



Does gender matter for firms' access to credit? Evidence from international data



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ABSTRACT

This paper investigates the existence of gender differences in firms' access to finance. Based on firm-level data for 28 transitional European countries, we show how estimated gender gaps in credit demand and financial constraints significantly depend on the way in which female participation in ownership and management is measured. Furthermore, we find that differences in credit denial probability are not explained by the observed firm characteristics considered, but are due instead to unexplained factors, thus providing support to the hypothesis of gender-based discrimination in access to credit against women-led businesses.

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1. Introduction

A broad and still growing literature has focused on gender-based discrimination in firms' access to finance, which limits growth and profitability of women-led businesses and represents an obstacle for their investing opportunities (World Bank, 2011).

Alternative explanations have been proposed to motivate these gender differentials. Observed gaps can be the result of supply-side discrimination by financial intermediaries (Cavalluzzo et al., 2002), who treat loan applications coming from male- and female-led firms, with otherwise similar characteristics and creditworthiness, differently. This unequal treatment may be the result of a taste-based discrimination (Becker, 1957), not explained by economic motivations, but related instead to lenders' preferences and cultural beliefs about gender (Muravyev et al., 2009). On the other hand, the lower diffusion of female-led firms makes information on their quality insufficient and costly to collect for lenders, who may be thus induced to perceive them as riskier than their male counterparts. These adverse selection effects make credit access difficult for creditworthy female borrowers and lead to a self-reinforcing Arrowian statistical discrimination mechanism (Bellucci et al., 2010). Most empirical studies do not distinguish between these two motives and adopt instead a broad definition (Blanchflower et al., 2003), according to which evidence of discrimination is found whenever gender differences remain statistically significant even after controlling for a wide range of observable characteristics, reflecting firm's economic fundamentals, solvency and creditworthiness.

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Gender gaps in credit access may also stem from demand-side factors related to differences in characteristics and preferences for credit use between male- and female-led firms, which could affect their actual loan application behaviour (Drakos and Giannakopoulos, 2011). Gender differences in credit demand may thus reflect different external financing needs, but also diverse lending conditions and perceptions on approval probability that lead to application discouragement.

Results from empirical studies are not yet definitive and there is not a general agreement upon the existence of significant gender gaps in credit access. Brown et al. (2011) suggest that such mixed evidence may depend on country-specific market and institutional factors, which may affect firms' credit demand and rationing. Hansen and Rand (2014a, b) have also shown that dissimilarities in estimated gender gaps crucially depend on the way researcher's measure credit constraints. As discussed in Presbitero et al. (2014), a further critical aspect relates to the definition of firm's gender structure. Due to the limited availability of information on the gender composition of the firm, empirical studies have in fact adopted a wide range of indicators, capturing different degrees of female involvement in firm's ownership and management (Aterido et al., 2013), making it difficult to compare findings and draw unequivocal conclusions on the existence of gender-based discrimination in credit access.

This paper contributes to the empirical analysis of gender discrimination in financial access for firms in European transitional countries. Using direct financial constraints indicators and controlling for endogenous sample selectivity, we investigate gender differences in credit rationing probability and evaluate to what extent the heterogeneity in empirical findings obtained for these countries is due to the way in which firm's gender is defined. Differently from previous studies, exploiting the detailed information on firm's gender structure provided in the latest release of the EBRD-World Bank *Business Environment and Enterprise Performance Survey* (BEEPS), we consider alternative gender definitions and propose a restrictive measure of female presence, identifying firms in which women play a key role in both ownership and management. Furthermore, we explicitly assess the role of banking system characteristics and financial and institutional factors on loan application behaviour and credit rationing. We also provide a methodological contribution to the existing literature by proposing a generalised decomposition technique for probit models with endogenous selectivity. This framework allows assessing the role of observable and unobservable factors in determining gender differentials in credit demand and rationing and to obtain indication on the existence of gender-based discrimination.

2. Data

We use the 2012 BEEPS survey and focus on 12,970 manufacturing and service firms in 17 Central and Eastern European countries (CEECs) and 11 countries belonging to the Commonwealth of Independent States (CIS).¹

We define a binary indicator of credit demand (A) equal to one for those firms which applied for a loan during the last fiscal year and zero otherwise.² Conditional on credit demand, we identify rationed firms using a dummy (R) that equals one for firms whose application was rejected. This direct measure of credit rationing allows avoiding interpretation problems of indirect indicators inferred from balance-sheet data and potential misperceptions issues related to self-assessed indicators of credit as an obstacle for firm growth (Hansen and Rand, 2014a).

We consider alternative definitions of gender, starting from two indicators commonly used in empirical studies. We firstly define a variable identifying female owned firms (FOF) as those in which there is at least one woman among the owners; this indicator is not particularly informative, as it does not accurately capture the intensity of female participation in ownership (Asiedu et al., 2013). Our second measure identifies female-managed firms (FMF) and equals one when the top manager is a woman. Combining these two indicators, we identify firms in which the highest management person is a woman and there is also some female presence among the owners (FMF&FOF). The 2012 BEEPS has introduced an additional question (not available for Russia) on the share of the firm owned by women, which allows defining a more restrictive measure of female ownership (FOF1) equal to one if women own at least 50% of the firm. Combining this variable with the FMF dummy, we propose a more precise indicator of firm's gender structure (FMF&FOF1) that identifies firms in which women play a key role in both managerial decisions and ownership.

Table 1 shows that female-led firms have a lower demand for credit, irrespective of the gender indicator considered (with the exception of FOF). Gender differences in financing constraints, conditional on loan demand, significantly vary according to both the definition of gender and the countries considered. In CIS and Russia, women-managed firms have a higher probability of being constrained, whereas no gender gaps emerge in CEECs. In CEECs and CIS considered together, the share of rationed firms equals 13% for those in which women are the majority of owners and is much higher than the

¹ The CEECs group includes Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Kosovo, Latvia, Lithuania, Macedonia, Montenegro, Poland, Romania, Serbia, Slovak Republic and Slovenia; the CIS group includes: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Russian Federation, Tajikistan, Ukraine and Uzbekistan. Since Russian firms represent more than the 30% of the entire sample, we have decided to analyse Russia separately from the other CIS countries.

² According to this definition of credit demand, both firms that do not need a loan and those discouraged from applying (due to unfavourable terms and conditions of credit or anticipated denial) are included in the group of "non-demanding" firms (i.e. those with $A=0$). Here, we do not analyse the determinants of credit discouragement, since we are mainly interested in the evaluation of actual credit rationing by lenders, controlling for self-selection of borrowers. At the same time, differently from Muravyev et al. (2009), we do not pool discouraged and rejected firms together (building a single binary variable equal to one for both rationed and discouraged firms). As pointed out by Presbitero et al. (2014), this would in fact lead to overestimate actual denial rates and may distort the estimation of gender effects if male- and female-led firms have different degrees of risk aversion and attitudes towards credit demand.

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