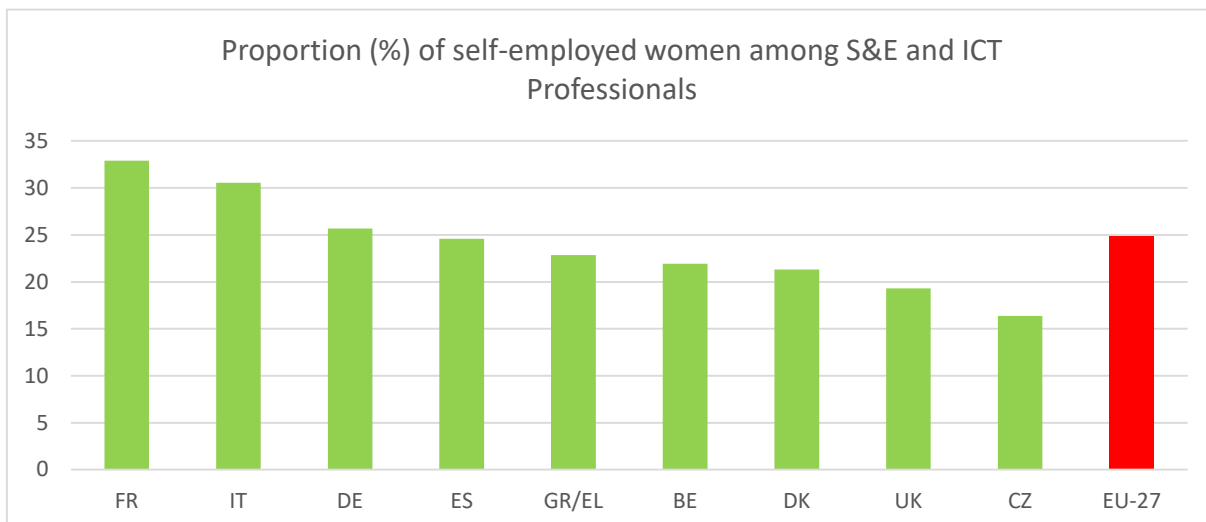
Figure 19: Distribution of researchers across sectors (Higher education-HES, Business enterprise - BES, Governmental- GOV, Private non-profit- PNP), by sex (2018)



Source: She Figures 2021, data for Romania not available

There is also a significant gender gap among entrepreneurs in STEM. Here, women accounted for only about a quarter of all self-employed in Science, Engineering and ICT, which is also linked to their lower representation among doctorate holders in these fields. France (32.9 %) and Italy (30.5 %) have above-average proportions of women among the self-employed in this field. The lowest proportions are found in the United Kingdom (19.3%) and the Czech Republic (16.4%) (See Figure 20).

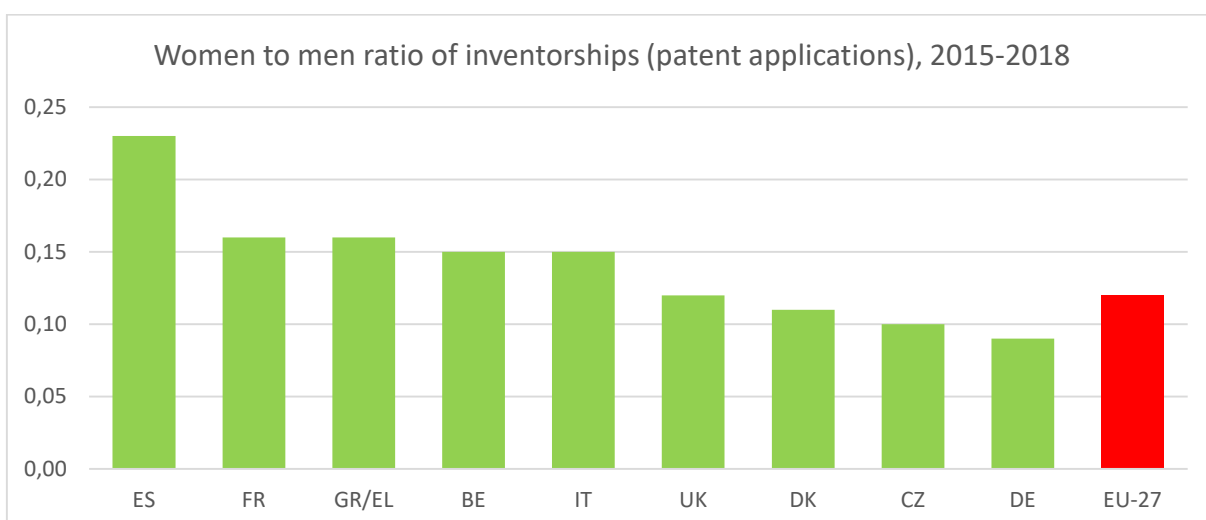
Figure 20: Proportion (%) of self-employed women among S&E and ICT Professionals



Source: She Figures 2021

Women are significantly under-represented among inventors, as shown by statistics based on patent applications. At EU level, there are only 12 female patent applicants for every 100 male applicants. However, as Figure 21 shows, there are differences between the GILL countries. The exceptionally high male/female ratio of patent applicants is found in Spain, where there are about 23 female applicants for every 100 male applicants. France, Greece, Belgium and Italy are slightly above the EU average with a ratio of 15 to 16 women per 100 male patent applications. Denmark, the Czech Republic and Germany have a below-average share of women among patent applicants.

Figure 21: Women to men ratio of inventorships (patent applications), 2015-2018



Source: She Figures 2021

Women are under-represented among researchers, inventors and ICT entrepreneurs across the EU, but among the GILL countries this is particularly evident in the Czech Republic, Denmark and Germany. Women account for more than 40% of researchers in Romania and Spain.

Conclusion

This very brief mapping of the context for gender equality, employment, entrepreneurship and innovation, based on available statistics, shows that there are significant differences between the GILL countries, with gender inequality across the EU in all aspects in focus. Among the GILL countries, Denmark is the country with the highest Gender Equality Index score and the most gender-egalitarian regime, including gender equality at work and at home. However, Denmark does not score highly in terms of gender equality in the proportion of women and men among researchers, inventors or ICT entrepreneurs. On the other hand, the Czech Republic, together with Greece, Romania and Italy, represents a rather traditional gender regime with a low GEI score and, with the exception of Romania, these countries also score very low on the entrepreneurship, science and innovation indicators.