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The determinants of entrepreneurship gender gaps: A cross-country analysis

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Abstract

This paper uses aggregate data from the International Labor Organization and microeconomic data from the European Values Study to quantify gender gaps in entrepreneurship, distinguishing between gender gaps in employership and in self-employment, and study their main empirical determinants. Our sample consists of 40 European countries and varies broadly in terms of institutional background since it includes several ex-Communist countries. In the aggregate data we observe a gender gap in employers of 59% and a gender gap in self-employment of 36%. These gaps have remained roughly constant in the 2000–2017 period, although there are wide differences in both their levels and evolution over time and across countries. Using microeconomic data, we find that the incidence of entrepreneurship, employership, and self-employment among men is much larger than among women, consistent with the gaps estimated using aggregate data. Our regressions show that these gaps are still sizable even after controlling for a large set of control variables that include marital status, age, education, number of children, wealth, the participation of parents and spouse in entrepreneurship, values toward women, social capital, and prior unemployment. We identify important differences between the determinants of these gaps in ex-Communist countries and in high-income ones.

1 | INTRODUCTION

Most of the existing empirical work on the determinants of gender gaps in the labor market has focused on gaps in labor force participation. However, as pointed out in Cuberes and Teignier (2016), gender gaps in entrepreneurship are quite large, vary significantly across countries, and are associated with large output losses at the macroeconomic level. Identifying some of the relevant factors that can explain these gaps is therefore a crucial step toward formulating policies to narrow them.

In this paper we examine the main correlates of gender gaps in entrepreneurship, distinguishing between gaps in employers and in self-employed, for a large set of countries. We do so using aggregate data from the International Labor Organization (ILO) and microeconomic data from the European Values Study Survey (EVS), a microeconomic survey that contains relevant information on different aspects of entrepreneurship and their potential determinants. Throughout the paper we present results for our sample of 19 high-income and 21 ex-Communist countries.[1] As we explain below, these two groups of countries are markedly different than the rest of the sample in terms of income per capita, their type of institutions, and their view on women's rights.

We use the macro evidence to present differences in these gaps across countries and their evolution over time. However, since it is hard to use macrodata to explain these patterns, in all the analysis that follows we focus on the microeconomic data. Our empirical model using microdata accounts for several factors that affect female entrepreneurship, including individual characteristics (family background, education, income, among others) and individuals' views on different socioeconomic variables (trust in their society, values toward women, among others). We choose these variables to explain gender gaps following the predictions of economic theory and of related empirical studies. We acknowledge that many of these variables are endogenous and that it is a daunting task to find appropriate instrumental variables for them. Therefore, it is important to emphasize that, throughout the paper, our results should be interpreted as correlation but not causation. While this is an obvious drawback of the study, we believe that using microeconomic data to explain cross-country differences in entrepreneurship and some of their main correlates is an important step toward shedding light on understanding why entrepreneurship is a much less common occupation among women than men.

The rest of the paper is organized as follows. In Section 2 we take a first look at the aggregate data on gender gaps in entrepreneurship in our sample of countries and the sample of ex-Communist countries. Section 3 reviews the literature on the determinants of entrepreneurship, with special emphasis on papers that analyze differences between men and women. The empirical strategy of the paper is outlined in Section 4, while the microdata we use is described in Section 5. The empirical results of the study are discussed in Section 6. Section 7 concludes.

2 | A FIRST LOOK AT THE AGGREGATE DATA

As in Cuberes and Teignier (2016), in this section we use labor market data from the ILO (KILM, 2015) to show some stylized facts about gender gaps in entrepreneurship in our sample of countries. We proxy the number of employers with the variable *employers*, and the number of self-employed with the variable *own account workers*. We then collect data on these two variables by gender and calculate the following gender gaps:

$$GG_{Emp} = 1 - \frac{Emp^f / L^f}{Emp^m / L^m}$$

and

$$GG_{Self} = 1 - \frac{\frac{Self^f}{L^f}}{\frac{Self^m}{L^f}},$$

where *Emp* is the number of employers, *Self* is the number of self-employed, and *L* is the labor force participation; the superscripts *f* and *m* denote females and males, respectively. Naturally, in both cases, if the number of females and males in a given occupation (normalized by their labor force participation) is the same, the gender gap is 0, and if there are no women in a given occupation, the gap is equal to 1.[2]

We begin by calculating the average gender gaps in employership and self-employment in our pooled data for our sample of 40 countries during the period 2000–2017.[3,4] Panel A of Table 1 shows that, on average, for every 100 male employers, there are only 41 female employers (an employer gender gap of 59%). The gap is much lower when one considers self-employment, where there are 64 self-employed women for every 100 self-employed men. Gaps in employership oscillate a lot, with minimum values of –10% and maximum values as high as 90%. The variation is even larger for self-employment gaps, from –40% to 76%.

Panel B of Table 1 presents the corresponding figures for the 21 ex-Communist countries in our sample,[5] which differ from the rest of the countries we analyze in three fundamental ways. First, their average level of development, as measured by their gross domestic product (GDP) per capita ($18,214), is significantly below that of the rest of countries in our sample ($41,331). Second, most of these countries belonged to the Soviet bloc for a long period of time and so it seems reasonable to assume that some of their institutions are still substantially different than those of the rest of the countries in our sample. We hypothesize that some of these institutions may still affect

TABLE 1 Summary Statistics of Macro Gender Gaps

	Mean	Standard deviation	Minimum	Maximum
Panel A: Full sample				
Gaps in employership	58.58	13.28	−10.13	89.61
Gaps in self-employment	35.82	20.22	−39.94	76.08
Panel B: Ex-Communist countries				
Gaps in employership	54.29	15.24	−10.13	87.92
Gaps in self-employment	34.05	20.92	−39.94	74
Panel C: High-income countries				
Gaps in employership	63.32	8.51	10.33	89.61
Gaps in self-employment	37.78	19.26	−39.13	76.08

Data source: ILO. All figures are percentages.

the role of women in the labor market. Third, variables related to women's rights typically display lower values in these countries than in the rest of the sample. Using data from the World Values Survey,[6] we find that citizens of ex-Communist countries agree significantly more than those of the rest of countries on statements such as "If jobs are scarce, men should have more right to work than women" and "Men make better business executives than women."

Apart from the institutional environment, a natural variable to affect gender gaps is a country's level of development. After all, economic theory (Becker & Lewis, 1973) tells us that gender gaps in female labor force participation tend to fall as countries become richer, and this prediction has been confirmed in a number of studies.[7] Gender gaps in entrepreneurship (either employers or self-employed) may well behave differently than gender gaps in labor force participation, but it is interesting to explore how they correlate with economic development. We begin by classifying high-income countries in our sample using the World Bank Income Classification, which gives us a subsample of 19 countries.[8] Panel C of Table 1 shows the average gender gaps for this group. Gender gaps in employers are substantially larger for the richer countries than for the ex-Communist group.[9] One possible explanation for this seemingly surprising result is that in lower-income countries it is not uncommon for people to turn to entrepreneurship only when no other occupations are available. The literature has labeled these individuals *out-of-necessity* entrepreneurs and, although not much is known about gender differences within this group, the data show that the incidence of women among them is significantly higher than in OECD countries (Poschke, 2013).[10]

Returning to our full sample of 40 countries, Figure 1 shows that neither the average employer gender gap nor the self-employed gender gap has changed much over time, and the former has dominated the latter by about 30 percentage points in this period. The correlation between the two gaps in the latest available year, 2014, is positive, although not very strong, as Figure 2 shows.[11]

As can be seen from Table A1 in the Appendix, the average gaps displayed in Table 1 hide important differences across countries. The country with the largest average gender employer gap is Cyprus (80.6%), followed by Armenia (79.9%). The lowest gaps in this category are for Ukraine (24.4%) and Bosnia and Herzegovina (33.2%). With regard to the gender gap in self-employment, Ireland displays the largest figure (73.5%), followed by Macedonia (66.9%). The lowest average gender gaps in self-employment are negative and correspond to Ukraine (–14.5%) and Armenia (–6.7%).[12]

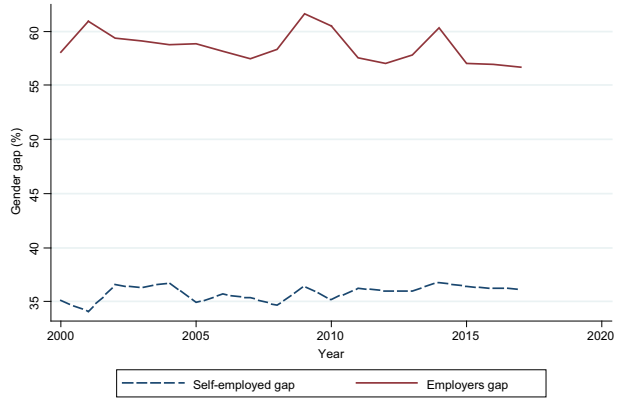

FIGURE 1 Evolution of Gender Gaps over Time
Data source: ILO. [Color figure can be viewed at wileyonlinelibrary.com]

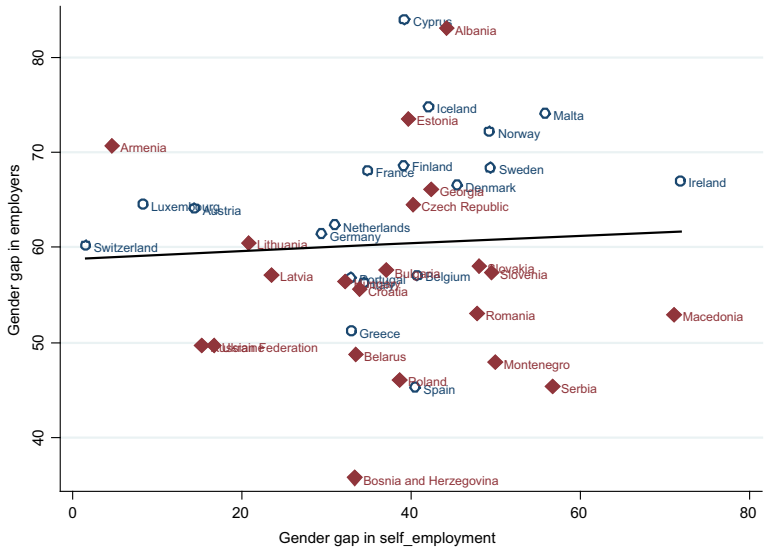

FIGURE 2 Correlation between Gender Gaps in Employers and in Self-Employment in 2014
Data source: ILO. Ex-Communist countries represented by diamonds. [Color figure can be viewed at wileyonlinelibrary.com]

In the Appendix (Figure A1) we also plot the evolution of these gaps in each of the countries over time during the 2000–2017 period, and again there are important differences in the patterns. The gender gap in employership has a clear decreasing pattern in countries such as Georgia and Serbia, and displays a marked increase in Montenegro and Ukraine. Many countries display significant decreases in the self-employment gender gap (Czech Republic, Denmark, Iceland, Norway, Slovenia, or Switzerland), whereas in a few of them this gap increases rapidly (Poland, Portugal, or Ukraine).

The next two figures explore the correlation between a country's level of development and its two gender gaps. Figure 3 shows that a scatter plot of gender gaps in employers with real GDP per capita in 2014 results in a mild positive correlation. Figure 4 shows that the correlation is much weaker in the case of gender gaps in self-employment.[13]

The main goal of our paper is to identify the main causes behind these cross-country differences in entrepreneurship gender gaps. From results not shown here, we conclude that attempting to do so using country-level aggregate data is not very informative. The reason is that, both in the time series and in the cross-section, very few aggregate variables seem to correlate with these gaps. This may be in part due to the fact that our sample of countries is not large enough to estimate this type of regressions with any degree of precision or perhaps due to the fact that, in order to understand entrepreneurship, one really needs to use information disaggregated at the individual level. For this reason, the rest of the paper focuses on analyzing microdata that dramatically expand our number of observations and allow us to estimate more precisely the determinants of cross-country gender differences in entrepreneurship.

3 | RELATED LITERATURE

3.1 | Entrepreneurship in developing countries

The literature on entrepreneurship in developing countries is very extensive.[14] However, the gender dimension of entrepreneurship is often neglected, probably due to the lack of accurate

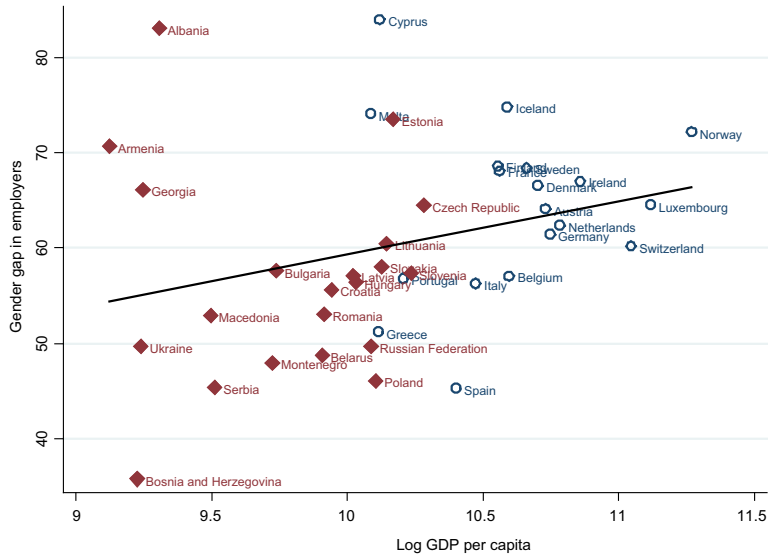

FIGURE 3 Gender Gaps in Employers and GDP per Capita in the Full Sample
Data source: ILO. Ex-Communist countries represented by diamonds. [Color figure can be viewed at wileyonlinelibrary.com]

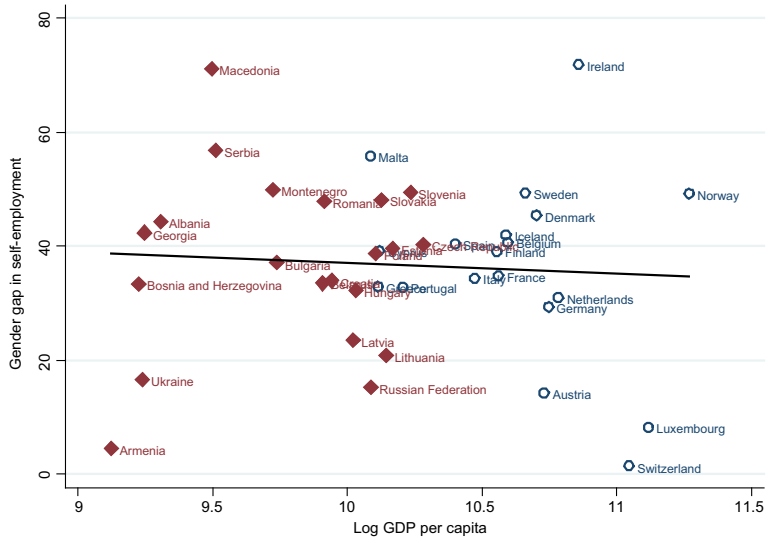

FIGURE 4 Gender Gaps in Self-Employment and GDP per Capita in the Full Sample
Data source: ILO. Ex-Communist countries represented by diamonds. [Color figure can be viewed at wileyonlinelibrary.com]

data. John Sutton's *Enterprise Map Project* is an ongoing ambitious project that represents a great step forward toward providing a detailed profile of industries and of leading industrial companies in developing countries.[15] His focus so far is on sub-Saharan Africa, where he has collected very valuable information on Ethiopia, Ghana, Mozambique, Tanzania, and Zambia. The data allow researchers to answer important questions about how entrepreneurship differs in

these economies, although, to our knowledge, the gender dimension of these activities has not been considered in the questionnaires.

McMillan and Woodruff (2002) and Estrin, Meyer, and Bytchkova (2005) review the several studies that focus on transition economies, but the role played by entrepreneur's gender is not discussed in either paper. McMillan and Woodruff (2002) study the cases of Russia, China, Poland, and Vietnam and analyze to what extent governments have facilitated informal contracts and market support infrastructure. Estrin et al. (2005) argue that the institutional environment in transition economies has created numerous barriers to entry, some conventional and others unique to this group of countries. In a later paper, Estrin and Mickiewicz (2010) show that entrepreneurship rates are lower in transition economies than in developed and developing economies and argue that this is especially true for countries that were part of the former Soviet Union. Persistence in institutions may explain why, many years after the fall of Communism, entrepreneurship rates are still very low in ex-Soviet countries. Although gender is not their main object of analysis, in their regressions the authors control for whether firms' managers are men or women and show that women are indeed less likely to become entrepreneurs. Welter and Smallbone (2003) analyze the behavior of firms in Ukraine, Moldova, Belarus and the Russian Federation from an institutional perspective. In particular, they study how firms in these transition economies adapt to the existing formal and informal institutions. One of their key findings is that informal rules from the Socialist period, where social capital in the form of personal trust played an important role in securing resources, assist in explaining the role of networking in contemporary conditions. Two other studies that consider transition economies are Djankov, Qian, Roland, and Zhuravskaya (2006) and Djankov, Yingyi, Gerard, and Zhuravskaya (2006); they analyze entrepreneurship in China and Russia but do not address specific differences between firms led by men or women. Gender is a control variable in their regressions, and their papers do not focus on explaining differences in entrepreneurs' gender.

3.2 | Entrepreneurship and gender in developing countries

The *World Development Report 2012* (World Bank, 2012) describes the state of the art of the existing literature on gender gaps in entrepreneurship in developing countries.[16] It documents that, in these countries, the large majority of micro, small, and medium enterprises are managed by women, and that the percentage of female ownership declines with firm size (Bruhn, 2009; Sabarwal, Terrell, & Bardasi, 2009; Hallward-Driemeier 2011a; Costa & Rijkers, 2011). Moreover, female-headed enterprises are more likely than male-headed ones to be home-based and operate within the household (Mead & Liedholm, 1998; Bruhn, 2009; World Bank, 2010). The report also discusses how, as countries develop, their productive structure changes and the opportunity cost for women to stay out of the labor force increases. Naturally, this implies that economic growth tends to go hand-in-hand with increases in female labor force participation, and this process is also often accompanied by women taking jobs that are traditionally done by men. The data show that, at low levels of development, it is frequently the case that women are more likely to transition from unpaid work to wage work and men are more likely to transition from self-employment to wage employment. However, the relationship between economic development and the female rate of entrepreneurship is unclear. Indeed, as countries move from low to medium per capita GDP, the share of women in self-employment and entrepreneurship falls.[17]

Our reading of the relatively scarce literature on gender gaps in entrepreneurial activities in developing countries is that, while it is not clear that women are always underrepresented in entrepreneurship (the opposite is the case in sub-Saharan Africa), there is strong evidence that

female-led businesses are less productive than male-led businesses.[18] The World Bank (2012) reports that value-added per worker in firms managed by women is lower than in firms managed by men in Europe and Central Asia (34% lower), Latin America (35%), and sub-Saharan Africa (6–8%). Other countries (Bangladesh, Ethiopia, Indonesia, and Sri Lanka) display similar differences. In the following paragraphs, we review a few studies that attempt to identify the main factors that may explain these productivity differences.[19] These factors can be broadly classified into two groups: the institutional environment that discriminates against women, and firm and female characteristics. As we discuss below, the latter often lead women to self-select into less productive sectors (Croson & Gneezy, 2009).

Mead and Liedholm (1998) focus on micro and small enterprises (MSEs) and show that in Africa and some Caribbean countries, the majority of these firms are owned and operated by women and that firms headed by women tend to be concentrated in a narrow range of activities (beer brewing, knitting, dressmaking, crocheting, cane work, and retail trading). Another finding of their paper is that MSEs headed by women are more likely than their male counterparts to operate from home and that, since these are usually not accounted for in most datasets, this may explain the apparent low number of female entrepreneurs. The authors also report that female-headed MSEs are less likely to survive, all other factors constant, than their male-headed counterparts. However, they warn that a relatively high percentage of the closings of female-headed firms are indeed due to personal and other non-business-related characteristics. While we do not study firm survival, one could argue that, if potential female entrepreneurs anticipate a high failure rate, it is less likely that they will choose to start their own business. Nichter and Goldmark (2009) offer a recent review of what is known about MSEs in developing countries. In particular, their study identifies four factors that explain small firm growth: individual entrepreneur characteristics, firm characteristics, relational factors including social networks or value chains, and contextual factors such as the business environment.

One of the regions that has received more attention in the study of gender and entrepreneurship is Africa, perhaps because the entrepreneurship rate of women in this region is very high.[20] McPherson (1996) analyze data on small firms in southern African countries (Swaziland, Zimbabwe, Lesotho, Botswana and South Africa) and find that the proprietor gender, among other variables, is an important determinant of firm growth.

Aterido and Hallward-Driemeier (2009) study several countries in sub-Saharan Africa (Ghana, Mali, Mozambique, Senegal, and Zambia) and find that women benefit as much as men from education and management skills. A novel finding of their study is that family background is relevant in explaining success in entrepreneurship, although results differ significantly by gender. In particular, sons rather than daughters benefit from having a father who was an entrepreneur or from joining a family enterprise. Hallward-Driemeier (2011b) analyzes household and enterprise data from 41 countries in sub-Saharan Africa, and formulates policy recommendations to increase the efficiency of female-led firms. Her study shows that most women in this region are self-employed rather than employers.[21] Moreover, their firms are smaller, more informal, and have lower value-added than the corresponding ones for men. Finally, in a recent study, Brixiová and Kangoye (2015) use data from a survey of entrepreneurs in Swaziland to study the relationship between entrepreneurial productivity, start-up capital, and managerial skills. Their results show that women entrepreneurs have smaller start-up capital and are less likely to fund it from the formal sector than their male counterparts. Interestingly, they also find that business training is positively associated with sales performance of male entrepreneurs but has no effect on women.

A few other papers have analyzed gender gaps in entrepreneurship in countries outside Africa. For example, Costa and Rijkers (2011) study female entrepreneurship in the non-agricultural rural

areas of Ethiopia, but they also include an analysis of Bangladesh, Indonesia and Sri Lanka. The authors show that in these countries women are less likely than men to become non-farm entrepreneurs, with the exception of Ethiopia. Women's non-farm entrepreneurship is especially prevalent among women who are the head of their household. Consistent with other studies, they find that female-led firms are much smaller and less productive on average, though gender differences in productivity vary dramatically across countries. While Indonesia displays very small productivity gaps, mean differences in log output per worker reveal that male firms are roughly 10 times as productive as female firms in Bangladesh, three times in Ethiopia and twice in Sri Lanka. According to the authors, the main determinant of these gender differences in efficiency is sorting by sector and size. Khalife and Chalouhi (2013) use data from a small sample of Lebanese firms and find that female-led firms generate lower gross revenues than do their male-led counterparts. This difference, the authors argue, can be explained by factors related to the owner's level of education, the firm's age and size and, to some extent, the owner's business experience.

To our knowledge, there are very few studies that focus on female entrepreneurship in transition economies. One exception is Aidis, Welter, Smallbone, and Isakova (2007) who compare the experiences of Lithuania and Ukraine. The authors show that, while women entrepreneurs in these two countries share many common features and problems, there are important differences between them. Therefore, a word of caution is in order when designing policies to tackle the situation of female entrepreneurs, since they are likely to reflect different inheritances from their Soviet past, as well as differences in the pace of change during their transition to market economies.[22]

4 | MICROECONOMIC DATA

We use data from the EVS, which contains longitudinal information on individuals for the period 1981–2008 in 47 countries/regions in four waves. From results not shown here, we conclude that, for our purposes, exploiting the panel dimension of the data does not offer many useful insights.[23] Therefore, in all the sections that follow, we restrict ourselves to using the cross-section of the fourth wave, EVS 2008, for the 40 countries discussed in Section 3.

The EVS is one of the most comprehensive research projects on human values in Europe. It is a large-scale, cross-national and longitudinal survey research program on how individuals think about family, work, religion, politics, and society. Repeated every 9 years in an increasing number of countries, the survey provides insights into the ideas, beliefs, preferences, attitudes, values, and opinions of citizens all over Europe. The 2008 cross-section has data for 47 countries, with all of them, except Turkey, located in Europe. Of these countries, we only include those analyzed in Table A1. In order to establish a more meaningful comparison between our aggregate analysis and the microeconomic one, we omit Kosovo and Moldova, for which we do not have aggregate data on all the entrepreneurship categories. We drop Great Britain because the ILO only provides data for the United Kingdom. Turkey is not included because it is neither a high-income country nor an ex-Communist one. Finally, we omit Northern Ireland and Northern Cyprus since they do not have the status of a country.[24]

In order to adjust for characteristics such as gender and age in the sample and make it representative of the entire population distribution, the EVS provides post-stratification weights.[25] Table A2 shows the number of observations for each country before and after applying these weights. In all our analysis, we follow the recommendation of the EVS and use the weighted data.

Our main variable of interest is entrepreneurship and the two categories of employers and self-employed. Therefore, we create a dummy variable that equals 1 if a person is an entrepreneur, and

TABLE 2 Entrepreneurship by gender

	Men	Women	*p*-value
Fraction of entrepreneurs	0.145 (0.352)	0.078 (0.268)	0.000
Fraction of employers	0.081 (0.113)	0.04 (0.195)	0.000
Fraction of self-employed	0.113 (0.316)	0.084 (0.277)	0.000

Data source: EVS. Standard deviations in parentheses.

0 if he/she is an employee. Similarly, our employer dummy equals 1 if a person is an entrepreneur who employs at least one employee, and 0 if the person is an employee. Finally, self-employment is measured with a dummy variable that equals 1 if a person is an entrepreneur who is the sole proprietor of his/her business with no other employees, and 0 if the person is an employee. We use employees as the reference group since we are interested in identifying the determinants of entrepreneurship as an occupation choice relative to wage employment, conditional on being in the labor market.

In our sample, 53% of the individuals are women. Table 2 tabulates the occupational dummies defined above for men and women. The incidence of men in entrepreneurship (14%) is much larger than that of women (8%). For employers the figures are 8% for men and 4% for women, and for self-employed the corresponding figures are 11% for men and 8% for women. This shows an important result from our paper: in all entrepreneurship categories, women are underrepresented and the role of gender is statistically significant, as shown by the *p*-values of the corresponding *t*-tests in the last column.

Table A3 shows these fractions in each of our 40 countries. It is apparent that differences in the ratios of male and female entrepreneurs vary substantially among the 40 countries in the sample, although they are not always statistically significant. This difference is as low as 2 percentage points in Germany and the Russian Federation, but it reaches 15 percentage points in Italy. For employership, the difference between men and women participation ranges between 2 percentage points in countries such as Belarus, Finland, Hungary, Latvia, Luxembourg, or Ukraine to 17 percentage points in Greece. For self-employed individuals the difference is smallest in Lithuania (1 percentage point) and largest in Ireland (8 percentage points).

Apart from the gender dummy, in our regressions we control for several variables at the individual level: age, educational attainment, marital status, number of children, family background, social capital, and unemployment. Table 3 lists each of these variables and the proxy we use to measure them.[26]

Table 4 shows descriptive statistics for all our control variables for the pooled data (columns 1 and 2), for men (columns 3 and 4), and for women (columns 5 and 6). Column 7 displays the *p*-value of the two-sided *t*-test of the gender difference for each variable. In our sample the probability that an individual is an entrepreneur is 11%, whereas the probabilities that he/she is an employer or self-employed are 6% and 10%, respectively.[27] The breakdown of these figures by gender was already discussed above (Table 2), so we comment here on the remaining variables. While overall 54% of the sample are married, this proportion is higher at 56% in the subsample of men and lower in the subsample of women at 52%. The average age of women in the sample is slightly higher than that of men by approximately 2 years. While men and women have similar education attainment at the university level, a higher proportion of men complete secondary and especially vocational education, and women have higher elementary completion rates. The female subsample has a 10% higher proportion of individuals with children. A higher proportion of

TABLE 3 Variables Used in the Model and Their Proxies

Variable	Proxy
Marital status	Dummy variable that equals 1 if married, and 0 otherwise.
Age	Variable that measures the age of respondents.
Education	Dummy variables for completion of different levels of education (university, secondary, elementary, and vocational).[a]
Number of children	Variable that captures how many children the respondent has (deceased children not included).
Financial resources and household wealth	Three dummy variables that indicate whether a household income level is low, medium, or high.[b]
Intergenerational entrepreneurship	Dummy variable that equals 1 if father and/or mother were entrepreneurs when respondent was 14 years of age, and 0 if they worked as employees.
Partner entrepreneur	Dummy variable that equals 1 if partner is an entrepreneur, and 0 if partner is an employee.
Values toward women	Respondents are asked whether they agree/disagree with the statement "if jobs are scarce, men should have more right to a job than women." Dummy variable equals 1 if respondent agrees and 0 if he/she disagrees.
Social capital	Dummy variables for: • trust in other individuals (= 1 if respondent says most people can be trusted, and = 0 if respondent says one cannot be too careful); • belonging to a professional association (= 1 if belongs, = 0 otherwise).
Unemployment	Dummy variable for whether the respondent has experienced any period of unemployment for longer than 3 months during the last 5 years (= 1 if yes, = 0 if no).

[a]Vocational education refers to educational programs where students learn specific trades.

[b]In order to alleviate potential endogeneity issues, some papers use capital gains from housing and inheritances to measure household wealth. Unfortunately, the EVS does not include information on these variables.

women are concentrated in low-income households (38% compared to 30% for men). Conversely, there are a higher proportion of men in high-income households than women (33% versus 27%) as well as in middle-income households (37% vs. 34%). The fraction of men with parents who are entrepreneurs is only slightly higher than for women, but the fraction of women with an entrepreneur partner is about 8 percentage points higher (15%) than the fraction of men with a partner who is an entrepreneur (7%).[28] Men tend to significantly agree more than women with the statement "if jobs are scarce, men should have more right to a job than women." On the other hand, men show more trust in people and a larger number of them belong to a professional association. Finally, men have a slightly lower probability of being unemployed.

5 | METHODOLOGY

In this section, we examine some microeconomic correlates of entrepreneurship with a focus on factors that differentially affect men and women's choices. Our empirical strategy is to estimate the probability that an individual works as an entrepreneur (and also an employer or self-employed) as a function of several individual characteristics. More specifically, we estimate three different probit regressions of the following form:[29]

TABLE 4 Descriptive Statistics

	Full sample		Male		Female		Gender difference
Variables	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	***p*-values**
Entrepreneur	0.115	0.319	0.145	0.352	0.078	0.268	0.0000
Employer	0.062	0.242	0.081	0.273	0.040	0.195	0.0000
Self-employed	0.099	0.299	0.113	0.316	0.084	0.277	0.0000
Female	0.519	0.499					
Married	0.540	0.498	0.564	0.496	0.517	0.499	0.0000
Age	45.70	17.74	44.45	17.11	46.85	18.23	0.0000
University	0.172	0.377	0.174	0.379	0.171	0.376	0.7891
Secondary	0.477	0.499	0.472	0.499	0.481	0.499	0.0000
Vocational	0.180	0.384	0.206	0.405	0.155	0.362	0.0000
Elementary	0.172	0.377	0.149	0.356	0.194	0.395	0.0000
Children	0.698	0.459	0.647	0.478	0.745	0.436	0.0000
Low household wealth	0.342	0.474	0.296	0.457	0.384	0.486	0.0000
Medium household wealth	0.358	0.479	0.371	0.483	0.345	0.475	0.0000
High household wealth	0.301	0.459	0.333	0.471	0.271	0.444	0.0000
Parents entrepreneur	0.182	0.385	0.183	0.387	0.180	0.384	0.0003
Partner entrepreneur	0.115	0.319	0.073	0.261	0.146	0.353	0.000
Values toward women	0.258	0.438	0.293	0.455	0.227	0.419	0.0000
Trust in people	0.303	0.460	0.308	0.462	0.298	0.458	0.0001
Association	0.049	0.215	0.059	0.235	0.039	0.195	0.0000
Unemployment	0.261	0.439	0.256	0.436	0.266	0.442	0.0023

Data source: EVS.

$$p_{ij} = \alpha + \gamma_j + \beta' X_{ij} + \varepsilon_{ij}, \tag{1}$$

where p_{ij} is the probability that individual i in country j is an entrepreneur, an employer, or self-employed, depending on the regression. The vector X_{ij} contains the set of explanatory variables discussed above that may correlate with this probability, γ_j is a country fixed effect, and finally, ε_{ij} is a standard error term clustered at the country level, which is assumed to follow a normal distribution. Our key variable of interest included in vector X is *female*, a dummy variable that takes the value 1 if the individual is a woman and 0 if a man.

When we estimate (1) using the entire sample of observations, the coefficient on gender tells us whether women are more or less likely to become entrepreneurs than men. However, this model does not allow us to test how each of the variables in X affects the likelihood of becoming an entrepreneur differently for men and women. One way to address this would be to interact each of these regressors with our gender dummy, hence using the entire dataset in the estimation. Given that the number of observations in our regressions is very large, we prefer to split the sample for men and women and estimate (1) for each subsample. The advantage of this model over a model with all the interactions with the dummy variable *female* is that it is much easier to interpret.

TABLE 5 Gender Gaps in Entrepreneurship

	Entrepreneurs	Employers	Self-Employed
Full sample	–0.0518***	–0.0402***	–0.0213***
	(0.00975)	(0.00659)	(0.00810)
Ex-Communist countries	–0.0361***	–0.0261**	–0.00714
	(0.0118)	(0.0107)	(0.00962)
High-income countries	–0.0488**	–0.0382***	–0.0233
	(0.0183)	(0.0115)	(0.0150)

Data source: EVS. Clustered standard errors in parenthesis. The coefficient reported is the marginal effect of the variable female estimated using the probit regression (1) and includes the full set of controls.

6 | EMPIRICAL RESULTS

We first pool the data for all the countries in our sample and estimate (1). The results of Table 5 show that, consistent with the aggregate results of Section 2, there exist significant gender gaps in all categories of entrepreneurship in the whole sample and in the groups of ex-Communist countries and high-income countries. The table also shows that these gaps are larger in high-income countries, although in self-employment they turn out to be insignificant when we use data for each group separately. One explanation for the existence of these gender gaps is that female-led firms have lower survival rates than male-led firms, although the literature generally does not find much evidence in support of this (Minniti & Naudé, 2010). Another possible explanation can be that fewer women select into entrepreneurship. And, naturally, the existence of barriers against women in entrepreneurship may also explain these gaps. In the remainder of the paper we proceed to uncover some of the determinants of these gaps.

To do so we estimate (1) for the sample of ex-Communist countries and compare the results with those of high-income countries. The results are shown in Tables 6 and 7, respectively.

To facilitate the discussion of each regressor, we proceed to analyze the results for ex-Communist countries (Table 6) and for high-income ones (Table 7) separately. It is important to note that these estimates do not represent causal effects since the regressors are in most cases clearly endogenous. Nevertheless, we believe they highlight important differences in determinants of the gender gap in countries with very different institutional environments.[30]

For the sample of ex-Communist countries, the effect of university-level education (and in some cases secondary and vocational education too) on the likelihood of being an entrepreneur, an employer, or self-employed is significant, although negative in some cases. Human capital acquired through education appears to be important for women to be employers, but not for men. This is somewhat consistent with McPherson (1996), who finds evidence that the human capital of firms' proprietors has a positive effect on firm growth in five southern African countries, as they are able to better respond to changing business conditions. He finds that the effect of secondary schooling on firm growth ranges from 0.067 to 0.095, which is similar in magnitude to our estimates. Having children increases the incidence of self-employment in women, perhaps because in these countries self-employment jobs tend to be very informal and offer a great degree of flexibility.

The positive role of parental entrepreneurship is only limited to women for becoming an entrepreneur and self-employed. Having a partner who is an entrepreneur has the largest magnitude of influence on the likelihood of selecting into entrepreneurship in our model and it affects men and women similarly.[31] This is consistent with a review by Minniti and Naudé (2010) on female

TABLE 6 Marginal Effects of Ex-Communist Countries by Gender

	Entrepreneur		Employer		Self-Employed	
VARIABLES	**M**	**F**	**M**	**F**	**M**	**F**
Married	−0.0315	−0.000212	−0.0257	0.00137	−0.0217	−0.00130
	(0.0316)	(0.0217)	(0.0311)	(0.0183)	(0.0178)	(0.0210)
Age	0.00190*	−0.000604	0.000184	−0.000200	0.00259***	−8.49e-05
	(0.00108)	(0.000495)	(0.000786)	(0.000500)	(0.000793)	(0.000491)
University	−0.0543	−0.0603*	0.0280	0.0980**	−0.0834**	−0.0617*
	(0.0545)	(0.0315)	(0.0445)	(0.0381)	(0.0336)	(0.0319)
Secondary	−0.0374	−0.0333	0.0449	0.0858***	−0.0962	−0.0220
	(0.0671)	(0.0371)	(0.0402)	(0.0250)	(0.0620)	(0.0413)
Vocational	−0.0372	−0.0278	0.00412	0.0997*	−0.0544	−0.0265
	(0.0629)	(0.0275)	(0.0459)	(0.0580)	(0.0455)	(0.0288)
Children	−0.00233	0.0184	0.0280*	0.00620	−0.0456*	0.0298**
	(0.0303)	(0.0129)	(0.0152)	(0.0126)	(0.0266)	(0.0131)
Medium household wealth	−0.0464*	−0.0381*	−0.0288	−0.0156	−0.0176	−0.0336**
	(0.0281)	(0.0223)	(0.0240)	(0.0225)	(0.0236)	(0.0145)
High household wealth	−0.0209	−0.0154	0.0250	0.00186	−0.0428*	−0.0206
	(0.0329)	(0.0248)	(0.0309)	(0.0239)	(0.0221)	(0.0135)
Parents entrepreneur	0.0734	0.0933**	0.0380	0.0419	0.0160	0.118**
	(0.0714)	(0.0466)	(0.0427)	(0.0286)	(0.0500)	(0.0545)
Partner entrepreneur	0.399***	0.312***	0.197***	0.137***	0.272***	0.264***
	(0.0487)	(0.0222)	(0.0473)	(0.0247)	(0.0509)	(0.0298)
Values toward women	0.0123	0.0103	−0.00108	−0.00459	0.000127	0.0175
	(0.0146)	(0.0164)	(0.0137)	(0.0115)	(0.0139)	(0.0164)

(Continues)

TABLE 6 (Continued)

	Entrepreneur		Employer		Self-Employed	
VARIABLES	**M**	**F**	**M**	**F**	**M**	**F**
Trust in people	0.0442*	0.0145	0.0287*	0.0158	0.0135	−0.00351
	(0.0240)	(0.0189)	(0.0159)	(0.0140)	(0.0176)	(0.0160)
Association	−0.0286	−0.0139	0.00632	0.0126	−0.0569***	−0.0206
	(0.0309)	(0.0312)	(0.0319)	(0.0276)	(0.0120)	(0.0343)
Unemployment	0.0321	0.000410	0.0366	−0.0113	0.0147	0.0309*
	(0.0316)	(0.0178)	(0.0256)	(0.0107)	(0.0196)	(0.0185)
Pseudo *R*-squared	0.1798	0.2957	0.1724	0.2450	0.2120	0.3494
Log-likelihood	−437	−281	−275	−139	−247	−190
Observations	1,249	1,607	1,140	1,234	1,096	1,391
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Data source: EVS. Standard errors in parentheses are clustered at the country level. Significance level *** $p<0.01$, ** $p<0.05$, * $p<0.10$.

TABLE 7 Marginal Effects of High-Income Countries by Gender

	Entrepreneur		Employer		Self Employed	
VARIABLES	**M**	**F**	**M**	**F**	**M**	**F**
Married	−0.0324	−0.00679	0.000252	−0.0286	−0.0383	0.0295
	(0.0210)	(0.0178)	(0.0210)	(0.0189)	(0.0262)	(0.0180)
Age	0.000703	0.00130	0.00195***	0.000525	0.00102*	0.00118
	(0.000758)	(0.000871)	(0.000662)	(0.000525)	(0.000583)	(0.000885)
University	−0.0261	0.0178	−0.00326	−0.0251	−0.0427	0.0161
	(0.0737)	(0.0468)	(0.0534)	(0.0205)	(0.0342)	(0.0367)
Secondary	0.0222	0.0364	0.0190	0.00793	0.00486	−0.00191
	(0.0617)	(0.0424)	(0.0486)	(0.0238)	(0.0278)	(0.0298)
Vocational	−0.0221	0.0585	−0.0172	−0.0141	−0.0211	0.0558
	(0.0534)	(0.0609)	(0.0411)	(0.0215)	(0.0244)	(0.0500)
Children	0.0439**	0.0194	0.0404**	0.0255*	0.00551	−0.00279
	(0.0193)	(0.0263)	(0.0171)	(0.0145)	(0.0149)	(0.0214)
Medium household wealth	−0.120***	−0.0430	−0.0727***	0.00454	−0.0983***	−0.0425
	(0.0380)	(0.0310)	(0.0191)	(0.0171)	(0.0305)	(0.0307)
High household wealth	−0.153***	−0.0223	−0.0928***	0.0260	−0.157***	−0.0470
	(0.0474)	(0.0332)	(0.0286)	(0.0187)	(0.0433)	(0.0327)
Parents entrepreneur	0.0590***	0.0132	0.0330**	0.0179	0.0325	0.0282
	(0.0202)	(0.0165)	(0.0141)	(0.0142)	(0.0216)	(0.0174)
Partner entrepreneur	0.283***	0.262***	0.166***	0.126***	0.215***	0.208***
	(0.0496)	(0.0436)	(0.0588)	(0.0363)	(0.0524)	(0.0338)
Values toward women	0.0136	−0.0267**	0.0215	−0.0231**	0.00772	−0.00761
	(0.0326)	(0.0123)	(0.0252)	(0.0106)	(0.0229)	(0.0188)

(Continues)

TABLE 7 (Continued)

	Entrepreneur		Employer		Self Employed	
VARIABLES	**M**	**F**	**M**	**F**	**M**	**F**
Trust in people	0.0165	−0.00757	0.0283	−0.0128	0.000771	0.00240
	(0.0200)	(0.0257)	(0.0219)	(0.00943)	(0.0181)	(0.0253)
Association	0.0320	0.0457	0.0256	0.0232	0.0198	0.0323
	(0.0280)	(0.0390)	(0.0247)	(0.0264)	(0.0161)	(0.0358)
Unemployment	−0.0749**	0.00675	−0.0472**	−0.00642	−0.0389	0.0219
	(0.0297)	(0.0255)	(0.0212)	(0.0157)	(0.0253)	(0.0208)
Pseudo *R*-squared	0.1954	0.1763	0.2053	0.1856	0.2190	0.1874
Log-likelihood	−400	−307	−237	−133	−278	−248
Observations	1,192	1,199	1,032	1,027	1,140	1,116
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Data source: EVS. Standard errors in parentheses are clustered at the country level. Significance level *** $p<0.01$, ** $p<0.05$, * $p<0.10$.

entrepreneurship that finds that social networks can be particularly important in weak institutional environments and that women are more likely to rely on extended families for business networks. Older men are much more likely to become self-employed, and belonging to professional associations makes them less likely to choose this occupation. Another surprising result is that an individual's wealth tends to have a negative (albeit weak) effect on some categories of entrepreneurship.

For high-income countries, men's age is positively associated with the likelihood of becoming an employer or self-employed. The number of children is positively associated with entrepreneurship in the case of men and with employership for both men and women. As was the case in ex-Communist countries, the relationship of the wealth dummies is always negative, although in this case it affects only men. Having parents that were entrepreneurs strongly increases the likelihood of being an entrepreneur or an employer in the case of men, and having a partner that is also an entrepreneur has a positive effect for both men and women in all categories. Women values reduce the likelihood of women being entrepreneurs or employers. Finally, unemployment reduces the chances of men becoming entrepreneurs or employers.

Comparing Tables 6 and 7, we highlight several important differences between ex-Communist and high-income countries. First, educational attainment is no longer a significant determinant for any entrepreneurial activity for either men or women in high-income countries. Second, the benefits of parental entrepreneurship only accrue to men in high-income countries, whereas in ex-Communist countries it is mostly women who are influenced by their parent's occupation. Lastly, a greater proportion of respondents in ex-Communist countries agreed with the statement "if jobs are scarce, men have more right to work than women." However, this variable only affects high-income countries, where it has a strong negative effect on the probability of women selecting into entrepreneurship, especially into employership.

7 | CONCLUSIONS

In this paper we use aggregate data and microeconomic data to explore the determinants of gender gaps in entrepreneurship in a large sample of countries, most of them in Europe. We find that these gaps are sizable and vary significantly over countries, but not much over time during the period 2000–2017. Using microeconomic data from the EVS, we also find strong evidence of these gaps. Controlling for individual characteristics matters, but the gaps persist even after doing so. Our results highlight some interesting differences between ex-Communist countries and high-income countries, which probably reflect the legacy of very different institutions in the two groups of countries.

Our results show that the strongest correlate of selecting into entrepreneurship as an occupation choice for women are social networks. We find that personal networks derived through parental and partner's entrepreneurial activity are positively correlated with selecting into entrepreneurship, but not involvement in professional associations. It would be important for future work to shed light on how gender gaps are impacted through intergenerational and spousal entrepreneurship in countries with different levels of income and institutional environment.

Our results are informative in that they offer plausible correlates of the determinants of entrepreneurship, employership and self-employment. However, in order to formulate policies that reduce gender gaps in these occupations, we believe that more work needs to be done on finding causal relationships and separating supply and demand determinants of entrepreneurship. In particular, it is important to notice that, without more nuanced estimates, our results cannot definitively identify the existence of discrimination against women.

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ENDNOTES

[1] All the non-Communist countries in our sample have high incomes using the World Bank Classification. A few ex-Communist are also high-income but we still put them in the group of ex-Communist countries because we think the legacy of their institutions matters more for our question than their income per capita. We give more details on this way of grouping countries below.

[2] Normalizing by the labor force participation of men and female is a standard practice in the literature; see, for example, Cuberes and Teignier (2016).

[3] The countries are Albania, Armenia, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, and Ukraine.

[4] Northern Ireland and Northern Cyprus are included in the EVS, but we omit them here since they are not countries.

[5] These include: Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic Estonia, Georgia, Hungary, Latvia, Lithuania, Macedonia, Montenegro, Poland, Romania, Russian Federation, Serbia, Slovakia, Slovenia, and Ukraine.

[6] http://www.worldvaluessurvey.org/wvs.jsp

[7] See Cuberes and Teignier (2014) for a recent review of this literature.

[8] The World Bank classifies countries as high-income if they had a gross national income per capita of $12,236 or more in 2008. The high-income countries in our sample are then Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland. We exclude from this group eight countries that are rich but are also ex-Communist: Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Slovakia, and Slovenia. We choose to exclude these countries from the rich group to make the comparison between rich and ex-Communist countries cleaner. None of our results are fundamentally affected by this choice. Also note that, as a result of this criterion, Turkey is excluded from the analysis since it is the only non-high-income country that is not ex-Communist.

[9] This difference is statistically significant at the 1% level. Gender gaps in self-employment are also larger in rich countries than in ex-Communist ones, although the difference is only significant at the 5% level.

[10] While some of the countries in our sample of ex-Communist countries relatively rich, almost all of them are substantially poorer than the average country we consider here and so this explanation may have some merit.

[11] We choose 2014 since it is the most recent year with data on all the countries from the EVS dataset and on GDP per capita from the Penn World Table.

[12] Note that the maxima and minima are different than those of Table 1 because in the latter table we pooled the data across all countries and years.

[13] Consistent with this result, Cuberes and Teignier (2016) use a much larger sample of countries and find that there is no clear correlation between per capita GDP and gender gaps in entrepreneurship.

[14] Acs and Virgill (2010) review some relevant papers on this topic.

[15] See Sutton and Kellow (2010), Sutton and Kpentey (2012), Sutton and Olomi (2012), Sutton and Langmead (2013), and Sutton (2014).

[16] Minniti (2009) provides an alternative review of this literature drawing on the point of view of economics, sociology and anthropology.

[17] The report also provides some data on the presence of women in the boardroom, although this refers to developed countries in most cases. The share of female directors is highest in Norway (40%) and Sweden (21%). The lowest figures (less than 2%) are of Bahrain, Japan, Jordan, the Republic of Korea, Qatar, Saudi Arabia, and

the United Arab Emirates. These percentages are higher if one considers the fraction of companies with at least one female director. Flabbi, Piras, and Abrahams (2017) provide figures for Latin America and the Caribbean and show that women are as underrepresented in Latin America as in the United States, but much less so in the Caribbean.

[18] Allen, Elam, Langowitz, and Dean (2008) also document that women in developing countries are more likely to be "necessity" entrepreneurs, that is, they choose entrepreneurship as their last option, although their importance tends to decline with economic development. Poschke (2013) defines the concept of "out-of-necessity" entrepreneurs and estimates their importance in a large sample of countries. Cuberes and Teignier (2016) calibrate an occupational model that allows for the existence of these type of entrepreneurs.

[19] See Bardasi, Blackden, and Guzman (2007) for a more detailed review of studies carried out in Africa.

[20] Cuberes and Teignier (2016) show that gender gaps in entrepreneurship and their associated loss of income per capita are much lower in sub-Saharan Africa than in most other world regions.

[21] This is consistent with the findings of Cuberes and Teignier (2016) who show that in sub-Saharan countries, the average gender gap in employers is similar to the overall average around the world, while the average gender gap in self-employed is indeed negative (–7%).

[22] All the papers discussed in this section are based on cross-country analyses. De Mel, McKenzie, and Woodruff (2009) instead draw evidence from a field experiment in Sri Lanka providing random grants to microenterprise owners. Their results show that grants generate large profit increases for male owners but not for female owners. The paper discusses related studies using similar experiments.

[23] These results are available from the authors upon request.

[24] Azerbaijan was surveyed but not included in the current version of the EVS 2008 due to concerns about the data quality.

[25] More details on these weights can be found at https://dbk.gesis.org/dbksearch/sdesc2.asp?no=4800&db=e&doi=10.4232/1.12458.

[26] One variable that would be useful to control for is the individual's level of managerial skills, which are not necessarily related to the individual's educational attainment. However, we are not aware of any comprehensive dataset that measures this for a sufficiently large number of countries.

[27] Note that the sum of the probability of becoming an employer and that of becoming a self-employed is not equal to the probability of becoming an entrepreneur. This is the due to the fact that we define our dummy variables using workers as the reference category.

[28] One potential explanation for this could be the higher incidence of entrepreneurship among men than among women.

[29] Estimating a logit model gives us qualitatively similar results.

[30] Given the large number of coefficients, we mostly comment on those that are significant at the 5% or 1% level.

[31] The effect of having a partner who is an entrepreneur has a larger magnitude of effect on women selecting into entrepreneurship relative to wage employment in ex-Communist countries when high-income countries are excluded from the ex-Communist countries sample. All the other findings remain the same.

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APPENDIX

TABLE A1 Average Gender Gaps by Country Using Aggregate Data from the ILO

Country	Gender gaps in employers	Gender gaps in self-employment
Albania	76.3	43.8
Armenia	79.9	–6.7
Austria	60.4	16.3
Belarus	49.4	31.6
Belgium	62.8	37.6
Bosnia and Herzegovina	33.2	25.1
Bulgaria	57.9	36.3
Croatia	55.0	22.7
Cyprus	80.6	44.8
Czech Republic	61.5	44.4
Denmark	70.6	52.8
Estonia	66.1	42.5
Finland	64.5	41.9
France	65.4	42.9
Georgia	59.9	39.7
Germany	62.2	32.6
Greece	58.3	31.8
Hungary	54.8	34.9
Iceland	65.9	50.0
Ireland	68.4	73.5
Italy	53.9	36.4
Latvia	54.2	23.8
Lithuania	59.7	32.6
Luxembourg	55.8	6.8
Macedonia	52.9	66.9
Malta	72.7	59.5
Montenegro	41.8	42.4
Netherlands	62.7	26.9
Norway	60.9	55.5
Poland	46.4	32.1
Portugal	57.7	11.8
Romania	56.8	48.2
Russian Federation	43.6	9.1
Serbia	50.1	53.4
Slovakia	56.5	54.4
Slovenia	59.7	52.3

(Continues)

TABLE A1 (Continued)

Country	Gender gaps in employers	Gender gaps in self-employment
Spain	50.9	35.3
Sweden	71.3	53.3
Switzerland	58.2	8.1
Ukraine	24.4	–14.5

Data source: ILO.

TABLE A2 Country Observations, Unweighted and Weighted

Country	Unweighted	Weighted
Albania	1534	1534.28
Armenia	1500	1477.26
Austria	1510	1510.27
Belarus	1500	1500.27
Belgium	1509	1507.27
Bosnia and Herzegovina	1512	1512.27
Bulgaria	1500	1500.27
Croatia	1525	1498.27
Cyprus	1000	999.18
Czech Republic	1821	1793.32
Denmark	1507	1507.27
Estonia	1518	1518.27
Finland	1134	1134.20
France	1501	1501.27
Georgia	1500	1498.27
Germany	2075	2038.65
Greece	1500	1498.27
Hungary	1513	1513.28
Iceland	808	808.15
Ireland	1013	982.18
Italy	1519	1519.27
Latvia	1506	1506.27
Lithuania	1500	1499.27
Luxembourg	1610	1609.29
Macedonia	1500	1493.27
Malta	1500	1497.27
Montenegro	1516	1516.27
Netherlands	1554	1552.28
Norway	1090	1090.20

(Continues)

TABLE A2 (Continued)

Country	Unweighted	Weighted
Poland	1510	1479.27
Portugal	1553	1553.28
Romania	1489	1489.27
Russian Federation	1504	1490.27
Serbia	1512	1512.27
Slovakia	1509	1509.27
Slovenia	1366	1366.25
Spain	1500	1497.27
Sweden	1187	1174.21
Switzerland	1272	1271.23
Ukraine	1507	1507.27

Data source: ILO.

TABLE A3 Entrepreneurship Gaps at the Country Level Using Microdata (Unconditional)

	Fraction of entrepreneurs			Fraction of employers			Fraction of self-employed		
Country	M	F	*p*-value	M	F	*p*-value	M	F	*p*-value
Albania	0.43 (0.02)	0.38 (0.03)	0.0470	0.20 (0.02)	0.10 (0.02)	0.0018	0.35 (0.02)	0.34 (0.03)	0.7383
Armenia	0.21 (0.02)	0.15 (0.02)	0.0519	0.09 (0.02)	0.09 (0.02)	0.8636	0.20 (0.02)	0.15 (0.02)	0.1368
Austria	0.14 (0.02)	0.09 (0.01)	0.0264	0.13 (0.02)	0.06 (0.01)	0.0015	0.10 (0.02)	0.09 (0.01)	0.7126
Belarus	0.07 (0.01)	0.04 (0.01)	0.0465	0.04 (0.01)	0.016 (0.01)	0.0164	0.05 (0.01)	0.03 (0.01)	0.2412
Belgium	0.08 (0.01)	0.06 (0.01)	0.2085	0.07 (0.01)	0.02 (0.01)	0.0048	0.09 (0.01)	0.12 (0.02)	0.0543
Bosnia and Herzegovina	0.09 (0.02)	0.07 (0.02)	0.3478	0.05 (0.01)	0.04 (0.01)	0.3754	0.06 (0.01)	0.05 (0.01)	0.7004
Bulgaria	0.13 (0.02)	0.07 (0.01)	0.0046	0.07 (0.01)	0.02 (0.01)	0.0041	0.08 (0.01)	0.06 (0.01)	0.2952
Croatia	0.08 (0.01)	0.03 (0.01)	0.0026	0.06 (0.01)	0.02 (0.01)	0.0026	0.05 (0.01)	0.02 (0.01)	0.0408
Cyprus	0.15 (0.02)	0.10 (0.02)	0.0502	0.15 (0.02)	0.07 (0.02)	0.0070	0.16 (0.02)	0.16 (0.02)	0.9387
Czech Republic	0.13 (0.02)	0.05 (0.01)	0.0000	0.05 (0.01)	0.01 (0.01)	0.0043	0.11 (0.01)	0.05 (0.01)	0.0039
Denmark	0.14 (0.02)	0.04 (0.01)	0.0000	0.11 (0.01)	0.03 (0.01)	0.0000	0.09 (0.01)	0.05 (0.01)	0.0060

(Continues)

TABLE A3 (Continued)

	Fraction of entrepreneurs			Fraction of employers			Fraction of self-employed		
Country	**M**	**F**	***p*-value**	**M**	**F**	***p*-value**	**M**	**F**	***p*-value**
Estonia	0.10 (0.01)	0.04 (0.01)	0.0001	0.08 (0.01)	0.02 (0.01)	0.0000	0.05 (0.01)	0.03 (0.01)	0.0622
Finland	0.12 (0.02)	0.07 (0.01)	0.0074	0.06 (0.01)	0.04 (0.01)	0.0974	0.11 (0.02)	0.06 (0.01)	0.0281
France	0.06 (0.01)	0.04 (0.01)	0.3517	0.07 (0.01)	0.04 (0.01)	0.0397	0.08 (0.01)	0.08 (0.01)	0.7559
Georgia	0.27 (0.03)	0.16 (0.02)	0.0037	0.18 (0.03)	0.07 (0.02)	0.0007	0.26 (0.03)	0.20 (0.03)	0.0636
Germany	0.08 (0.01)	0.06 (0.01)	0.0884	0.07 (0.01)	0.04 (0.01)	0.0323	0.06 (0.01)	0.05 (0.01)	0.4297
Greece	0.35 (0.02)	0.25 (0.02)	0.0027	0.24 (0.02)	0.07 (0.02)	0.0000	0.39 (0.02)	0.43 (0.02)	0.3140
Hungary	0.07 (0.01)	0.06 (0.01)	0.6108	0.04 (0.01)	0.02 (0.01)	0.05	0.06 (0.01)	0.06 (0.01)	0.5413
Iceland	0.19 (0.02)	0.10 (0.02)	0.0007	0.12 (0.02)	0.09 (0.02)	0.0910	0.14 (0.02)	0.07 (0.02)	0.0034
Ireland	0.15 (0.02)	0.05 (0.01)	0.0000	0.08 (0.02)	0.02 (0.01)	0.0018	0.12 (0.02)	0.04 (0.01)	0.0001
Italy	0.30 (0.02)	0.15 (0.02)	0.0000	0.21 (0.02)	0.10 (0.02)	0.0000	0.21 (0.02)	0.16 (0.02)	0.0485
Latvia	0.07 (0.01)	0.04 (0.01)	0.0590	0.04 (0.01)	0.02 (0.01)	0.0119	0.04 (0.01)	0.03 (0.01)	0.1983
Lithuania	0.12 (0.02)	0.04 (0.01)	0.0000	0.09 (0.01)	0.03 (0.01)	0.0001	0.04 (0.01)	0.03 (0.01)	0.0950
Luxembourg	0.05 (0.01)	0.05 (0.01)	0.6093	0.06 (0.01)	0.04 (0.01)	0.0911	0.03 (0.01)	0.07 (0.01)	0.0009
Macedonia	0.11 (0.02)	0.04 (0.01)	0.0013	0.06 (0.01)	0.03 (0.01)	0.0710	0.05 (0.01)	0.02 (0.01)	0.0825
Malta	0.10 (0.02)	0.06 (0.02)	0.0370	0.08 (0.02)	0.04 (0.01)	0.0348	0.10 (0.02)	0.13 (0.02)	0.3074
Montenegro	0.14 (0.02)	0.09 (0.02)	0.0170	0.06 (0.01)	0.05 (0.01)	0.6291	0.13 (0.02)	0.06 (0.01)	0.0014
Netherlands	0.15 (0.02)	0.10 (0.01)	0.0105	0.12 (0.02)	0.08 (0.01)	0.0170	0.12 (0.02)	0.13 (0.02)	0.6658
Norway	0.16 (0.02)	0.08 (0.01)	0.0008	0.09 (0.01)	0.04 (0.01)	0.0069	0.13 (0.02)	0.07 (0.01)	0.0036
Poland	0.15 (0.02)	0.07 (0.01)	0.0005	0.05 (0.01)	0.02 (0.01)	0.0118	0.03 (0.01)	0.02 (0.01)	0.2975
Portugal	0.07 (0.01)	0.05 (0.01)	0.3896	0.06 (0.01)	0.03 (0.01)	0.0403	0.12 (0.02)	0.18 (0.02)	0.0113

(Continues)

TABLE A3 (Continued)

	Fraction of entrepreneurs			Fraction of employers			Fraction of self-employed		
Country	**M**	**F**	***p*-value**	**M**	**F**	***p*-value**	**M**	**F**	***p*-value**
Romania	0.10 (0.02)	0.06 (0.01)	0.0320	0.03 (0.01)	0.03 (0.01)	0.9436	0.07 (0.01)	0.06 (0.01)	0.5337
Russian Federation	0.04 (0.01)	0.02 (0.01)	0.0467	0.04 (0.01)	0.02 (0.01)	0.2067	0.01 (0.004)	0.01 (0.005)	0.3515
Serbia	0.20 (0.02)	0.11 (0.02)	0.0009	0.10 (0.02)	0.05 (0.01)	0.0171	0.16 (0.02)	0.10 (0.02)	0.0085
Slovakia	0.13 (0.02)	0.07 (0.01)	0.0041	0.05 (0.01)	0.02 (0.01)	0.0091	0.10 (0.02)	0.05 (0.01)	0.0129
Slovenia	0.12 (0.02)	0.06 (0.01)	0.0022	0.09 (0.02)	0.04 (0.01)	0.0119	0.07 (0.01)	0.04 (0.01)	0.0500
Spain	0.15 (0.02)	0.11 (0.02)	0.0905	0.10 (0.02)	0.04 (0.01)	0.0011	0.13 (0.02)	0.14 (0.02)	0.4955
Sweden	0.15 (0.02)	0.05 (0.01)	0.0000	0.09 (0.01)	0.02 (0.01)	0.0000	0.08 (0.02)	0.04 (0.01)	0.0092
Switzerland	0.07 (0.01)	0.04 (0.01)	0.0336	0.05 (0.01)	0.04 (0.01)	0.3262	0.06 (0.01)	0.06 (0.01)	0.7995
Ukraine	0.14 (0.02)	0.07 (0.01)	0.0008	0.05 (0.01)	0.03 (0.01)	0.0675	0.12 (0.02)	0.08 (0.01)	0.0336

Data source: EVS. Standard errors in parentheses.

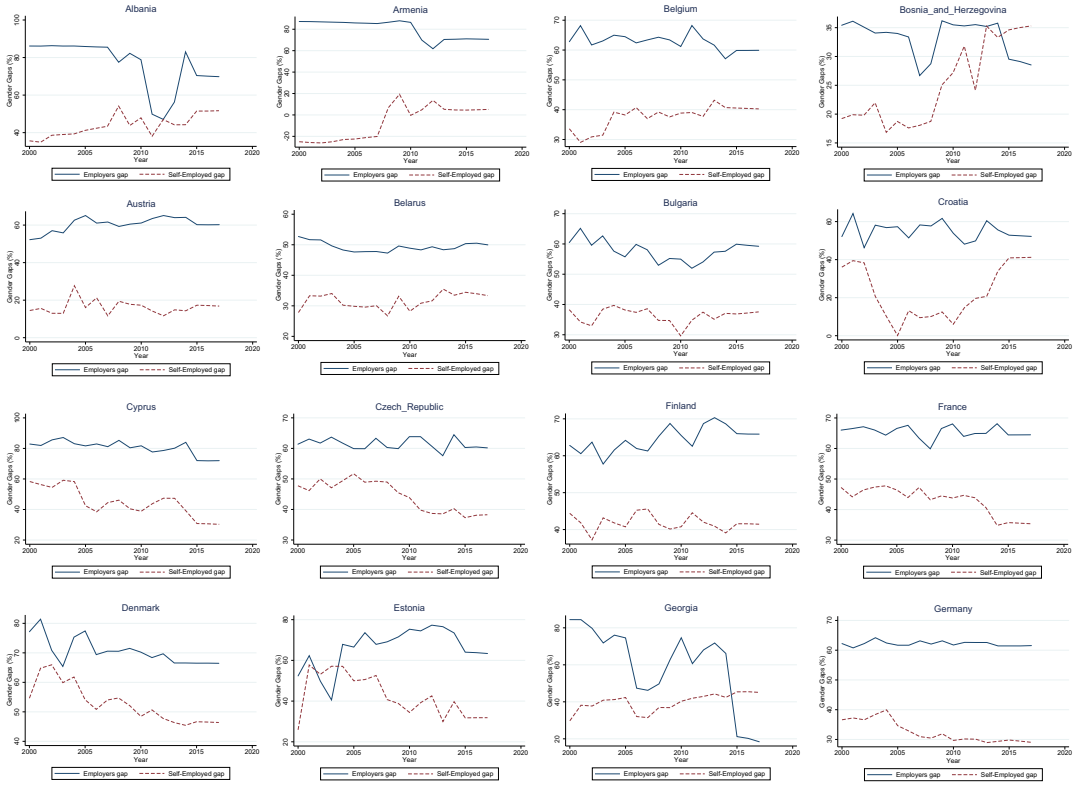

FIGURE A1 Evolution of Gender Gaps by Country [Color figure can be viewed at wileyonlinelibrary.com]

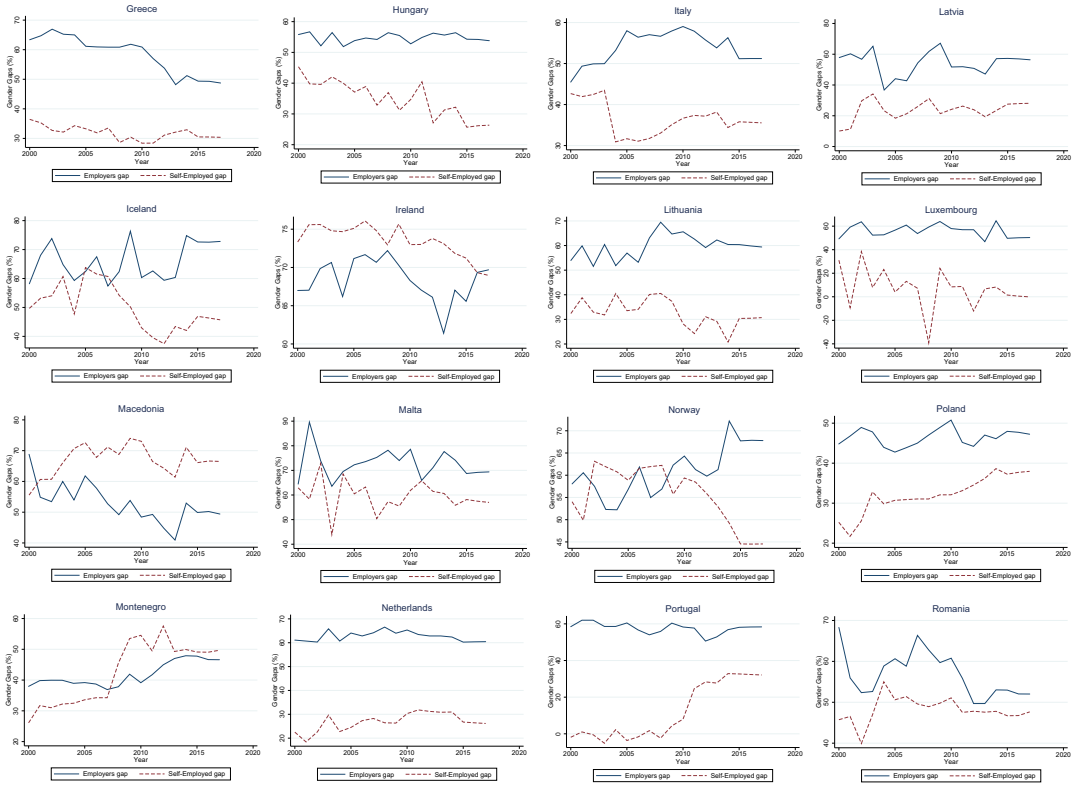

FIGURE A1 Continued

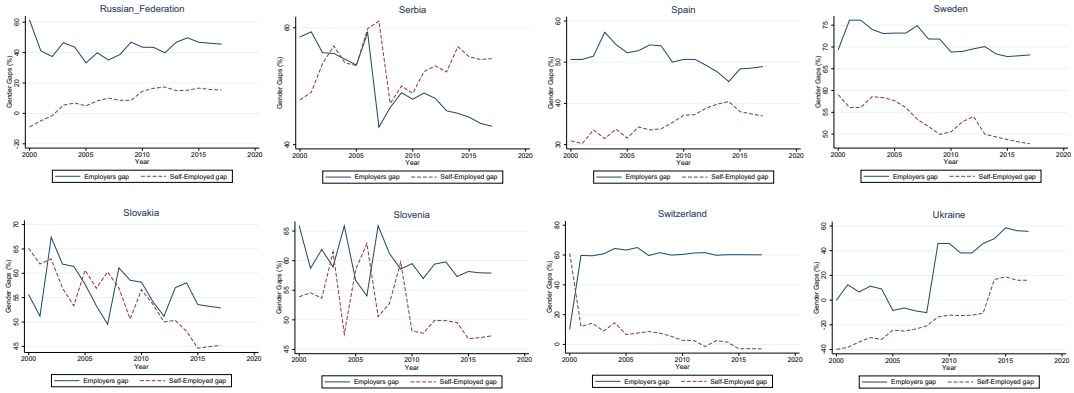

FIGURE A1 Continued