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Gender wage inequality and women's self-employment

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Abstract

Theoretical literature on entrepreneurship hints that labor market inequality may constitute a relevant push factor for self-employment. Drawing on empirical confirmation, this insight is used in many policy recommendations. We propose a new approach to test and quantify the link between labor market inequality and self-employment of women. We provide a novel and rich data set labor market inequality for women, utilizing estimates of gender wage gaps specific for age and education group, comparable for 36 countries over ten years. We exploit rich and diverse international data on patterns of self-employment from the Global Entrepreneurship Monitor. Our results show that greater gender wage inequality is associated with higher prevalence of self-employment for both men and women. Relative to men, women are actually discouraged from self-employment, which is consistent with the notion that discriminative labor markets are typically signs of discriminative societies. We show that actually necessity self-employment is more rare form of self-employment in unequal societies, which is consistent with explanations stressing access to resources, networks and markets as relevant dimensions of gender inequality.

Keywords:

female entrepreneurship, gender wage gap, GEM

JEL Classification

J16, L26, D12

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1. Introduction

Tentative evidence suggests that discrimination may foster entry into self-employment (see Hughes 2003, Llisterri et al. 2006, for the case of women and youth, respectively).[1] Indeed, Evans and Leighton (1989) highlight that disadvantaged workers are more likely to enter self-employment. Focusing particularly on women and relying on qualitative evidence, Hughes (2003) argues that erosion of safe jobs has pushed women into self-employment in Canada. In this paper, we shed new light on the link between gender wage inequality and women's entrepreneurship.

Gender imbalance in start-ups and nascent entrepreneurship has long been a matter of analysis and is well documented (e.g. Mueller 2004, Estrin and Mickiewicz 2011, Kenney and Patton 2015). Less is known about the mechanisms behind this empirical regularity. Although the link between inequality and a decision to enter into self-employment is plausible, its quantification poses methodological challenges. First, in most cases it is impossible to identify if a given worker has experienced discrimination, thus making it rather challenging to relate any labor market status to the prior employment experience. Some attempts have been made by Taniguchi (2002), who analyzed white, Hispanic and African-American young women in the US using a longitudinal survey. Assuming that some women are more discriminated against than others due to the compounding handicaps of gender and ethnicity, Taniguchi (2002) argues that facing discrimination is conducive to establishing an own firm. Second, measures of discrimination are rarely available – typically one relies on the raw differences in wages. These measures need not reveal discrimination in the labor market. For example, in many countries women have better educational attainment than men, so equal pay signifies actually unequal pay. To gauge the scale of unequal pay for equal work, one needs to obtain measures of gender wage gaps adjusted for differences in individual characteristics between men and women. Indeed, to obtain these indicators one needs micro-level and comparable estimation methods.

We contribute to the current literature in two ways. First, we theorize a framework for the link between labor market inequality and female entrepreneurship which at least partially overcomes the above conceptual limitations. We conjecture that the extent of gender inequality in the labor market is merely a manifest of the overall inequality. In unequal societies, women face barriers to start up new businesses – which do not need to be driven by the same mechanisms as labor market inequality. Whether or not discrimination constitutes a push factor, depends on whether it is a strong push factor, relative to constraints imposed by the society.

On the empirical side, we relate explicit, empirical indicators of gender inequality to the decisions concerning self-employment across genders in a large number of countries. Thus, we are able to provide comprehensive evidence concerning the relationship between labor market gaps and self-employment for women, relative to men. We find that, higher scope of unexplained gender wage inequality is associated with higher self-employment among both men and women. In fact, more gender inequality translates to relatively lower prevalence of self-employment among women, when compared to counterfactual indicators for women. Our counterfactuals provide indication of self-employment as if women were subjected to the same societal "rules" as men.

The paper is organized as follows. We first provide theoretical background and empirical

[1] A related although rather separated strand of research concerns the self-employment motivations of immigrant population (see Moore 1983, Waldinger et al. 1990, Fairlie and Meyer 1996, Clark and Drinkwater 1998, 2000, Light 2004, Kerr and Mandorff 2015).

evidence related to our study. Next, we discuss our data in section 3. We move to describing our empirical strategy in section 4. We present results in section 5. This section includes also a variety of sensitivity analyses. We conclude with policy implications of our study.

2. Theory and literature

Is discrimination a push factor for entrepreneurship? Theoretically, the issue is ambiguous. If discrimination stems from taste-based motivation engaging in self-employment is not a viable alternative. This is because in cases where the employers refuse to offer equal employment or wages to women because their clients regard this group of workers as inferior, these clients are going to consider the female entrepreneurs equally inferior and discount that in willingness to purchase goods or services.

Next, if discrimination stems from statistical averaging, some entrepreneurs will be more successful than the average, but in a population (sample) there is no reason to expect superior outcomes. In statistical discrimination, the employers discount in wages the fact that some workers may be less productive per nominal hour – e.g. women due to care giving activities. Statistical discrimination could only be a motivation to set up own business if one had some form of private information that could not be signaled effectively to potential employers (e.g. a woman knew she would have high productivity per nominal hour and could not credibly commit). Inability to signal high productivity may be relevant for obtaining employment, but once a relationship with an employer is established and experienced by both parties, the information is revealed already.[2]

It is only the third and final explanation for discrimination – a taste for discrimination against a type of workers that has no roots in the tastes of the clients – that has a straightforward implication: establishing own firm is likely to increase earned income. This explanation for discrimination is statistically rare in a sense that it is not common for a group to be disliked by co-workers but be treated equally by the society in general.

While the theoretical case is weak for discrimination as a push factor from the side of former, the theoretical literature on entrepreneurship is itself of two minds on the role of labor market barriers (e.g. low wages or lack of jobs) in determining the decision to start one's own business. Entrepreneurship theory provides at least two possible answers to the question why people decide to establish their own firm. The first one is an intrinsic motivation to create something new (e.g. Hellmann 2007, Estrin et al. 2013). The second one stems from the fact that entry into self-employment – unlike entry into wage employment – is less constrained, thus constitutes a viable alternative to unemployment (e.g. Earle and Sakova 2000, Hughes 2003, Llisterri et al. 2006, Thurik et al. 2008, Naudé 2011).

On the one hand, early research on this topic highlights that starting a new business has lower opportunity cost if one is not employed than a successful wage earner (Blau 1987, Evans and Jovanovic 1989, Blanchflower and Meyer 1994). Hence, employment barriers may act as a push

[2] Naturally, one could invoke the hold up argument, i.e. that the employer has no incentives to pay for actual productivity, because this experienced employer knows other employers will have the same high cost of acquiring the information and thus will not offer a higher wage. However, invoking this argument is closer to justifying taste- based discrimination with statistical discrimination in imperfect information setting, hence reducing the problem to the taste-based discrimination itself.

factor. On the other hand, starting a new business requires physical capital, lack of employment means that wealth cannot be accumulated (Johansson 2000, Hurst and Lusardi 2004). Wages lowered due to discrimination are detrimental to wealth accumulation, hence discrimination against women could reduce their self-employment.

The empirical results are also mixed. Typically, the identification of the push/pull factors is based on testing the correlation between labor market conditions (e.g. unemployment rate or GDP growth) and start-up intensity. In the case of early time-series analyses, studies find positive correlation between unemployment level and self- employment propensity (see Hamilton 1986, Schuetze 2000, Parker and Robson 2004). However, Robson (1998a) claims that most of the variation of self-employment rate can be explained away by factors unrelated to self-employment (such as region specificity). In a panel data setup (e.g. Blanchflower 2000, Parker and Robson 2004) and individual level data studies (e.g. Taylor 1996, Henley 2004, Millán et al. 2012) the relationship between self-employment rate and unemployment rate tends to be negative. Similarly mixed results are obtained for GDP and self-employment. Robson (1998b) finds positive correlation between these two measures, but Pietrobelli et al. (2004), Robson (2010) show negative correlation between start-up rate and growth of GDP. Offering some middle ground, Acs et al. (1994) present evidence for some U-shaped pattern in the relationship between self-employment rate and level of economic development, but these findings lack theoretical underpinnings. Naturally, the gender aspect is missing in this literature.

Meanwhile, the relevance of gender dimension in analyzing entrepreneurship was made paramount by a series of empirical studies. First, it is known that women are establishing different types of firms - with different structures and in different industry sectors than men (e.g. Coleman 2000, Orser et al. 2006, Allen et al. 2007, Verheul et al. 2006, Minniti and Naudé 2010). Moreover, female entrepreneurship seems to exhibit specificity in the context of both formal and informal institutions. This is a particularly important dimension, as it is claimed that contextualization (in terms of e.g. institutional environment) is crucial from the perspective of modern entrepreneurship research (Zahra et al. 2014). Estrin and Mickiewicz (2011) show that women react differently to institutional factors such as size of the state or informal financial sector in an economy.

Earlier research on gender labor market inequality and female entrepreneurship shows that the wage and employment gaps are potentially relevant for prevalence of starting up businesses among women. Kobeissi (2010) finds correlations between female entrepreneurship and gender specific measures of education attainment, gender empowerment, etc. However, these results are based on a correlation in a cross-section of data and do not adjust for differences in individual characteristics by men and women (such as educational attainment). Hence, they cannot substantiate a causal hypothesis that gender specific labor market barriers push women out of employees' pool and into self-employment. Hechavarría et al. (2018) show that in countries where languages are characterized by gender marking, entrepreneurial gender gap is larger. Studies argue the relevance of cultural factors as well (e.g Elam 2008, Jennings and Brush 2013). Bonaparte (2023) finds that in US women's lower financial and socio-economic status (gender wage gap and access to childcare on the state level) increase their entrepreneurial activity.

Against the existing literature, our paper offers several innovations. First, the gaps considered typically do not take into account differences in individual characteristics of men and women, implicitly

dismissing differences in education or labor market experience. Meanwhile, in many countries the adjusted gender wage gaps are much higher than the raw ones, because women have better educational attainment (Boll et al. 2016, Goraus and Tyrowcz, 2015). The extent of the difference between the raw and adjusted gender gaps in employment and wages is highly heterogeneous across countries and varies significantly over time. Our paper is an attempt to overcome these methodological limitations at least partially. To address the first, issue, we harness a vast collection of individual-level data to obtain comparable and reliable measures of gender wage gaps. We calculate gender wage gaps separately for three education levels (primary, secondary, and tertiary) by age groups within a country for each year. This way we estimate the wage gap that this woman herself is experiencing, because education and experience are relevant for forming labor market expectations and counterfactuals.

Second, our estimates focus on differences between men and women in undertaking self-employment, whereas the literature typically explains the entrepreneurial gap measured as a difference between the share of self- employed among men and women. This measurement disregards the fact that there may be gender-specific drivers of the decision to set up businesses. Also, female participation rates are on average lower than participation rates among men, hence it matters for the measurement what is the denominator for the self-employment "share". We combine the gender wage gaps data with the rich and comprehensive data from Global Entrepreneurship Monitor (GEM), which provides a wide variety of indicators of propensity to undertake self-employment as well as the motivations behind being self-employed: opportunity as well as necessity. GEM data are used extensively for the studies of self-employment, also in the context of women (see Mueller 2004, Minniti and Nardone 2007, Minniti and Naudé 2010, Estrin and Mickiewicz 2011, Hechavarría et al. 2018, for example). Combining these two rich sources of data, we analyze 36 different countries.

Third, there are several reasons for which entering self-employment involves more barriers for women than for men. The role congruity theory posits that gender remains a relevant dimension when evaluating leadership skills and entrepreneurial talent. In fact, it appears that leadership and competence failures amplify the difficulties for business led by women, whereas they do not cause comparable hindrance to businesses led by men Yang and del Carmen Triana (2017). These patterns may stem from subjective perceptions (e.g. Caliendo et al. 2014, Lee and Huang 2018) as well as objective barriers, such as access to finance (e.g. Estrin and Mickiewicz 2011, Kenney and Patton 2015, Guzman and Kacperczyk 2016). In institutional theory of gender inequality (Risman 2004) hints that managing work-family conflict is easier in employment than in entrepreneurship, which makes this latter option inherently less appealing as labor market strategy to women. Admittedly, establishing own firms may be prohibitively challenging if the social norm puts majority of caring on them. Indeed, in the case of wage employment, the institutions became rather solidly embedded in many countries, e.g. maternity leave, part-time employment, etc. (see Gherardi 2015, and the references there in for a recent comparison). To account for the potentially gender-specific choices to engage in self-employment, we study the difference between factual and counterfactual prevalence of entrepreneurship. We obtain counterfactual measures for women using the decision rules of men, applied to the distribution of women in GEM samples. We provide inference about gender wage inequality and entrepreneurship by comparing the actual and counterfactual prevalence of self-employment.

3. Data

This section describes the data on gender wage gaps and the use of GEM data. On the former, we describe the collection of the individual-level data on wages and individual characteristics. After harmonizing the data, we obtain comparable measures of gender wage gaps across countries and years to combine them with the individual data from the GEM survey. On the latter, we describe the treatment of GEM data, in line with the state-of-the art in the existing literature. In terms of individual characteristics, GEM data reports age, gender and education. These characteristics were used to combine our wage gaps data with the GEM data.

3.1 Data on gender wage differences

Data on wage gaps is obtained from individual-level databases. The use of these databases for the purposes of studying gender wage inequality has been documented in Tyrowicz & van der Velde (2021). The data comes from publically available sources such as the Eurostat and the Integrated Public Use Microdata Series from the University of Michigan. These data sources provide comparable samples (or permit obtaining estimates on their samples) across numerous countries based on censuses (IPUMS) or on large representative samples (Eurostat). In addition, we also utilized data from the International Social Survey Program (ISSP), which is also based on representative samples. Second, we obtain panel data for Germany, Korea, Russia, Sweden, the UK, and the US. Third, the World Bank in cooperation with local statistical offices provides Living Standards Measurement Survey for several countries around the world. These panel and cross-sectional databases are publically available, upon registering research projects. Finally, we obtain labor force survey data or household budget survey data from, Argentina, France, Italy, Poland, the UK, and Uruguay. This selection of countries was driven by the availability of hourly wages data as well as willingness of the central statistical offices in those countries to share the individual level data for research purposes. To the best of our knowledge, we include all available countries as long as two basic conditions are satisfied: (i) data set comprises sufficient information to compute an hourly wage; and (ii) the data reports individual-level characteristics, gender, age, and education. Appendix A discusses in detail the sources used.

Overall, we were able to find a matching individual-level dataset with wages for collected data for as many as 36 countries covered by GEM surveys. With the exception of Mexico, we obtained more than one matching time period, which adjusting our estimations for country-fixed effects. Appendix Table A1 reports the full list of the overlap between our individual-level data and GEM.

To obtain comparable estimates of gender wage gaps for age groups and levels of education we harmonize the measurement of wages, age and education. We leverage the fact that in our data age is reported in years to construct five age groups: up to 29 years, 30-39, 40-49, 50-59, and above 60. For education, we use three levels: below secondary, secondary and tertiary or above. Thus, in each database, we obtain 15 cells determined by age group and level of education. All our individual databases permit harmonizing to this granularity. Wage is measured as an hourly wage. We use the usual hours worked and total pay without bonuses. Gender wage gaps were obtained within a given age group and for a given education level in each country and period independently. The gaps are measured as a difference between median wage of men and median wage of women divided by median wage of men.

While all of the utilized samples are representative, some of them rely on large sample sizes and others – especially ISSP – utilize sample sizes of e.g. 1000 observations per country and period. To make sure that our measurement of wage gaps is not affected by an unfortunate reporting at the median, we restrict the estimates to cells with at least 20 men and 20 women reporting hourly wages. If more than one data source was available for a cell, we average the gap across the available data sources.

3.2 Global Entrepreneurship Monitor

Data on self-employment comes from the Global Entrepreneurship Monitor. Each year, GEM administers an adult population survey across multiple countries. This is a representative survey with sample sizes of at least 2,000 individuals. Respondents are asked mainly about their entrepreneurial activities, plans, and aspirations. This data has been used extensively in entrepreneurship research (for discussion see Kelley et al. 2012; Lepoutre et al. 2013; Minniti, 2013; Bosma, 2013).

The first wave of GEM was conducted in 2001. However, 2009 was the first GEM wave to include information on the labor market status of all respondents. Information about labor market status is imperative to obtain adequate delineation of potential self-employment, that is individuals within labor force. For example, questions about intention to start own business are asked to all individuals, thus e.g. retirees responding that they are not planning to start own business provide little information on prevalence of self-employment intentions in a given country. As of 2009, GEM permits to identify wage-employed, job seekers, students and or otherwise inactive individuals. Note that this is particularly relevant for the prevalence of women's self-employment. Our individual-level databases cover the period up to 2019, hence we use GEM data spanning 2001-2019.

The measurement of self-employment in GEM encompasses many spheres. The questions concern facts (operating own business) as well as motivations (e.g. necessity) and intentions for future self-employment (plans to start own business in the future). We construct four potential outcome measures:

(i) A dummy variable taking on the value of 1 if an individual responds that (s)he is self-employed. The value of 0 is assigned to other individuals in the labor force, that is wage-employed and job seekers. This variable encompasses all individuals who are self-employed, including those who participate in family business and/or have been operating own business for decades.

(ii) A dummy variable taking on the value of 1 if an individual responds that (s)he is involved in early-stage entrepreneurship. The value of 0 is assigned to other individuals in the labor force, that is wage-employed or job seekers. This variable identifies those self-employed individuals, who were potentially participating in the labor market recently. Their potential job market prior experience matches the timing of the gender wage gaps measurement. Note that with this definition of the dummy variable, the control group consists of individuals who are not self-employed at all. Individuals who are not early-stage self-employed are absent in the analysis for this

variable.

(iii) A dummy variable taking on the value of 1 if an individual reports necessity as main motivation to start own business. The value of 0 is assigned to other individuals in the labor force, that is wage-employed or job seekers. This variable identifies those specific individuals, who report that their main motivation to operate own business was lack of other opportunities. Specifically, they choose the option "no better choice for work" to the question "Why did you become involved in this firm?". Note that with this definition of the dummy variable, the control group consists of individuals who are not self-employed at all. Individuals who report other motivations are absent in the analysis for this variable.

(iv) A dummy variable taking on the value of 1 if an individual reports necessity as main motivation to start own business. The value of 0 is assigned to individuals who report other motivations to be self-employed: opportunity, mixed, or other. Individuals who are not self-employed are absent in the analysis for this variable.

We also collect information about respondents' age, education (three levels). These variables are used to match measures of gender wage gap within each country and period. Using self-reported gender in the data, we estimate our models separately for men and women.

As controls, our models use the standard set of covariates, often emphasized in the literature. These include access to entrepreneurial knowledge, network, and capital (relying on questions "Do you know someone personally who started a business in the past two years?" and "Have you, in the past three years personally provided funds for a new business?"). Ideally, one would like to adjust for income (or at least income decile), but this information is missing in GEM data. Furthermore, prior experience in self-employment is also missing. The respondents are not inquired if they experienced discrimination, neither are their social norms inferred.

3.3 Descriptive statistics

Individual-level data on gender wage gaps matched GEM survey for 36 countries, and over 580,000 individuals over the period spanning 10 years between 2009 and 2019. The combined data coverage is summarized in Table A1. We report descriptive statistics in Table 1 below. In line with previous findings, on average men are more likely to engage in self-employment than are women. Early stage self-employment has a lower gender gap, but nonetheless in favor of men. Necessity self-employment is a relatively small share of labor force, but among self-employed it reaches roughly 7% for men and 9% for women.

While men and women report similar average age, the women in our sample are more likely to have completed tertiary education. This is frequent among developed countries (Smyth, 2005). Despite having better education women less frequently report knowing an entrepreneur. Similarly, women less frequently report having financially supported someone else's business in the past couple of years.

Individual level data from GEM was merged with the gender wage gaps measures obtained for each country and year, within cells determined by age group, and education level.

For each country we thus have up to 15 cells in total. Given the time dimension, note that the changes in measures of gender wage gaps can go in different directions for each cell in a given country and year.

Table 1: Descriptive statistics

	Women	Men
Self-employment, SE (% in LF)	0.13	0.18
Early-stage SE (% in LF w/o other SE)	0.05	0.06
Necessity SE (% in LF w/o other SE)	0.01	0.01
Necessity SE (% in SE)	0.09	0.07
Average age	41.41	41.38
Tertiary education (%)	0.49	0.44
Knows entrepreneur (%)	0.34	0.39
Having financially supported a business (%)	0.03	0.05
Average GWG	0.18	
Number of countries	36	36
Number of country-year groups	234	234
Individual observations	275,491	304,520

Notes: Table provides averages among samples that match Global Entrepreneurship Monitor with gender wage gaps indicators. The shares and averages do not differ significantly between subsamples.

5. Empirical strategy

The commonly held beliefs suggest that discrimination in the wage-employment pushes individuals into self-employment, especially necessity self-employment. We posit that the relationship between discrimination and self-employment is mitigated by the fact, that men and women engage in self-employment with differentiated intensity even in the absence of discrimination. To identify the effects of discrimination one has to first provide counterfactual intensity of self-employment among women, as if they were engaging in self-employment with the same patterns as men. Comparing those counterfactuals to actual self-employment is what reveals the effects of discrimination on self-employment gaps between men and women.

To reflect this approach in empirical strategy we pursue in following steps.

Step 1. We estimate models of self-employment among men in GEM.

$$SE(0/1)_{i\in\{c,t\}} = \beta_0^m + \beta_i^m X_{i\in\{c,t\}} + \epsilon_{i\in\{c,t\}} \quad \text{for } i \in men \text{ in country } c \text{ at time } t\,. \qquad (1m)$$

There are as many estimated models as countries and periods in our sample. In these models, we account for X_i that is a variety of individual characteristics, such as age (linear and squared), education, knowing an entrepreneur, and having in the past financially supported someone else's business. The models are estimated with the use of a linear regression estimator (i.e. OLS). These models leverage the full breadth of our data. Since we estimate them separately for each country and period, the coefficients β_0^m and β_i^m are not restricted to be common across those subsamples. The models estimated in this step are obtained separately for our four outcome measures of self-employment.

These models deliver the estimates $\widehat{\beta_0}$ and $\widehat{\beta_i}$ for β_0^m and β_i^m, respectively, to be utilized in the next step.

For completeness, we obtain the estimates also for women.

$$SE(0/1)_{i\in\{c,t\}} = \beta_0^f + \beta_i^f X_{i\in\{c,t\}} + \epsilon_{i\in\{c,t\}} \quad \text{for } i \in \textit{women} \text{ in country } c \text{ at time } t. \qquad (1w)$$

These estimates are obtained analogously. They are not of interest to us per se, as we are not obtaining the counterfactuals based on those estimates. However, when presenting our results we are showing the results also for women.

Step 2. Using the estimates of β_0^m, β_i^m and γ from the models for men estimated in equation (1m) in Step 1, we provide counterfactual self-employment among women. In other words, using the model, for every woman we predict whether she would become a self-employed, had she been a man with exactly the same characteristics.

$$predict \;\; SE(0/1)_{i\in\{c,t\}} = \widehat{\beta_0} + \hat{\beta} X_{i\in\{c,t\}} = \widehat{SE}(0/1)_{i\in\{c,t\}} \text{ for } i \in \textit{women} \text{ in country } c \text{ at time } t. \qquad (2)$$

In equation (2), $\widehat{\beta_0}$ and $\hat{\beta}$ denote the estimates of β_0 and β, respectively. The estimated $\widehat{SE}(0/1)_{i\in\{c,t\}}$ signify the predicted value of self-employment for each woman in our sample. Since we deploy linear models, each woman obtains a value between 0 and 1 denoting probability that if her probability of being self-employed was subject to the same mechanisms, then given her individual characteristics she would be self-employed. The "rules" are captured by the estimates of the β_0 and β parameters. Thus, it is a counterfactual probability of self-employment. For every woman we obtain four predictions, one for each type of self-employment.

Step 3. Estimate the conditional correlation between the prevalence of the gender wage gap in a given cell, across countries and periods as a dependent variable – and the prevalence of self-employment. Our specifications in Step 3 include all the variables as equation (1). We estimate the conditional correlations between self-employment and gender wage gap. The model specification is similar to equation (1), however, there are important differences in how the model is estimated. First, we add an additional control: gender wage gap in a given cell defined by age group and level of education for each country and period. Second, we estimate the regress on our full sample jointly. This necessitates including fixed effects for country and year. Third, we estimate the model for men, for women and for the counterfactual self-employment of women obtained in Step 2 for women. We thus estimate the following set of equations:

$$SE(0/1)_{i\in\{c,t\}} = \delta_m + \delta_i X_{i\in\{c,t\}} + \gamma GWG_{age,educ,c,t} + \epsilon_{i\in\{c,t\}} \quad \text{for } i \in \textit{men} \text{ in country } c \text{ at time } t \qquad (3)$$

$$SE(0/1)_{i\in\{c,t\}} = \delta_w + \delta_i X_{i\in\{c,t\}} + \gamma GWG_{age,educ,c,t} + \epsilon_{i\in\{c,t\}} \quad \text{for } i \in \textit{women} \text{ in country } c \text{ at time } t \qquad (4)$$

$$\widehat{SE}(0/1)_{i\in\{c,t\}} = \delta_{cf} + \delta_i X_{i\in\{c,t\}} + \gamma GWG_{age,educ,c,t} + \epsilon_{i\in\{c,t\}} \quad \text{for } i \in \textit{women} \text{ in country } c \text{ at time } t, \qquad (5)$$

where $GWG_{age,educ,c,t}$ denotes our estimates of gender wage gap obtained for each age group and level of education in each country and year.

Our presentation focuses on the estimates of γ parameter. We present the results in two forms: visualizations through bin scatters and standard linear regressions. We use the visualizations because they help to convey the main findings of our study. The advantage of the binned scatterplots is that they residualize presented results for all the controls, which makes them conceptually equivalent to regressions presented in equations (3)-(5). We also include linear fit in the graphs,

whereas we present analogous regressions in the Appendix Tables A2 and A3 as well. We show the results for both the actual and the counterfactual self-employment among women.

5. Results

We present the results from individual data from GEM merged with the measures of gender wage gaps for cells of age groups and education levels, across countries and periods. We present the results in two substantive parts. First, we discuss the general relationship between gender wage inequality and prevalence of self-employment for both men and women. Second, we study the factual and counterfactual intensity of self-employment among women and show that indeed gender wage inequality has very different effects for women than it has for men.

5.1. Men's and women's self-employment

Prevalence self-employment tends to correlate positively with gender wage gaps for both men and women. Figure 1 portrays the results revealing overall positive correlations. We find shift effects for men when analyzing overall self-employment and early stage self-employment. The slopes for men are higher than for women when analyzing necessity self-employment in the total labor force. The only case where positive slope is not supported by the data is the case of women and share of necessity self-employment among total self-employment. The weak negative slope in panel (d) signifies that there is a lower share of necessity self-employed women when gender wage gaps are higher. In other words, while prevalence of necessity self-employment in the labor force increases with gender wage gaps, the share of necessity self-employed among all self-employed does so among men, but not among women.

These results provide several important intuitions. First, there appear to be pronounced correlations between gender wage gaps and self-employment among men. These results do not appear to be driven by overall inequality across countries, but specifically gender wage gaps, as we discuss in subsequent sections. One potential interpretation of these findings would be that labor markets riddled with gender inequality may exhibit discrimination towards other groups as well, some of them constituting of men. This would push out the representatives of the disfavored groups in parallel to women. Note that GEM includes countries with strong legal norms on equality in the labor market as well as those countries where implementation of equality of opportunity is yet a challenge.

Second, overall self-employment increases steeper with gender wage gaps than necessity self-employment for women. This explains partly conflicting results from the existing literature, with some studies demonstrating strong effects of inequality on necessity self-employment (Sarkar et al. 2018) and others mounting either lack of such evidence or even opposing evidence (Cuberes et al. 2019). We show that what matters for the results is both the measurement (within labor force vs within the population of self-employed) and the level of inequality in a given country. Indeed, the relationship for women is not statistically different from zero in a regression. The negative slope is not a very robust result, as we discuss in subsequent sections.

Finally, there appear to be structural and substantial differences in necessity self-employment as compared to other groups of self-employed. The link between gender wage gaps and prevalence of self-employment is consistent between the overall SE and early stage SE, but the patterns do not replicate among necessity self-employed. Necessity SE is a small share of total self-employment (on

average below 10%), which may explain why the overall SE patterns may provide misguided inference about necessity SE.

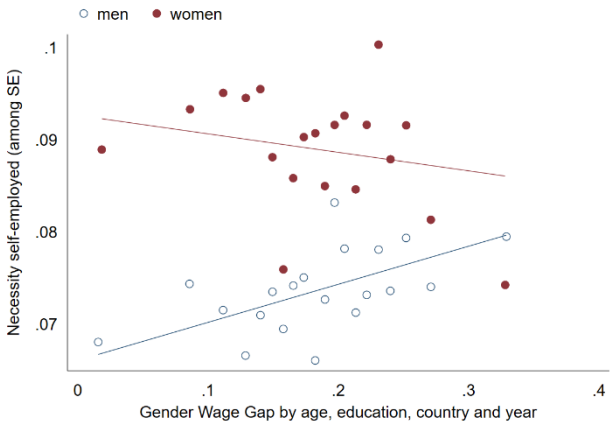
Figure 1. Gender wage gaps and share of self-employed by gender.

(a) Self-employed

(b) Early stage self-employed

(c) Necessity self-employed (in LF)

(d) Necessity self-employed (among SE)



Note: Figures show relationship between gender wage gap (based on median wages of men and women) by age and education group, country and year from various sources and the four measures of self-employment from GEM data. The scatterplot utilizes data from roughly 3500 cells (and 350 thousand individuals). The horizontal and vertical values were averaged to 20 bins for clarity. Visualizations for larger number of bins are available upon request. The fit line was obtained from individual observations and thus does not depend on the number of bins. Estimates are adjusted for the effects of higher education, access to entrepreneurial network and capital, age, age squared, country and year effects. Linear function coefficients are based on the OLS regression.

5.2. The counterfactual self-employment of women

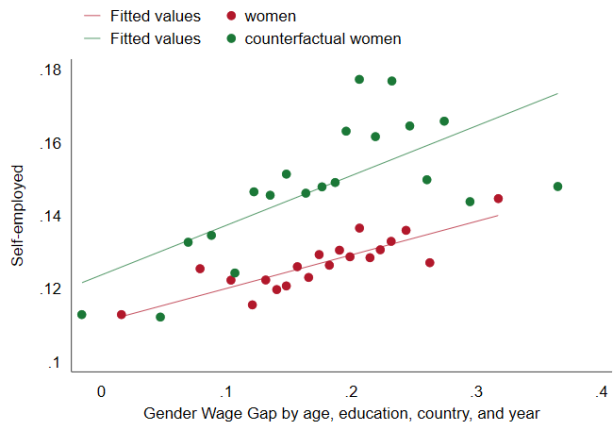
We replicate Figure 1 with counterfactual shares of self-employment among women in Figure 2. Recall that for each woman we obtain a prediction on her self-employment status, for four measures of self-employment. This prediction is based on her characteristics and uses the "rules" of who is likely to be self-employed as obtained for men in this country and in a given period. Recall that each counterfactual is obtained separately for each country and period, thus "rules" from one society or period do not bias the inference for the others.

In Figure 2 we portray the link between gender wage gaps and the counterfactual self-employment. Like in the case of Figure one, the estimates the dots signify a bin of the distribution of estimates across age groups, education levels, countries and periods, adjusting for all those characteristics as well as the prevalence of knowing the entrepreneur and having in the past financially supported someone else's business.

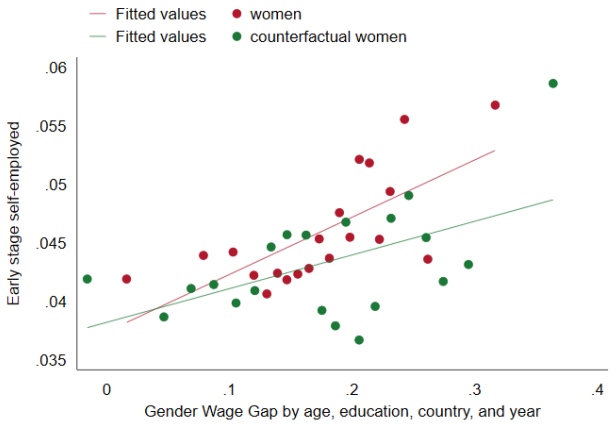
Overall, counterfactual self-employment shares among women are higher than the factual ones. While comparisons between men and women point mostly to shift effects (the intercepts differ), the comparisons of women and counterfactual women reveal also important slope effects: the relationship changes with the magnitude of the gender wage gap. For overall self-employment portrayed in panel (a), the counterfactual self-employment displays a shift effect (the fitted line is higher) and a slope effect (the fitted line is steeper). We interpret this as evidence that if the "rules" were the same for women as for men, there would have been a stronger effect of gender wage inequality on the prevalence of self-employment. Summarizing, while higher gender wage gaps actively encourage SE among both men and women, the effects are stronger for the counterfactual than observed in the data. This implies that other discriminative factors correlated to gender wage gaps pull women out of SE in addition to the pushing effect of the wage gaps.

Figure 2. Counterfactual and factual shares of (necessity) self-employed women and gender wage gaps.

(a) Self-employment

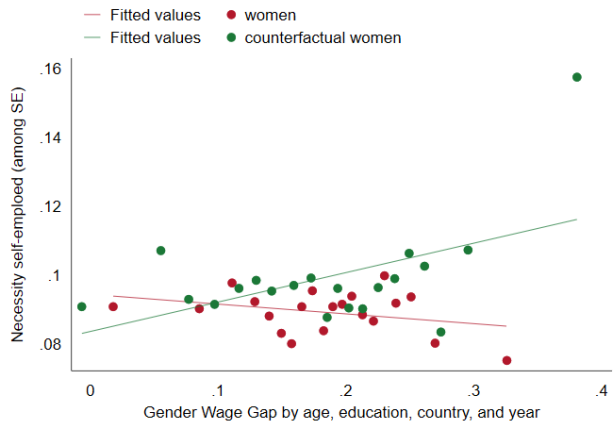


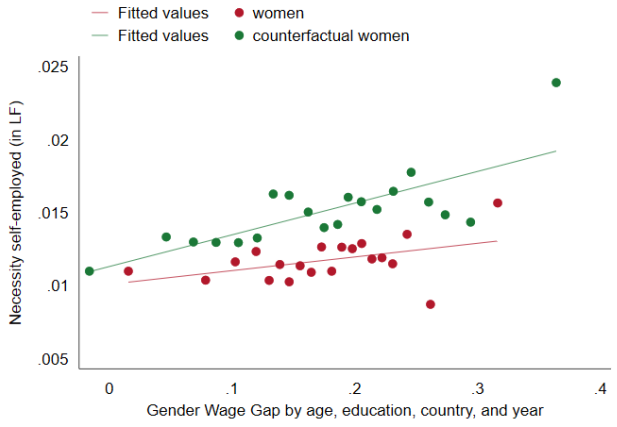
(b) Early stage self-employed



(c) Necessity self-employed (in LF)

(d) Necessity self-employed (among SE)





Note: Figures show relationship between gender wage gap (based on median wages of men and women) by age and education group, country and year from various sources and the four measures of self-employment from GEM data. The scatterplot utilizes data from roughly 3500 cells (and 350 thousand individuals). The horizontal and vertical values were averaged to 20 bins for clarity. Visualizations for larger number of bins are available upon request. The fit line was obtained from individual observations and thus does not depend on the number of bins. Estimates are adjusted for the effects of higher education, access to entrepreneurial network and capital, age, age squared, country and year effects. Linear function coefficients are based on the OLS regression. The counterfactual averages are adjusted for the difference in constant term in regression for men and for women ($\delta_m - \delta_w$) [levels of self-employment among women and men].

For the early stage SE portrayed in panel (b), we show that the slope remains positive. In other words, the higher the gender wage gap, the higher the prevalence of early stage SE. However, as gender wage gaps increase in the data the link is stronger than hinted by the counterfactuals. In other words, early stage SE is actually more prevalent among women (in the data) than it would have been if men and women engaged similarly in SE (i.e., the counterfactual). Women with the same characteristics as men would have been less responsive to gender wage gaps in taking their SE decisions. In parallel to discussion relative to panel (a), early-stage self-employment is less prevalent in the counterfactual than in the data, which hints that other discriminative factors correlated with gender wage gaps push women more strongly into early-stage SE.

In panels (c) and (d) we show necessity self-employment, prevalence in the labor force and among self-employment, respectively. The implications are surprising. First, we show that actually necessity SE is increasing in prevalence in counterfactual with the rise of the gender wage gap, whereas the slope is negative in the data. In other words, if women where engaging in necessity SE as men, given the distribution of their individual characteristics, they would display a higher prevalence of necessity SE. With the negative slope suggested by the data, we infer that women are shielded from necessity SE as a labor market activity choice. This finding is reinforced by the analysis of necessity SE among self-employed in panel (d) . We find a similar pattern as in panel (a): a shift effect and a steeper slope both hint that other discriminative factors correlated to gender wage gaps pull women out of SE in addition to the pushing effect of the wage gaps.

5.3. Robustness and extensions

As discussed in the literature section, it appears to be an empirical regularity that more unequal countries tend to have higher prevalence of self-employment. Likewise, higher gender wage gaps may be associated with greater income inequality. Our study here wants to isolate the effect of gender wage gaps. Thus, in robustness checks we also expand the list of controls in Step 3 regressions to include the overall income inequality in country $\boldsymbol{c}$ at time $\boldsymbol{t}$, measured by Gini Index and obtained from The World Bank. The results are reported in Tables A3-A5 and in Figures A3-A5 in the Appendices. Inclusion of the Gini coefficients among controls does not change our inference, thus inequality per se is not the driving force behind our estimates.

In addition, we verify if our results depend on an inclusion of a specific country, period, education level or an age group. We find that excluding one of those at the time does not affect our inference.[3] While no one specific level of the control variables drives our results, we are losing statistical power by excluding particular dimensions of the data. Note that the estimates presented in Figures 1 and 2 do adjust for country, age group, period and education level as controls. Thus, the relationships portrayed in those figures are residualized for any time invariant specificity of those groups or any specific period.

As extension, we take our intuitions and findings to the raw measures of gender wage gaps. Our measures of gender wage inequality rely on gaps adjusted for education, that is our measures take into account the fact that men and women differ in educational attainment across countries and years.[4]. For robustness we take the measure of raw gender wage gaps, which we obtain from the OECD. Note that those measures are not obtained separately for age groups and education levels, thus the only source of variation in this comparison stems from cross-country differences and time trends. Figure A1 in Appendices reports estimates analogous to Figure 1. Figure 3 shows the results for the counterfactuals, analogous to Figure 2.

The results for the raw gap show no relationship for self-employment and counterfactual SE in panel (a). In the next panels, we find the opposite slopes between factual and counterfactual self-employment measures: positive or insignificant for the counterfactual and negative for data. This finding helps to reconcile our results with the existing literature. First, the raw gaps tend to be correlated negatively with prevalence of self-employment, whereas all our measures of adjusted gender wage gaps correlate positively (insignificant in panel (c) of Figure 2). Second, the adjusted gaps display universally positive correlation with counterfactual measures of SE, whereas this is confirmed only for early-stage and one measure of necessity for the raw gaps.

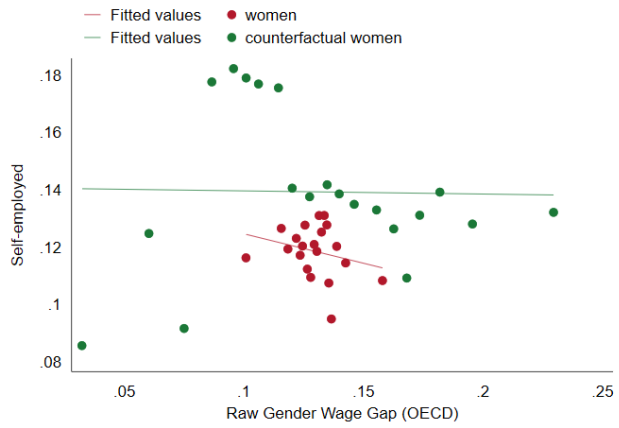
We infer from these findings that the relationship between self-employment and gender wage gaps is more stable for the adjusted gaps, that is measures which control for the productivity potential of women. Furthermore, inference about general prevalence of self-employment based on raw gaps is misleading (a negative correlation) when compared to adjusted gaps (which forcefully show a positive correlation).

[3] Detailed results available upon request.

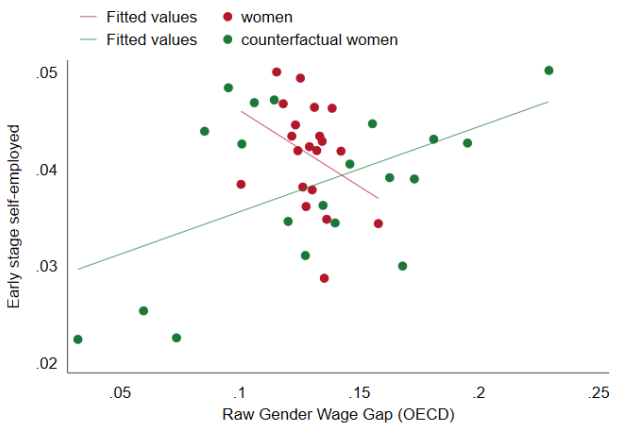
[4] Recall that education is the only individual level characteristic in GEM data that allows to match the estimates to gender wage gaps data, in addition to age, country and period. In principle, our adjusted measures could take into account also other characteristics such as tenure, household structure, etc. However, we would not be able to exploit this breadth of the data due to scarce individual-level information in GEM.

Figure 3. Counterfactual and factual self-employment of women and raw (OECD) gender wage gaps.

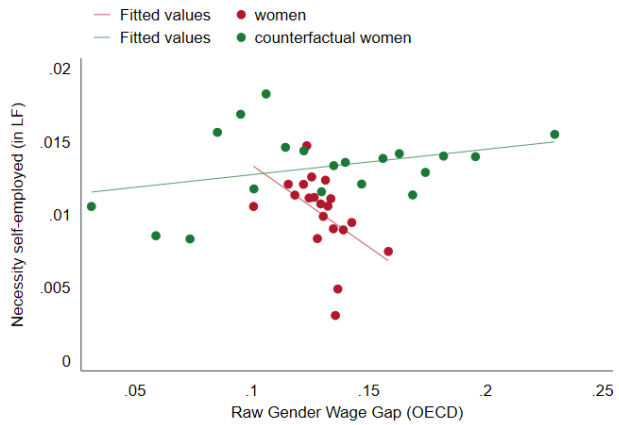
(a) Self-employment



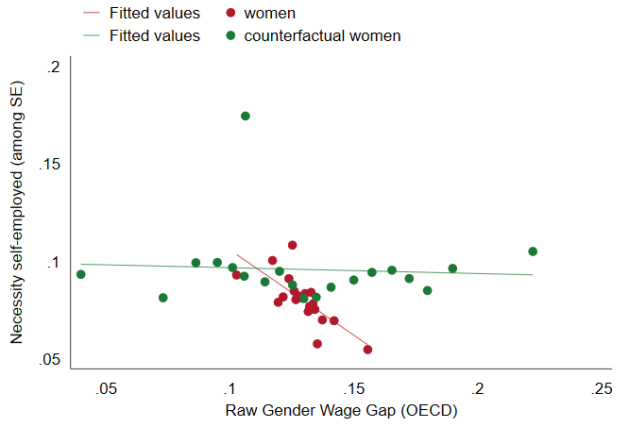
(b) Early stage self-employed



(c) Necessity self-employed (in LF)



(d) Necessity self-employed (among SE)



Notes: Figure shows relationship between raw gender wage gap from OECD Data and self-employment among women from GEM data. Counterfactual distributions are provided based on the predicted value of being self-employed among female respondents of GEM from regression coefficients obtain on a sample of male respondents. The scatterplot shows average values for 20 bins. Estimates are adjusted for the effects of higher education, access to entrepreneurial network and capital, age, age squared, country and year effects. Linear function coefficients are based on the OLS regression. The counterfactual averages are adjusted for the difference in constant term in regression for men and for women ($\delta_m - \delta_w$) [levels of self-employment among women and men].

6. Conclusions

The theoretical literature has postulated that self-employment can be a way to avoid unemployment, especially for minorities and women. Unlike salaried work, self-employment is not subject to employers' biases. However, engaging in self-employment requires access to social and physical

capital, which may be insufficient among minorities and women. The existing empirical literature provides mixed evidence. In this paper we build on the strands of literature which show that men and women differ in propensity to start own business. We thus study both actual and counterfactual self-employment of women to delineate between the overall self-employment and engaging in establishing own workplace (and/or jobs for the others) due to discrimination.

Our results show that counterfactual self-employment shares among women are higher than the factual ones. In other words, if women engaged in self-employment in the same "patterns" as men, there would have been more female entrepreneurship. We correlate these measures with gender wage gaps. To this end, we leverage individual-level data for 36 countries spanning ten years. While comparisons between men and women point mostly to shift effects (the intercepts differ), the comparisons of women and counterfactual women reveal also important slope effects: the relationship changes with the magnitude of the gender wage gap. For overall self-employment the counterfactual self-employment displays a shift effect (the fitted line is higher) and a slope effect (the fitted line is steeper). We interpret this as evidence that if the "rules" were the same for women as for men, there would have been a stronger effect of gender wage inequality on the prevalence of self-employment. In other words, while higher gender wage gaps actively encourage SE among both men and women, the effects are stronger for the counterfactual than observed in the data. Our paper provides also evidence for necessity self-employment and early-stage self-employment. Finally, we provide a number of checks and sensitivity analyses, demonstrating the robustness of our results.

Our results imply that other discriminative factors correlated to gender wage gaps pull women out of self-employment in addition to the pushing effect of the wage gaps. More theorizing appears thus necessary to provide a comprehensive portrayal of the relationship between inequality and self-employment. In terms of avenues for further empirical research, we call for working with adjusted measures, as the raw measures understate the extent of inequality faced by women.

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Appendix

A. Sources of individual level data – used in this study.

Structure of Earnings Survey of the European Union (EU-SES). This database is a matched employee-employer database that provides administrative-quality data on earnings. The survey is conducted among firms, which report to the statistical office data directly from payroll. Consequently, neither wages nor hours worked are subject to reporting bias. In addition to high quality data, this data source is also characterized by large sample sizes, which make estimates more precise. The data are harmonized at the European level and released every four years. This data source does not have information on household such as children or residence. Marital status is reported for individual workers.

European Union Study of Income and Living Conditions (EU-SILC). This database is a follow up survey of the European Community Household Panel Survey (ECHP) collected across the EU-15 members. Data on wages and job characteristics are self-reported. This database provides full information on household structure and residence. It is more comprehensive in terms of countries, as the EU was enlarged. The data is provided with annual frequency.

American Community Survey. This is census data for the United States. It is self-reported data. It includes annual wages, annual weeks worked, hours usually worked, individual-level characteristics as well as household-level characteristics. The data is provided by IPUMS.

Census data from IPUMS-International. We use data for Mexico. Household- level and individual level variables are comprehensively available. We utilize all the available censuses which provide data on wages and hours worked.

National panels. We acquire access to national longitudinal databases for Germany (Socio-Economic Panel, SOEP), Korea (Korean Labor and Income Panel Study, KLIPS), Russia (Russian Longitudinal Monitoring Survey, RLMS), Sweden (HUS), and the United States (Panel Study of Income Dynamics, PSID). All these databases provide rich information on household and individual characteristics, as well as wages and hours worked.

Labor force surveys. National statistical offices collect LFS data routinely, but only in few countries the surveys ask questions about the wages. LFS data are typically self-reported, but sample sizes are large. Unfortunately, this data is distributed at prohibitive charge in many countries. We were able to acquire data for Argentina, France, Italy, Latvia, Poland and the United Kingdom. All these databases provide rich information on household and individual characteristics, as well as wages and hours worked.

Household budget survey. National statistical offices often collect HBS data. This data is self- reported, but comprehensive in terms of individual-level characteristics as well as incomes earned. We acquired data for Latvia, and Uruguay.

The International Social Survey Programme (ISSP) is a rich database collected throughout the world since the 1990's. Individual-level characteristics as well as income and hours worked data are self-reported. Sample sizes in ISSP are frequently small. In addition, some databases report wages as categorical variables. Notwithstanding, ISSP is comprehensive both in terms of country coverage and periods covered.

Table A1: Country coverage

Country	Matching periods between gender wage gaps and GEM databases
Argentina	2009-2014
Australia	2014, 2016
Austria	2012, 2014, 2016, 2018
Belgium	2009-2015
Bulgaria	2015-2018
Switzerland	2011-2015, 2017, 2018
China	2011, 2012, 2015
Cyprus	2016-2019
Czechia	2011, 2013
Germany	2009-2019
Denmark	2011, 2012, 2014
Spain	2009-2019
Estonia	2012-2017
Finland	2009, 2011-2016
France	2011-2014, 2016-2018
UK	2009-2019
Greece	2011-2019
Hungary	2009, 2011-2016
Ireland	2010, 2011-2015, 2017-2019
Italy	2012-2019
Korea	2010, 2012
Lithuania	2011, 2013, 2014
Luxembourg	2013-2015, 2017
Latvia	2009, 2011-2013, 2015-2017, 2019
Mexico	2010
Netherlands	2011-2019
Norway	2010. 2012, 2014 2015, 2019
Poland	2011-2019
Portugal	2011-2016, 2019
Romania	2009, 2014, 2015
Russia	2009-2014, 2016, 2018
Slovakia	2011-2019
Slovenia	2009, 2011-2019
Sweden	2011-2014, 2016-2019
Uruguay	2009-2018
USA	2009-2018
Total	234

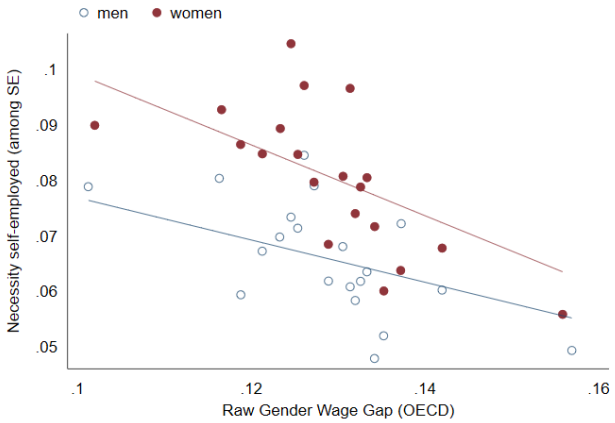
Notes: Table summarize for which countries and which years we were able to provide gender wage gaps and match them with Global Entrepreneurship Monitor data.

Figure A1. Raw (OECD) gender wage gaps and share of (necessity) self-employed by gender.

(a) Self-employed

(b) Early stage self-employed

(c) Necessity self-employed (in LF)



(d) Necessity self-employed (among SE)

Notes: Figures show relationship between raw gender wage gap from OECD Data and self-employed ratios from GEM data. The scatterplot shows average values for 20 bins. Estimates are adjusted for the effects of higher education, access to entrepreneurial network and capital, age, age squared, country and year. Linear function coefficients are based on the OLS regression.

Table A2. Gender wage gaps and (early stage) self-employment.

	Self-employed			Early stage self-employed		
	(1a) Men	(1b) Women	(1c) Counterfactual women	(2a) Men	(2b) Women	(2c) Counterfactual women
	OLS regression			OLS regression		
GENDER WAGE GAP	0.11***	0.09***	0.08***	0.06***	0.05***	0.04***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.00)
Higher Education	-0.01***	-0.00***	-0.00***	0.01***	0.00***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Know Entrepreneur	0.11***	0.09***	0.11***	0.09***	0.07***	0.09***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Business Angel	0.05***	0.02***	0.05***	0.04***	0.01***	0.04***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age	0.00**	0.00***	0.00***	0.00***	0.00***	0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age^2	0.00***	0.00***	0.00***	-0.00***	-0.00***	-0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	-0.05***	-0.05***	-0.06***	-0.02***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.00)
Observations	316,432	286,436	279,237	261,707	252,574	246,237
R-squared	0.06	0.06	0.78	0.05	0.04	0.79

Notes: Table presents coefficients from OLS regressions on being self-employed (1a-c) or early stage self-employed (2a-c). All regressions include gender wage gaps (based on median wages of men and women) by age and education group, country and year effects. Standard errors are in parentheses. * p<0.01, ** p<0.05, *** p<0.1

Table A3. Gender wage gaps and necessity self-employment.

	Necessity SE in LF			Necessity SE among other SE		
	(3a) Men	(3b) Women	(3c) Counterfactual women	(4a) Men	(4b) Women	(4c) Counterfactual women
	OLS regression			OLS regression		
GENDER WAGE GAP	0.03***	0.01***	0.02***	0.04**	-0.01	0.03***
	(0.00)	(0.00)	(0.00)	(0.02)	(0.02)	(0.00)
Higher Education	-0.00***	-0.00***	-0.00***	-0.02***	-0.02***	-0.02***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Know Entrepreneur	0.02***	0.02***	0.02***	0.02***	0.03***	0.02***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Business Angel	0.00	-0.00**	0.00***	-0.02***	-0.03***	-0.02***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)
Age	0.00***	0.00***	0.00***	-0.00*	0.00	-0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age^2	-0.00**	-0.00***	-0.00***	-0.00	-0.00***	-0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	-0.01***	-0.02***	-0.01***	0.13***	0.11***	0.13***
	(0.00)	(0.00)	(0.00)	(0.02)	(0.02)	(0.00)
Observations	264,449	253,042	246,508	51,201	33,219	32,486
R-squared	0.01	0.02	0.63	0.02	0.02	0.54

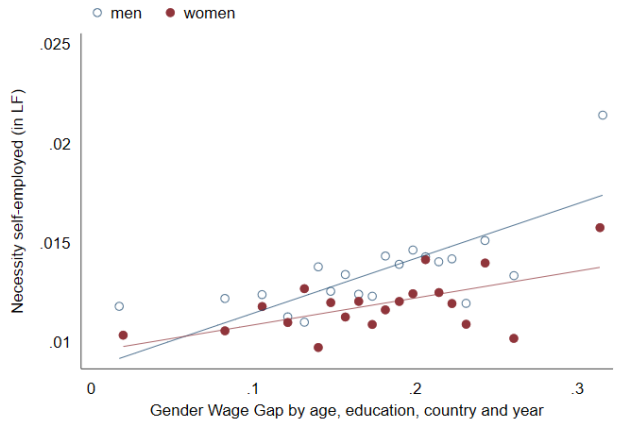
Notes: Table presents coefficients from OLS regressions on being necessity self-employed in LF (3a-c) or among other self-employed (4a-c). All regressions include gender wage gaps (based on median wages of men and women) by age and education group, country and year effects. Standard errors are in parentheses. * p<0.01, ** p<0.05, *** p<0.1

Figure A4. Gender wage gaps and share of self-employed by gender (additionally controlled by overall inequality).

(a) Self-employment

(b) Early stage self-employed

(c) Necessity self-employed (in LF)

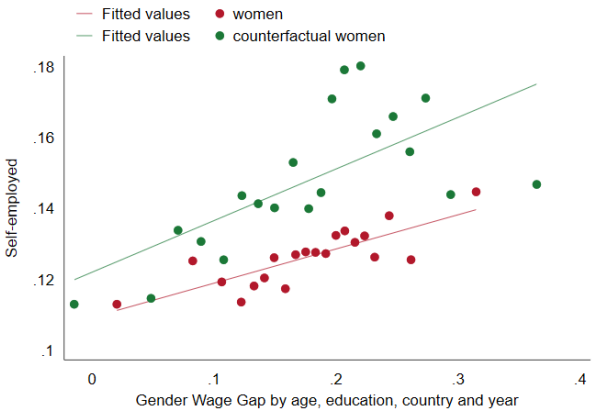


(d) Necessity self-employed (among SE)

Note: Figure shows relationship between gender wage gap (based on median wages of men and women) by age and education group, country and year from various sources and the four measures of self-employment from GEM data. The scatterplots show average values for 20 bins. Estimates are adjusted for the effects of higher education, access to entrepreneurial network and capital, age, age squared, country and year effects and, additionally, country level of inequality – Gini Index. Linear function coefficients are based on the OLS regression.

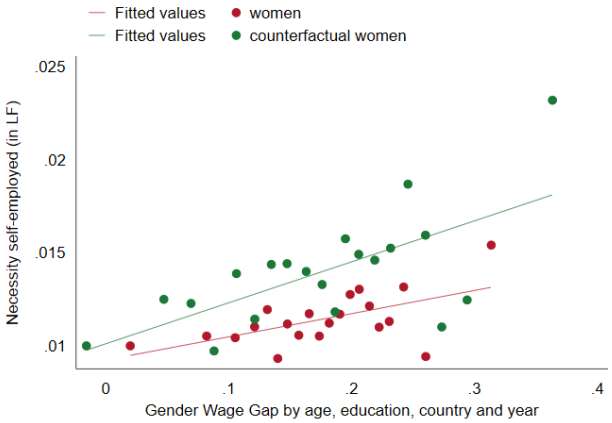
Figure A5. Counterfactual and factual shares of (necessity) self-employed women and gender wage gaps (additionally controlled by overall inequality).

(a) Self-employment



(b) Early stage self-employed

(c) Necessity self-employed (in LF)



(d) Necessity self-employed (among SE)

Note: Figures show relationship between gender wage gap (based on median wages of men and women) by age and education group, country and year from various sources and the four measures of self-employment from GEM data. The fit line was obtained from individual observations and thus does not depend on the number of bins. Estimates are adjusted for the effects of higher education, access to entrepreneurial network and capital, age, age squared, country, year effects, and, additionally, country level of inequality – Gini Index. Linear function coefficients are based on the OLS regression. The counterfactual averages are adjusted for the difference in constant term in regression for men and for women ($\delta_m - \delta_w$) [levels of self-employment among women and men].

Table A4. Gender wage gaps and (early stage) self-employment (with Gini)

	Self-employed			Early stage self-employed		
	(1a) Men	(1b) Women	(1c) Counterfactual women	(2a) Men	(2b) Women	(2c) Counterfactual women
	Logit (SE=1 | WE or seek = 0)		Tobit	Logit (SE=1 | WE or seek = 0)		Tobit
GENDER WAGE GAP	0.83***	0.91***	0.08***	0.96***	1.25***	0.04***
	(0.07)	(0.09)	(0.00)	(0.12)	(0.15)	(0.00)
Higher Education	-0.03***	-0.03**	-0.00***	0.19***	0.09***	0.01***
	(0.01)	(0.01)	(0.00)	(0.02)	(0.02)	(0.00)
Know Entrepreneur	0.76***	0.81***	0.11***	1.40***	1.43***	0.09***
	(0.01)	(0.01)	(0.00)	(0.02)	(0.02)	(0.00)
Business Angel	0.32***	0.16***	0.05***	0.46***	0.06	0.04***
	(0.02)	(0.03)	(0.00)	(0.03)	(0.05)	(0.00)
Age	0.03***	0.04***	0.00***	0.03***	0.06***	0.00***
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)
Age^2	0.00	-0.00**	0.00***	-0.00***	-0.00***	-0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Gini Index	0.01	0.01	-0.00***	0.01	0.01	-0.00***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.00)
Constant	-3.96***	-4.57***	-0.02***	-4.68***	-5.42***	-0.00
	(0.27)	(0.32)	(0.00)	(0.43)	(0.53)	(0.00)
Observations	304,520	275,491	275,491	252,204	243,243	243,243

Notes: Table presents coefficients from logit regressions on probability of being self-employed (1a-c) of early stage self-employed (2a-c). All regressions include gender wage gaps (based on median wages of men and women) by age and education group, country and year effects. Standard errors are in parentheses. * p<0.01, ** p<0.05, *** p<0.1

Table A5. Gender wage gaps and necessity self-employment (with Gini).

	Necessity SE in LF			Necessity SE among other SE (Necessity SE=1 | other SE = 0)		
	(3a) Men	(3b) Women	(3c) Counterfactual women	(4a) Men	(4b) Women	(4c) Counterfactual women
	Logit (Necessity SE=1 | WE or seek = 0)		Tobit	Logit (Necessity SE=1 | WE or seek = 0)		Tobit
GENDER WAGE GAP	1.65***	1.15***	0.02***	0.77***	0.05	0.03***
	(0.24)	(0.27)	(0.00)	(0.24)	(0.28)	(0.00)
Higher Education	-0.31***	-0.25***	-0.00***	-0.28***	-0.22***	-0.02***
	(0.04)	(0.04)	(0.00)	(0.04)	(0.04)	(0.00)
Know Entrepreneur	1.09***	1.22***	0.02***	0.36***	0.42***	0.02***
	(0.04)	(0.04)	(0.00)	(0.04)	(0.04)	(0.00)
Business Angel	0.03	-0.20**	0.00***	-0.27***	-0.36***	-0.02***
	(0.07)	(0.10)	(0.00)	(0.07)	(0.10)	(0.00)
Age	0.05***	0.09***	0.00***	0.00	0.04***	-0.00***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.00)
Age^2	-0.00***	-0.00***	-0.00***	-0.00**	-0.00***	-0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Gini Index	0.08***	0.10***	0.00***	0.06***	0.07***	0.00***
	(0.02)	(0.02)	(0.00)	(0.02)	(0.02)	(0.00)
Constant	-9.34***	-11.48***	-0.07***	-4.84***	-5.86***	-0.03***
	(0.88)	(1.01)	(0.00)	(0.92)	(1.08)	(0.01)
Observations	235,934	225,344	243,498	49,347	31,803	31,803

Notes: Table presents coefficients from logit regressions on probability of being necessity self-employed in LF (3a-c) or among other self-employed (4a-c). All regressions include gender wage gaps (based on median wages of men and women) by age and education group, country and year effects. Standard errors are in parentheses. * p<0.01, ** p<0.05, *** p<0.1