Pulling Effects in Migrant Entrepreneurship: Does Gender Matter?

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Abstract

In this paper, we examine whether the existing stock of migrant firms induces more new firms of the same co-ethnic group in the same sector and province. We do so by analyzing the number of new firms created each year by country of origin, sector, and province, drawing on administrative data of the population of individual firms observed over the period 2002-2013. We find support for a strong attractiveness effect. We also find that this effect significantly differs by gender: female migrant entrepreneurs show lower reactiveness to the existing stock of firms. Moreover, we show that such gender differences are stronger for migrants coming from more gender unequal countries and going into traditionally male industries.

Keywords: Migrant entrepreneurship, pulling effect, gender differences, gender inequality, male and female industries.
JEL: L26; J15; J16.

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1. Introduction

Immigrants show a high propensity to entrepreneurship and have exploited opportunities for small businesses creation in many territories OECD (2010). Although these businesses are often low-value activities, immigrant entrepreneurship is an important channel to promote entry into the labor market and migrants' integration in the territory of settlement. Moreover, it also contributes to the economic and social vitality of the host regions (Ndofor and Priem, 2011). Understanding the channels and mechanisms favoring new firm creation by foreign-born individuals in the host country is, therefore, essential for promoting integration and well-being.

Although we know little about the driving forces of immigrant entrepreneurship, there is evidence that immigrant groups tend to cluster in very specific business sectors. Kerr and Mandorff (2015) document this phenomenon in the United States and explain it through a model showing how social relationships in efficient markets can generate long-run occupational stratification. Tavassoli and Trippl (2017) investigate the impact of ethnic communities (ECs) on immigrants' entrepreneurship in Sweden and find that immigrants have higher propensity to become entrepreneurs if they are located in ECs that have a high share of same-ethnic/same-sector entrepreneurs. They explain this as the outcome of ECs acting as providers of industry-specific institutional knowledge and by the 'role model' effect(Bosma et al., 2012; Chlosta et al., 2012).[1]

Another relevant concept to study immigrants' entrepreneurship is that of 'mixed embeddedness' (Jones et al., 2014; Kloosterman, 2010; Kloosterman et al., 1998, 1999; Price and Chacko, 2009). This refers to the embeddedness of immigrants in social networks of co-ethnic communities and in the socioeconomic and political-institutional environment of the territory of settlement. Embeddedness spurs entrepreneurship by giving access to social networks providing capital, support, knowledge and a supply or customer base (Tavassoli and Trippl, 2017). These networks are particularly important for immigrants to overcome the fact that they have less knowledge of local regulations, norms, routines, and culture with respect to natives.

This paper builds on the concepts of 'role models' and 'mixed embeddedness' to study new business formation by nationality of migrant, sector, and province, drawing on administrative data of individual firms observed over the period 2002-2013. After having investigated whether the existing stock of migrant firms induces more new firms of the same co-ethnic

[1] A role model is a common reference to individuals who set examples to be emulated by others and who may stimulate or inspire other individuals to make certain (career) decisions and achieve certain goals (Bosma et al., 2012).

group in the same sector and province, we explore whether this effect differs by gender. By doing so, this is the first paper to link the literature on the determinants of immigrant entrepreneurship with studies on gender differences in the exploitation of social networks (Lindenlaub and Prummer, 2014; Lalanne and Seabright, 2014; Friebel et al., 2017).

This literature builds on the notion of strong and weak links (Granovetter, 1973, 1974) showing that women are more likely with respect to men to engage in strong links, i.e. in close relationships rather than in opportunistic ones (Booth, 1972; Moore, 1990; Benenson, 1993; Baumeister and Sommer, 1997), but that weak links favor higher work-related outcomes with respect to strong links. Based on this evidence, we argue that the determinants of new firm creation by immigrants can differ by gender, with men building more strongly on existing networks.

We find strong and robust evidence that the existing stock of migrant firms induces more new firms of the same co-ethnic group in the same sector and province and that this effect is stronger for men than for women. We also find that gender differences are higher for migrants coming from countries with low levels of gender equality. Finally, the characteristics of the country of origin of migrants matter more than those of the province of destination in determining gender differences in the clustering effect.

The rest of the paper is structured as it follows. Section 2 discusses the theoretical framework and introduces the working hypotheses. Methodology and applied data are presented in Section 3 and 4, respectively. Section 5 discusses the empirical results. Conclusions and implications are discussed in Section 6.

2. Conceptual framework and hypotheses development

It is widely acknowledged that ethnic communities (ECs) spur immigrant entrepreneurship (Kloosterman et al., 1999; Light et al., 1993; Rodríguez-Pose and von Berlepsch, 2014; Tavassoli and Trippl, 2017). Although scant attention has been devoted to disentangling the different mechanisms fostering these dynamics, more recently Tavassoli and Trippl (2017) have paved the way for a deeper understanding of the role played by ECs in immigrants' decisions to become entrepreneurs.

A first mechanism concerns knowledge spillovers from entrepreneurs in the same ethnic group and the same industry. As immigrants have less knowledge of regulations, norms, routines, and culture of the host region with respect to natives, they benefit the spillover of institutional knowledge about how to start a new business within their ECs (Andersson and Larsson, 2016; Fritsch and Wyrwich, 2014; Minniti, 2005; Guiso and Schivardi, 2011). This argument is grounded in the 'mixed embeddedness' approach, which stresses the relevance of immigrants' embeddedness in the social networks of co-ethnic communities, on the one

hand, and in the socioeconomic and political-institutional context of the host region, on the other hand (Jones et al., 2014; Kloosterman et al., 1998, 1999; Kloosterman, 2010; Price and Chacko, 2009). Immigrants also benefit the spillover of knowledge from same-ethnic entrepreneurs who are employed in the same industry. Social networks of co-ethnic communities indeed exert an important role in diffusing industry-specific information that relate, for example, supply-chain or marketing channels and that are useful for the new business (Damm, 2009; Raijman and Tienda, 2000). These arguments about institutional and industry-specific knowledge spillovers within social networks of co-ethnic communities stress the importance of the 'learning-by-support' mechanism.

A further argument to explain the influence of ethnic communities on immigrant entrepreneurship consists of the 'role model' effect (Bosma et al., 2012; Chlosta et al., 2012). By means of a 'learning-by-example' mechanism, immigrants are influenced by same-ethnic, same-industry entrepreneurs in the choice to start their own business. Characteristics like sector and ethnicity indeed facilitate role identification of would-be entrepreneurs. In view of these arguments we test the following hypothesis:

Hypothesis 1: The higher the stock of immigrants the higher is new firm formation of the same co-ethnic group in the same sector and province.

Documented empirical findings show that men's and women's social networks differ. In particular, women tend to form networks that are more stable, path dependent and composed to a greater degree of strong rather than weak links. On the contrary, men are less selective and more opportunistic in their interpersonal behavior, leading developing networks with more new links and consisting of weaker ties. Early work by Granovetter (1973, 1974), distinguishing between strong links, i.e. close relationships, and weak links, i.e. more casual and opportunistic acquaintanceships, argues that weak links are often more useful in contexts like job search where acquaintances' greater ability to provide novel information outweighs their lesser motivation to provide support and help. Women also tend to build more informal networks within their family and friend sphere (Ibarra, 1992; Brush, 1992; Munch et al., 1997; Verheul et al., 2002) while, on the opposite, men rely on more formal networks that could be relevant and useful sources of knowledge when starting a new business. These differences could have a significant impact on the entrepreneurial propensity and effectiveness of women.

Man and women also differ in the use of social networks. Previous works reveal that women entrepreneurs have fewer networks with respect to their male counterparts (Munch et al., 1997; Aldrich, 1989; Cromie and Birley, 1992; Hanson and Blake, 2009). The main argument is that women typically start their entrepreneurial career from domestic or non-managerial positions and thus their network is less extensive and developed. Moreover,

women entrepreneurs also spend less time networking as they face higher barriers in balancing family and work responsibilities as compared their male counterpart (Verheul et al., 2002).

Moreover, recent evidence supports the view that women and men leverage their networks differently (Mengel, 2015; Beaman et al., 2016) and obtain different work-related benefits because of different network structures (Lindenlaub and Prummer, 2014; Lalanne and Seabright, 2014). Differences in men's and women's social networks may, therefore, be key in understanding gender differences in career outcomes and may complement existing explanations of the persistent gender gap in labor market outcomes (see Bertrand, 2011, for a recent survey).

Finally, differences in men's and women's entrepreneurial propensity and behaviors can be explained by the role model argument. An important dimension of role identification - other than ethnicity and industry, as previously discussed - is gender. This means that women (men) immigrants entrepreneurs may be a stimulus mainly for other immigrant women (men). Given the scarcity of female entrepreneurs, particularly within minority communities, the gender gap in entrepreneurship may thus persist over time. In this vein, for example, Klyver and Grant (2010) show that gender differences in entrepreneurial networking and participation reside in the paucity of role models in women social networks.

In view of these arguments, we posit our second hypothesis as it follows:

Hypothesis 2: The relationship between the stock of immigrants and new firm formation of the same co-ethnic group in the same sector and province is stronger for men than for women.

Previous works have shown that gender differences in entrepreneurship cannot be explained solely on the basis of economic development and that socioeconomic variables measuring human development also matter. In this vein, Maniyalath and Narendran (2016), in their empirical analysis using GEM data on 61 countries, reveal that national human and gender development indices affect female entrepreneurship rates. Gendered institutions may indeed exert a relevant influence on women's decisions to start their own businesses (Elam and Terjesen, 2010; Pathak et al., 2013; Urbano and Alvarez, 2014). The explanation can reside in two important dimensions of gender development indexes - empowerment (measured by the proportion of parliamentary seats occupied by females and proportion of adult females with at least secondary education) and economic status (expressed as labor market participation) - which have proved to be key drivers of female entrepreneurship. In this vein, our argument is that, in gender-unequal communities, intensity and type of networks differ between men and women. In accordance with previous literature on social networks and role model effects, we posit that less equal communities, where by definition female labor market

participation and educational level are low, are characterized by more informal, weak and less intense networking activity by females as typically they start their entrepreneurial career from domestic or non-managerial positions. On the other hand, low levels of empowerment and economic status within less equal communities can signal the paucity of role models within the community.

In view of these arguments, we formulate the following hypothesis:

Hypothesis 3: Gender differences in the relationship between the stock of immigrants and new firm formation of the same co-ethnic group in the same sector and province are larger for immigrants coming from more gender unequal countries.

3. Empirical model

Our aim is to estimate the role of existing co-ethnic entrepreneurs as a driver of new firm creation by migrants. To do so, we estimate several specifications of the following baseline regression:

$$NewFirms_{t,j,n,p} = \beta Firms_{t-2,j,n,p} + \gamma X_{t-2,j,n,p} + \epsilon_{t,j,n,p} \quad (1)$$

Our dependent variable, $NewFirms$, reports the number of new individual firms (in logarithms) that are created in year t, in sector of economic activity j, by an entrepreneur with nationality n, and in province p. Our regressor of interest is $Firms$. It reports the number of existing individual firms (in logarithms) in year $t-2$, in industry j, in province p, with the entrepreneur originating from country n. Hence, $NewFirms$ reports the number of *new* individual firms created in year t in a given province, industry, and by entrepreneurs originating from a given country, whereas $Firms$ reports the *stock* of same-category individual firms two years before (i.e., at $t-2$). Our interest lies in β. It measures the attractiveness effect that the existing stock of firms exercises on would-be entrepreneurs in the same ECs (and same industry and province).

In our regressions, we insert (in progression) a variety of different control variables ($X_{t-2,j,n,p}$). They include an extensive set of dummies controlling for time, industry, province, and country of origin fixed effects. We also add time dummies interacted with both industry dummies and province dummies, thereby controlling for different time trends in the various industries and provinces. It is important to remove those fixed effects. In fact, they can potentially influence both the creation of new firms and the existing stock of firms in a given EC, industry, and province, and consequently bias the results. For instance, there might be some provinces more active in the promotion of migrant entrepreneurship than others.

Similarly, there might be some industries undergoing periods of expansions and others experiencing periods of contractions. Also, there might be booms in in-flows of migrants from specific countries. All of these situations might affect both the stock of migrant firms as well as the creation of new migrant firms in the same EC, province, and sector, without any attractiveness-type effect being involved.

We also include among regressors a variable collecting immigration rates by province and country of origin (at $t-2$). This variable allows controlling for the relative weights of each EC in each province, which can substantially influence both new firm formation and the stock of firms in a given EC and province. Finally, we include controls for the overall stock of entrepreneurs in a given industry and province (at $t-2$ and in logarithms), both as such and dividing between native and migrant (except those considered) entrepreneurs. This is a relevant control, as it accounts for specificities in culture/vocation toward entrepreneurship in a particular province and industry, and the importance of migrant entrepreneurs in it.

As mentioned, the regression results presented in the paper start all from Equation 1, which is adapted from time to time to our specific needs, for examples by splitting the sample and running separate regressions for males and females or by adding interaction terms.

4. Data

In our empirical analysis, we resort to the ASIA archive, a data set provided yearly by the Italian statistical institute (ISTAT) since the early 2000s. ASIA collects information on the *whole* population of individual entrepreneurs in Italy in each year. We use the ASIA data for a time span of thirteen years, from 2002 to 2013. It collects basic information on entrepreneurs, including their country of origin, gender (gathered through the fiscal codes of individual entrepreneurs), and industry classification and province of activity of the firm.

Our analysis is based on the aggregation of such individual-level data at fine aggregation levels: industry, province, and country of origin (and gender, depending on the specifications). We define industries at the 2-digit level of the Ateco classification, resulting in about 50 different categories in our data. There are 110 different provinces represented. Countries of origin of migrant entrepreneurs observed are about 170, virtually all the countries in the world. This multidimensional aggregation results into many different cells, which constitute the units of our analysis. In specifications that do not account for the gender dimension, such cells are about 16,000 in each year. This number somewhat less than doubles when we also consider the gender dimension, that is, when we consider male *and* female entrepreneurs in each EC, province, and industry separately. This indicates that in some of the cells there are only male migrant entrepreneurs and no female migrant entrepreneurs.

In sum, our analysis on overall migrant entrepreneurs is based on 210,363 observations. When we also consider the gender dimension, we have 210,363 observations referring to male migrant entrepreneurs and 139,111 referring to female migrant entrepreneurs.

We complement information from ASIA with several other data sources. In particular, we collect information to construct the immigration rates by year, province, and country of origin (used as control) from detailed population statistics provided by the ISTAT. We recover Gender Inequality Indexes (GIIs) and percentages of women in parliament in the countries of origin, which we use in some of our estimations (see Section 5), from the United Nations Development Programme in 2010. GIIs, in particular, are indexes developed by the United Nations Development Programme to measure the level of gender inequality in each country of the world.[2]

Before moving to the econometric analysis, we provide several graphs and tables to descriptively explore key variables. In Figure 1, we show how the total number of entrepreneurs (including native entrepreneurs) has evolved over our time span. After a conspicuous decrease in the stock of entrepreneurs between 2002 and 2004, starting from 2004 there has been a constant upward trend up to the global economic crisis in 2008. Since then, the number of entrepreneurs in Italy substantially decreased. By 2013 there were more than 150,000 entrepreneurs less than in 2008. In the same graph, we depict the ratio of migrant entrepreneurs over the total stock of entrepreneurs. The figure shows that migrant entrepreneurs have become a relevant share of entrepreneurs in Italy, and that their weigh has constantly increased over years. In 2013, they weighted about 8% of the total stock of entrepreneurs.

Figure 2 display the gender dimension of such trends. The blue line shows how the percentage of female entrepreneurs over the total stock of entrepreneurs evolved over time. Data testify an increasing trend in the share of females among entrepreneurs. If females represented about 25% of individual entrepreneurs in 2002, by 2013, they were about 29%. The red line shows instead the percentage of migrants among female entrepreneurs. As the overall share of migrants among entrepreneurs, it underwent a constant increase, almost doubling in our time span. While in 2002 less than 5% of female entrepreneurs were migrants, in 2013 this percentage increased to about 9%. Yet, the share of females among migrant entrepreneurs (about 9% in 2013) remained substantially lower than the overall share of females among entrepreneurs (about 25% in 2013), possibly pointing to greater gender barriers among migrants than natives.

Figures from 3 to 6 show the same variables of Graph 1 and 2 but from a geographical

[2]See `http://hdr.undp.org/en` for a detailed description on how they are constructed.

perspective. They show how the total number of entrepreneurs (Figure 3), the percentage of migrant entrepreneurs (Figure 4), the percentage of female entrepreneurs (Figure 5), and the percentage of migrants among female entrepreneurs (Figure 6) was distributed by province in 2013. As these figures show, there is significant variability across provinces.

The North of Italy is featured by high stocks of entrepreneurs, particularly in the province of Turin and in many of the provinces of Lombardy and Veneto. Yet, large stocks of entrepreneurs are also located in important provinces of the Center and South of Italy, particularly in the area of Rome, Naples, Bari, and Palermo (Figure 3).

North-Central Italian regions, especially the region of Emilia-Romagna, have the highest concentration of migrant entrepreneurs. High proportions of migrants among entrepreneurs are also found in the provinces of Friuli-Venezia Giulia and in the area of Rome. Conversely, migrant entrepreneurs are typically less present in provinces of the South of Italy, consistently with lower immigration rates in such places (Figure 4).

Provinces in the Central regions of Italy, especially Emilia-Romagna, Tuscany, and Lazio, are those featuring the highest presence of females among entrepreneurs. High representations of female entrepreneurs are also found in several provinces of Sardinia, whereas the South of Italy typically features the lowest proportions of female entrepreneurs, in accordance with low levels of female labor activity there (Figure 5).

Provinces featuring high representations of migrants, typically also display high concentrations of females among migrant entrepreneurs. Thus, provinces in the regions of Emilia-Romagna and Friuli-Venezia Giulia are those featuring the highest proportions of migrants among female entrepreneurs (Figure 6). Migrant female entrepreneurs are a few in relation to female entrepreneurs in the South of Italy, with values most of the time ranging between 2% and 6%.

Finally, Table 1 reports relevant summary statistics. It collects the variables we use in our regressions, both those that do not consider the gender dimension (shown in the first panel), and those that do differentiate by gender (the second panel refers to males, while the third panel refers to females). Leaving aside the gender dimension, on average, in a given cell (i.e., given province, industry, and country of origin), 0.629 new individual firms are established each year. The standard deviation is high (equal to 4.826), suggesting that the number of new migrant individual firms established each year greatly varies depending on the industry, province, and country of origin of the entrepreneur. The average stock of firms in the same EC, industry, and province is much higher, equal to 8.051. Like for new firms, this number has high variability (standard deviation equal to 37.874), pointing to substantial differences among the different cells. Similar pictures emerge when differentiating between males and females.

5. Results

The results of the econometric estimations of our baseline equation are reported in Table 2. Our estimation results show a significant attractiveness effect, which we interpret as network effect: on average additional 35% of new firms decide to locate in that province due to the existing stock of similar firms. By similar we mean firms belonging to entrepreneurs for the same country of origin and in the same sector. Put differently, 35% of new firms of immigrants are explained by the existing stock of firms set up by the same-nationality immigrants, for each sector. This result confirms our first hypothesis that the higher the stock of immigrants the higher is new firm formation of the same co-ethnic group in the same sector and province. In line with the 'mixed embeddedness' approach, we interpret this effect as a network effect: placing a new firm in the same province where there are firms of co-nationals is driven by the spillover of institutional knowledge about how to start a new business within their ECs. It is easier to locate a firm by using the past experience of same co-nationals who have matured experience in one sector of activity through a 'learning-by-support' mechanism. Moreover, a further argument to interpret this result with the role model effect. By means of a 'learning-by-example' mechanism, immigrants are indeed influenced by same-ethnic, same-industry entrepreneurs in the choice to start their own business.

Is this effect homogeneous between gender? We add the gender dimension to our reasoning to detect whether, and to what extent, women and men differ in their network attitude. In Table 3 we analyze the effect for males and females separately, by also distinguishing the effect stemming from all entrepreneurs (Model 1) and the effect stemming from same-gender and other gender entrepreneurs (Model 2). Our results reveal that the relationship between the stock of immigrants and new firm formation of the same co-ethnic group in the same sector and province is stronger for men than for women (Model 1). Results also show that the gender of the entrepreneur shapes in a different way the network effect: women are less active in following other female entrepreneurs of the same co-ethnic group, in the same province and sector (21% for female entrepreneurs against 33% for male ones) (Model 2). These results confirm our second hypothesis and support the idea that men's and women's differ in the way they build, use and leverage their networks. Results also reveal the paucity of role models in women social networks, particularly within minority communities.

Does the socioeconomic context matter? To answer this question we also explore whether gender differences are affected by the degree of gender equality in the country of origin. Results reported in Table 4 show that gender differences in the relationship between the stock of immigrants and new firm formation by entrepreneurs of the same co-ethnic group in the same sector and province are larger for immigrants coming from more gender unequal countries. Women are less active than men in following other entrepreneurs of the same co-

ethnic group, in the same province and sector in countries of origin with high GII (13% for female entrepreneurs against 37% for male ones) while they are equally active with respect to men in countries of origin with low GII (21% for both female and male entrepreneurs). Similar results are obtained if we measure gender equality of countries by means of the percentages of women in parliament. These results confirm our third hypothesis.

To further check the robustness of our analysis, we run additional econometric estimations. More precisely, we verify whether gender differences are affected by industry dynamics. Table 5 show that gender differences in the relationship between the stock of immigrants and new firm formation by entrepreneurs of the same co-ethnic group in the same sector and province are larger for male industries than for female industries: 24% in male industries vs 4% in female industries. Finally, gender differences by male and female industries and high or low degrees of gender equality in the country of origin are reported in Table 6. Previous results are confirmed. Stronger and significant differences are found in the sub-sample including male industries and countries of origin with high GII (35%) while no statistical differences are found in the sub-sample including female industries and countries of origin with low GII.

All in all, our findings provide strong and robust evidence that the existing stock of migrant firms induces more new firms of the same co-ethnic group in the same sector and province and that this effect is stronger for men than for women. We also find that gender differences are higher for migrants coming from countries with low levels of gender equality and operating in industries with high male intensity.

6. Conclusions

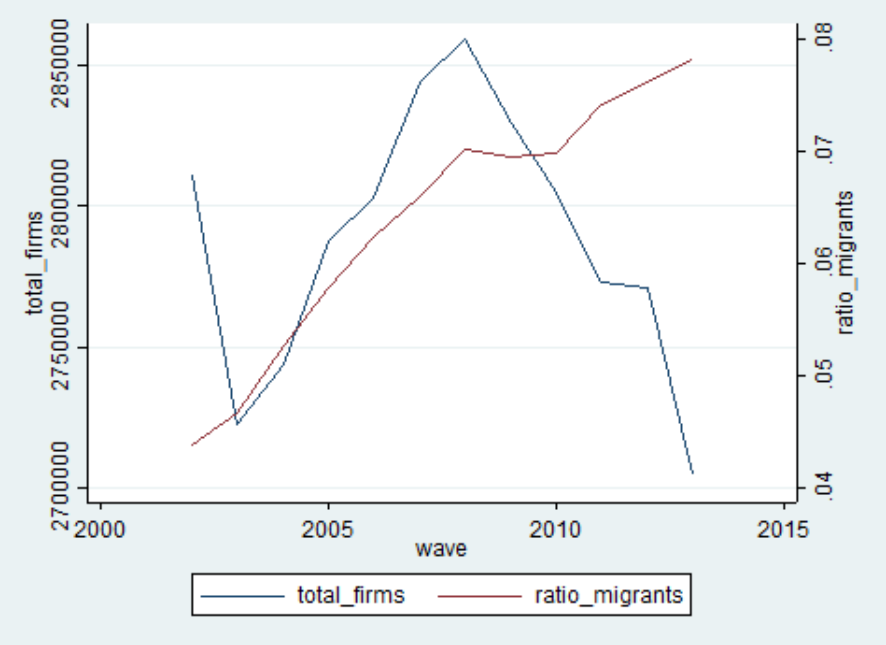
Drawing on the concepts of 'mixed embeddedness' and 'role models', we have examined whether the existing stock of migrant firms induces more new firms of the same co-ethnic group in the same sector and province. Moreover, we add the gender dimension to our reasoning to detect whether, and to what extent, the attractiveness effect differs between women and men. These are relevant issues since immigrant entrepreneurship is an important channel to promote entry into the labor market and is, therefore, essential for promoting integration and well-being.

The empirical analysis relies on administrative data of individual firms observed over the period 2002-2013 in Italian NUTS 3 regions.

Our results reveal strong and robust evidence that the existing stock of migrant firms induces more new firms of the same co-ethnic group in the same sector and province and that this effect is stronger for men than for women. We also find that gender differences are higher for migrants coming from countries with low levels of gender equality. Finally, the

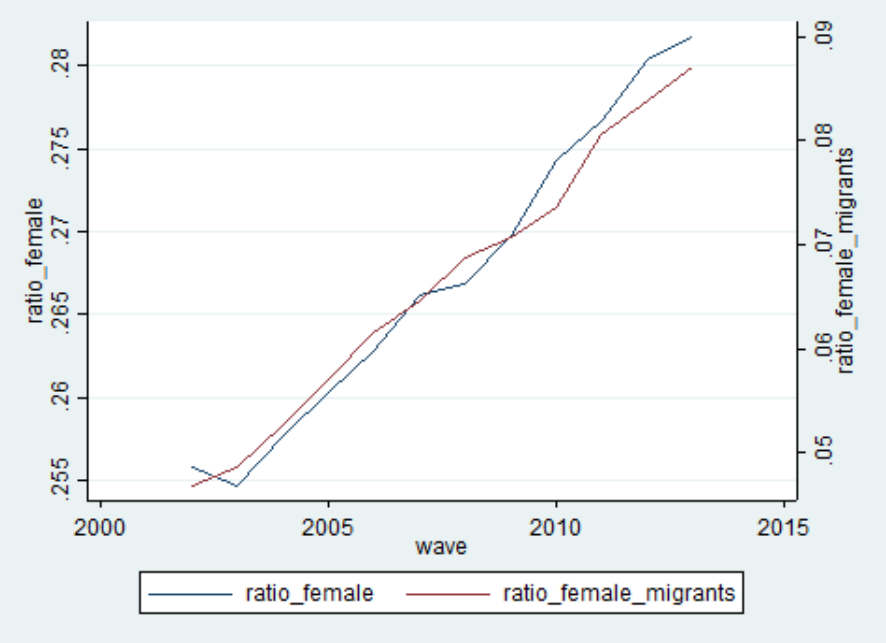
characteristics of the country of origin of migrants matter more than those of the province of destination in determining gender differences in the clustering effect.

Figure 1: Total number of entrepreneurs and percentage of migrant entrepreneurs over all entrepreneurs by year



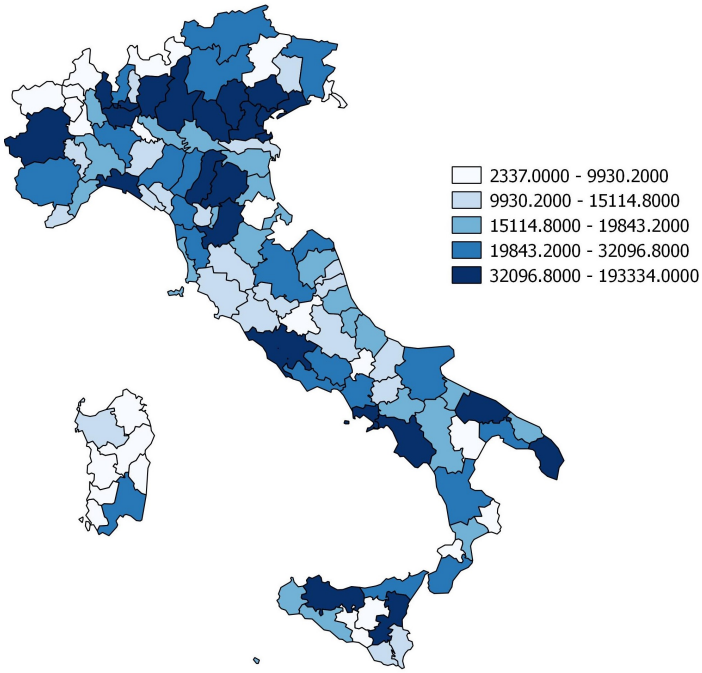
Source: ASIA data set (years: 2002-2013).

Figure 2: Percentage of female entrepreneurs over all entrepreneurs and percentage of female migrant entrepreneurs over female entrepreneurs by year



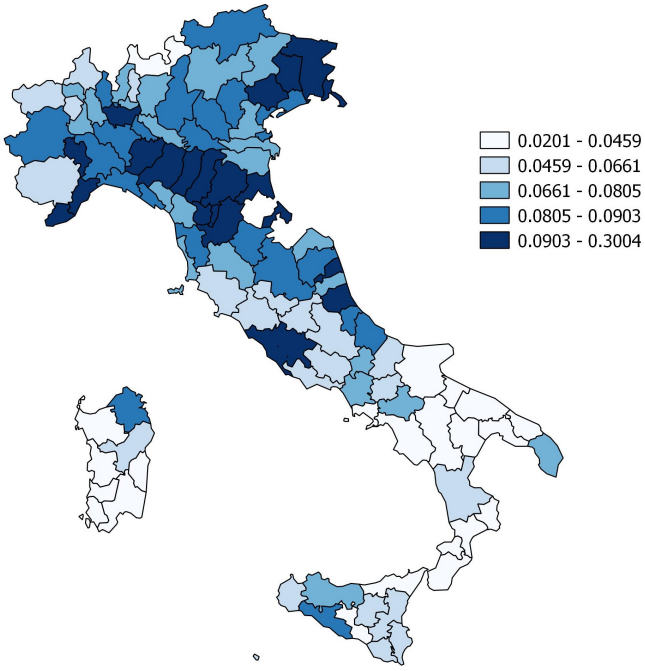
Source: ASIA data set (years: 2002-2013).

Figure 3: Total number of entrepreneurs by province (year 2013)



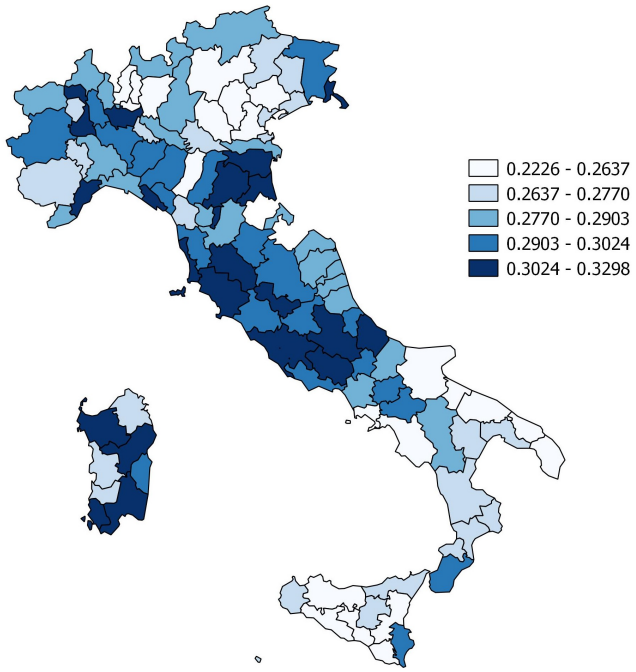
Source: ASIA data set (year: 2013).

Figure 4: Percentage of migrant entrepreneurs over all entrepreneurs by province (year 2013)



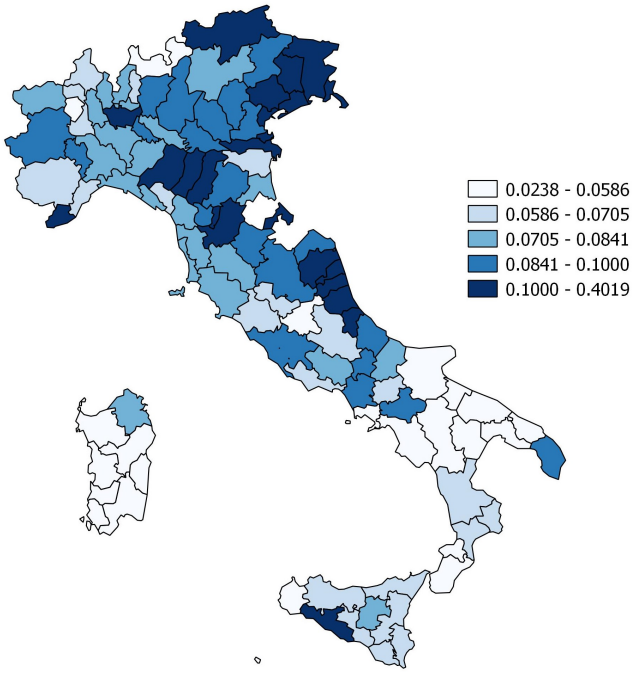
Source: ASIA data set (year: 2013).

Figure 5: Percentage of female entrepreneurs over all entrepreneurs by province (year 2013)



Source: ASIA data set (year: 2013).

Figure 6: Percentage of female migrant entrepreneurs over female entrepreneurs by province (year 2013)



Source: ASIA data set (year: 2013).

Table 1: Sample summary statistics

	Pooled		Last year (2013)	
Variable	**Mean**	**Std. dev.**	**Mean**	**Std. dev.**
New migrant entrepreneurs by industry, province, and country of origin	0.629	4.826	0.534	4.013
New migrant entrepreneurs by industry, province, and country of origin (log)	0.198	0.505	0.187	0.474
Migrant entrepreneurs by industry, province, and country of origin	8.051	37.874	8.138	41.476
Migrant entrepreneurs by industry, province, and country of origin (log)	1.422	0.910	1.415	0.910
Immigration rate by province and country of origin	0.002	0.005	0.003	0.006
Immigration rate by province	0.071	0.034	0.087	0.034
Entrepreneurs by industry and province (excludes same-country migrant entrepreneurs)	3,563.992	6,576.459	3,273.449	6,152.195
Entrepreneurs by industry and province (excludes same-country migrant entrepreneurs) (log)	7.173	1.577	7.085	1.579
Native (i.e., Italian) entrepreneurs by industry and province	3,301.043	6,153.499	2,998.744	5,697.728
Native (i.e., Italian) entrepreneurs by industry and province (log)	7.094	1.582	6.997	1.580
Migrant entrepreneurs by industry and province (excludes same-country migrant entrepreneurs)	262.949	534.181	274.705	578.536
Migrant entrepreneurs by industry and province (excludes same-country migrant entrepreneurs) (log)	4.314	1.710	4.358	1.709
	Observations: 210,363		Observations: 23,550	
New male migrant entrepreneurs by industry, province, and country of origin	0.471	4.124	0.355	2.760
New male migrant entrepreneurs by industry, province, and country of origin (log)	0.148	0.444	0.133	0.398
Male migrant entrepreneurs by industry, province, and country of origin	6.209	32.028	6.000	33.332
Male migrant entrepreneurs by industry, province, and country of origin (log)	1.248	0.827	1.224	0.812
	Observations: 210,363		Observations: 23,550	
New female migrant entrepreneurs by industry, province, and country of origin	0.262	1.687	0.279	1.960
New female migrant entrepreneurs by industry, province, and country of origin (log)	0.123	0.348	0.129	0.357
Female migrant entrepreneurs by industry, province, and country of origin	3.483	12.695	3.710	15.429
Female migrant entrepreneurs by industry, province, and country of origin (log)	1.111	0.646	1.121	0.666
	Observations: 139,111		Observations: 16,960	

Source: ASIA data set (years: 2002-2013)

Table 2: Overall effect

Dependent variable: number of new migrant entrepreneurs by industry, province, and country of origin at t (log)

Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Number of migrant entrepreneurs by industry, province, and country of origin at $t-2$ (log)	0.365***	0.353***	0.355***	0.356***	0.354***	0.356***	0.356***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Immigration rate by province and country of origin at $t-2$					2.584**	2.477**	2.376**
					(1.086)	(1.091)	(1.082)
*Number of entrepreneurs by industry and province at $t-2$ (log)						-0.019***	
						0.005	
Number of native (i.e., Italian) entrepreneurs by industry and province at $t-2$ (log)							0.002
							(0.006)
**Number of migrant entrepreneurs by industry and province at $t-2$ (log)							-0.017***
							(0.004)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	-	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	-	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin dummies	-	Yes	Yes	Yes	Yes	Yes	Yes
Year∗Industry dummies	-	-	Yes	Yes	Yes	Yes	Yes
Year∗Province dummies	-	-	-	Yes	Yes	Yes	Yes
							Number of observations: 210,363

Source: ASIA data set (years: 2002-2013)

*It excludes same-country migrant entrepreneurs (i.e., it includes native entrepreneurs and migrant entrepreneurs from all countries except that considered).

**It excludes same-country migrant entrepreneurs (i.e., it includes migrant entrepreneurs from all countries except that considered).

Estimation method: OLS regressions. Robust and clustered standard errors in parentheses; ***, **, and * denote, respectively, the 1%, 5%, and 10% significance level. Industry dummies collect about 50 dummies, one for each industry as defined by the 2-digit Ateco 2007 classification. Province dummies collect about 110 dummies, one for each Italian administrative province. Country of origin dummies collect about 170 dummies, one for each country of origin of migrant entrepreneurs. Year∗Industry dummies and Year∗Province dummies are dummies for the interaction between time and industry and time and provinces, respectively.

It follows an example to clarify the definition of variables. Let us consider the cell formed by Romanian entrepreneurs in the province of Milan in the Construction industry. The dependent variable is the (natural logarithm of the) number of such migrant entrepreneurs in that industry and province who started their business in the year (i.e., this is a flow). The regressor of interest is the (natural logarithm of the) number of such migrant entrepreneurs in that industry and province two years before (i.e., this is a stock). A control variable is the immigration rate by province and country of origin. In our example, it says how many Romanian migrants (relative to the total population) were located in the province of Milan in a given year. Another control variable is the (natural logarithm of the) number of entrepreneurs by industry and province. In our example, it says the number of entrepreneurs other than Romanian entrepreneurs who operate in the province of Milan in the Construction industry in a given year. Finally, two control variables split this number between native entrepreneurs and migrant (other than Romanian) entrepreneurs.

Table 3: Effect for males and females separately

	Males	**Females**	**Gender difference**
	Dependent variable: number of new male migrant entrepreneurs by industry, province, and country of origin at t (log)	*Dependent variable: number of new female migrant entrepreneurs by industry, province, and country of origin at t (log)*	
Model 1: effect stemming from all entrepreneurs			
Number of migrant entrepreneurs by industry, province, and country of origin at $t-2$ (log)	0.302*** (0.006)	0.169*** (0.005)	-0.133***
Model 2: effect stemming from same-gender and other-gender entrepreneurs			
Number of same-gender migrant entrepreneurs by industry, province, and country of origin at $t-2$ (log)	0.329*** (0.007)	0.211*** (0.007)	-0.118***
Number of other-gender migrant entrepreneurs by industry, province, and country of origin at $t-2$ (log)	0.016*** (0.004)	0.058*** (0.002)	+0.042***
Same-gender effect relative to other-gender effect	20.563	3.638	
Number of observations	210,363	139,111	

Source: ASIA data set (years: 2002-2013)

Estimation method: OLS regressions. Robust and clustered standard errors in parentheses; ***, **, and * denote, respectively, the 1%, 5%, and 10% significance level. All regressions include the same set of controls as Column (6) of Table 2.

Table 4: Gender differences by degree of gender equality in country of origin

	Males	**Females**	**Gender difference**
	Dependent variable: number of new male migrant entrepreneurs by industry, province, and country of origin at t (log)	*Dependent variable: number of new female migrant entrepreneurs by industry, province, and country of origin at t (log)*	
Gender differences by Gender Inequality Indexes (GIIs) in country of origin			
Countries of origin with low GII			
Number of migrant entrepreneurs by industry, province, and country of origin at $t-2$ (log)	0.213*** (0.008)	0.212*** (0.009)	-0.001
Number of observations	92,921	70,903	
Countries of origin with high GII			
Number of migrant entrepreneurs by industry, province, and country of origin at $t-2$ (log)	0.368*** (0.009)	0.129*** (0.005)	-0.239***
Number of observations	99,160	58,398	
Gender differences by percentages of women in parliament in country of origin			
Countries of origin with high percentage of women in parliament			
Number of migrant entrepreneurs by industry, province, and country of origin at $t-2$ (log)	0.245*** (0.007)	0.197*** (0.008)	-0.048***
Number of observations	119,836	76,892	
Countries of origin with low percentage of women in parliament			
Number of migrant entrepreneurs by industry, province, and country of origin at $t-2$ (log)	0.367*** (0.010)	0.136*** (0.006)	-0.231***
Number of observations	89,884	61,951	

Source: ASIA data set (years: 2002-2013)

Estimation method: OLS regressions. Robust and clustered standard errors in parentheses; ***, **, and * denote, respectively, the 1%, 5%, and 10% significance level. All regressions include the same set of controls as Column (6) of Table 2.

GIIs are those provided by United Nations Development Programme in 2010 and refer to year 2008. We use this version of the GIIs, and not the most recent, as 2008 lies exactly half-way in our panel, which spans years 2002 to 2013. Unfortunately, the 2008 GIIs are not reported for some (small) countries, which entails a loss of observations of around 8%. Countries of origin with low (high) GII are defined as those below (above) the median. As GIIs, percentages of women in parliament refer to year 2008. For a few (small) countries, the 2008 percentage of women in parliament is not reported, which entails a loss of observations of about 0.3%. Countries of origin with low (high) percentage of women in parliament are defined as those below (above) the median.

Table 5: Gender differences by male and female industries

	Males	**Females**	**Gender difference**
	Dependent variable: number of new male migrant entrepreneurs by industry, province, and country of origin at t (log)	*Dependent variable: number of new female migrant entrepreneurs by industry, province, and country of origin at t (log)*	
Gender differences by male and female industries			
Male industries			
Number of migrant entrepreneurs by industry, province, and country of origin at $t-2$ (log)	0.348*** (0.009)	0.106*** (0.008)	-0.242***
Number of observations	117,865	41,455	
Female industries			
Number of migrant entrepreneurs by industry, province, and country of origin at $t-2$ (log)	0.239*** (0.008)	0.196*** (0.007)	-0.043***
Number of observations	92,498	97,656	

Source: ASIA data set (years: 2002-2013)

Estimation method: OLS regressions. Robust and clustered standard errors in parentheses; ***, **, and * denote, respectively, the 1%, 5%, and 10% significance level. All regressions include the same set of controls as Column (6) of Table 2.

Male and female industries are defined as follows. First, we compute the share of female entrepreneurs over the total number of entrepreneurs by industry and province in each year. Then, we define male (female) industries if the share is below (above) the median. To preserve all observations, we finally take the mode within cells. In male industries the share of female entrepreneurs is 0.124, whereas in female industries the share is 0.432.

Table 6: Gender differences by male and female industries and degree of gender equality in country of origin

	Males	**Females**	**Gender difference**
	Dependent variable: number of new male migrant entrepreneurs by industry, province, and country of origin at t (log)	*Dependent variable: number of new female migrant entrepreneurs by industry, province, and country of origin at t (log)*	
Gender differences by male and female industries and GIIs in country of origin			
Male industries and countries of origin with low GII			
Number of migrant entrepreneurs by industry, province, and country of origin at $t-2$ (log)	0.167*** (0.011)	0.124*** (0.018)	-0.043**
Number of observations	51,742	20,973	
Male industries and countries of origin with high GII			
Number of migrant entrepreneurs by industry, province, and country of origin at $t-2$ (log)	0.444*** (0.011)	0.090*** (0.007)	-0.354***
Number of observations	55,240	17,558	
Female industries and countries of origin with low GII			
Number of migrant entrepreneurs by industry, province, and country of origin at $t-2$ (log)	0.235*** (0.011)	0.232*** (0.010)	-0.003
Number of observations	41,179	49,930	
Female industries and countries of origin with high GII			
Number of migrant entrepreneurs by industry, province, and country of origin at $t-2$ (log)	0.256*** (0.010)	0.153*** (0.007)	-0.103***
Number of observations	43,920	40,840	

Source: ASIA data set (years: 2002-2013)

Estimation method: OLS regressions. Robust and clustered standard errors in parentheses; ***, **, and * denote, respectively, the 1%, 5%, and 10% significance level. All regressions include the same set of controls as Column (6) of Table 2.

Male and female industries and countries of origin with low and high GII are defined as in Tables 4 and 5, respectively.

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