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Morphometry of the patellar tendon using a simple tracing method a gold standard for anterior cruciate ligament reconstruction

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Public subsidies for credit support, democracy and European female-led SMEs

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Abstract

Purpose – The article investigates whether variety of democracy affects the probability to employ public subsidies for credit support by small- and medium-sized enterprises (SMEs) led by female entrepreneurs.
Design/methodology/approach – Building on the literature on democracy and on gender differences, it leverages a large firm- and country-level dataset (SAFE) of 31 democracies in Europe (EU and non-EU) over the 2009–2014 period by using probit models and instrumental variable approaches.
Findings – Results from the different econometric techniques and samples suggest that variety of democracy affects female-led SMEs in using public subsidies for credit support. The evidence is robust to endogeneity concerns.
Research limitations/implications – The empirical evidence presents a time frame limitation. At the same time, SAFE is the only database that supplies information about the gender of firms and public subsidies for credit support, rendering it the only resource that allows the test of the hypothesis proposed. The article therefore offers insights for scholars to revisit our results in future studies that make use of datasets with a longer time span – when they will become available.

JEL Classification — JEL: H2, H10, J16, P5

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Originality/value – To the best of the authors' knowledge, the article is the first to study the effect of democracy on female entrepreneurial behavior in the use of public subsidies for credit support.

Keywords Democracy, Female entrepreneurship, Gender, Public subsidies for credit support, European SMEs

Paper type Research paper

1. Introduction

This work investigates the link between democracy and demand of public subsidies for credit support to European (EU and non-EU) small- and medium-sized enterprises (SMEs) led by female entrepreneurs. The relevance of our investigation is twofold. First, even if Europe can be considered a democratic political space, not all countries exhibit the same level of democracy [1]. Second, the EU business landscape is mainly dominated by SMEs, accounting for about 99% of all business, of which female-led firms hold about 13% [2]. At the same time, SMEs to a large extent face more challenges than other types of firms in obtaining credit and mainly rely on bank credit for financing because they are often unable to access equity markets (Beck *et al.*, 2008). Furthermore, there is some indication that female-led firms have less opportunities to apply for private sources of credit, either because they are more risk-averse (Carter *et al.*, 2015) or for the presence of gender bias (e.g. Alesina *et al.*, 2013; Mascia and Rossi, 2017; Moro *et al.*, 2017). In short, female-run SMEs face more difficulties than male ones in accessing traditional sources of finance.

To offset the credit access difficulties encountered by SMEs, many democracies in Europe, as well as in other industrialized countries, share the policy of providing forms of credit through public subsidies (e.g. Horvath and Lang, 2021). Additionally, many democracies have also introduced incentive schemes to boost female entrepreneurship (OECD, 2017). However, democracies are not all the same (e.g. Acemoglu and Robinson, 2020). There are varieties of democracy, [3] because many of the constituent elements of democracy, such as economic freedom, electoral competition, and political rights, interact and coevolve in different ways for cultural, historical and institutional reasons (e.g. North *et al.*, 2009; Acemoglu *et al.*, 2019). Moreover, if one considers that female behavior differs from that of males when it comes to risk attitudes and self-confidence (Carter *et al.*, 2015; Lu *et al.*, 2018), selection of competitive environments, redistribution (Alesina and Giuliano, 2011) and ethical practices (Simmons and Emanuele, 2007), it is not unreasonable to expect a variety of influences on female entrepreneurs as well (Croson and Gneezy, 2009).

These considerations lead to our main issue of interest, namely how varieties of democracy matter for the demand of public subsidies for credit support for female-led firms. In studying this issue, we bring together – and add to – two fields of research that to date have had little overlap. The first relates to democracy and democratization. This field has hitherto mainly focused on the effects of regime type (democratic or autocratic) and of democratization on economic growth, government behavior, redistribution (e.g. Profeta *et al.*, 2013; Kotera and Okada, 2017; Acemoglu *et al.*, 2019) and development of financial markets (Yang, 2011; Slesman *et al.*, 2019; Delis *et al.*, 2020). We direct attention to democracies and the differences among them and concentrate on the link between varieties of democracy and public subsidies. The second field contains copious theoretical and empirical works (see the survey by Croson and Gneezy, 2009) that support the view that females tend to hold perceptions or behave differently from their male counterparts, especially regarding access to credit (e.g. Bellucci *et al.*, 2010; Alesina *et al.*, 2013; Carter *et al.*, 2015; Mascia and Rossi, 2017; Moro *et al.*, 2017). We contribute to this field by directly relating the behavior of females in credit markets to the politico-institutional framework. By exploring the attitude of female-led firms towards employing public channels for credit support, we more generally also consider gender equality *vis-à-vis* varieties of democracy.

Our empirical model relies on a novel sample that leverages firm- and country-level data from large samples of democracies throughout Europe. The analysis covers the 2009–2014 period. This period is driven by the availability of unique data on female-led firms.

Our analysis shows that democracies that are more democratic favor female-led SMEs through the demand of public subsidies for credit support. It also offers more general evidence that a change over time towards an increased degree of democracy matters in influencing SMEs with respect to access to finance through public subsidies as a form of credit. Ultimately, there is a variety-of-democracy effect for female entrepreneurs in terms of demand for public subsidies for credit support.

Our analysis unfolds as follows. Section 2 illustrates the related literature and the conceptual framework on which our empirical hypothesis hinges. Section 3 presents the data and defines the econometric model. Section 4 discusses the findings. Section 5 wraps up.

2. Background

2.1 Related literature

This work blends two fields of literature that so far proceeded independently, namely studies on democracy, and the link between female-led firms and finance. An analytical review of these fields is useful to motivate and define our research hypothesis.

The first field of literature concerns democracy and its effects on the broader institutional and economic fabric. The definition of democracy is one of the most controversial and challenging issues facing economists and political scientists. There have been several attempts to define democracy crisply and unambiguously (e.g. Schumpeter, 1942; Dahl, 1989; Norris, 1999; Scharpf, 1999). But over time most scholars have reached the conclusion that democracy is best understood as a composite notion that encompasses several *de jure* and *de facto* characteristics, including fair and equal representation for all, inclusion and participation, individual liberty, principles of accountability, respect for others and their opinions, and non-violent solutions to conflict and disagreement (e.g. Lasswell, 1950; Dahl, 1971; Landman, 1999; Bueno de Mesquita *et al.*, 2003).

In addition to the basic consensus about the multidimensional nature of democracy, three other issues should be emphasized. The first is the contemporary acceptance that democracy requires inclusiveness, which refers to gender equality as well. In relation to the latter, several studies provide evidence about a positive relationship between democracy and gender equality (Welzel *et al.*, 2002; Beer, 2009; Andersen, 2023). Moreover, previous studies investigating the impact of democracy in general (and of specific types of democracy) on redistribution, point to a strong relationship between democracy and policies with a redistributive orientation – not just seen in traditional welfare terms but also as redistribution of economic opportunities towards women (e.g. Ross, 2006; Timmons, 2010; Alesina and Giuliano, 2011; Eterovic and Sweet, 2014). Second, democracy promotes institutions that enhance the protection of property rights and the enforcement of contracts, respect the rule of law, and stimulate political participation and competition. These features of democracy make it possible to constrain the state's power in controlling (and repressing) the financial system, and to reduce the chance for both predatory and opportunistic behavior. They thus aid the creation of the conditions for financial markets to flourish (La Porta *et al.*, 1998; Rajan and Zingales, 2003; Haber *et al.*, 2007; Bae and Goyal, 2009; Huang, 2010; Yang, 2011; Slesman *et al.*, 2019; Delis *et al.*, 2020). The third issue is that evidence across the world indicates that different forms of democracy have emerged. Therefore, there is some differentiation among democracies – namely, varieties of democracy (Coppedge *et al.*, 2016). These varieties hinge on the different mix of *de jure* and *de facto* institutional characteristics that democracies exhibit (common versus civil law, election rules, free press, level of gender equality, structure of parliament, types of rights that are protected, etc.).

The second field of literature to which we relate – finance and female-led firms – encompasses questions that seek to understand the link between gender and credit

financing. Several contributions point out that SMEs to a large extent rely on bank credit for financing, because they are often unable to access equity markets and have more difficulties than other types of firms in obtaining credit (Beck *et al.*, 2008; Acharya and Xu, 2017). This is often attributed to SMEs' inability to produce quality collateral and to less transparency about creditworthiness (Cowan *et al.*, 2015; Öztürk and Mrkaic, 2014). Theoretical and empirical contributions also suggest that female-led firms have less opportunities to apply for private sources of credit, either for greater risk-averseness (Carter *et al.*, 2015) or for the presence of gender bias (e.g. Bellucci *et al.*, 2010; Alesina *et al.*, 2013; Mascia and Rossi, 2017; Moro *et al.*, 2017). The upshot is that female-run SMEs face more difficulties than male ones in accessing the financial market.

2.2 Conceptual framework and research hypothesis

The intersection of these two strands of literature allows us to conjecture about the theoretical mechanism that links the key explanatory variables to our dependent variable, which will then lead to our research hypothesis. The literature indicates that democracy aids the development and growth of financial markets (Yang, 2011; Slesman *et al.*, 2019; Delis *et al.*, 2020). Moreover, democracy favors access to credit by transmitting positive signals to economic agents (banks, entrepreneurs, firms, etc.) in terms of equal opportunities and inclusion (Haber and Perotti, 2008), improved flow of information, and, more generally, political stability and the protection of a variety of rights (civil, economic, social, etc.) (Giuliano *et al.*, 2013). These virtuous democratic dynamics can stimulate the alleviation of credit constraints, and in turn affect the easiness in starting or doing a business, granting economic agents incentives and opportunities to make the best use of, e.g. their credit, loans, profit ideas, and competences (Osei-Tutu and Weill, 2023). The substantive implication: the higher is the level of democracy, the more favorable, in principle, is the business, economic and financial climate (Lopes and de Jesus, 2015; Delis *et al.*, 2020).

When the positive signals are absent or highly distorted, there can be obstacles for the growth of firms. It is in this context that – under the welfare outlook typical of all democracies – one witnesses the supply and demand of public subsidies for credit support; that is, the attempt to internalize failures in the private credit market through subsidies granted to creditworthy firms, promising projects (Li *et al.*, 2020) and disadvantaged groups (Stiglitz and Weiss, 1981) [4]. To sum up, the theoretical reasons at the basis of the link between democracy and the development of financial markets are simultaneously at the basis of the relation between democracy and subsidies.

The literature shows that compared to males, females are more risk adverse, more financially constrained (e.g. Carter *et al.*, 2015; Alesina *et al.*, 2013), and exhibit stronger preferences for redistribution (e.g. Alesina and Giuliano, 2011). These characteristics suggest that women are potentially more inclined to ultimately employ policy tools that favor redistribution of opportunities. In this spirit we argue that (*a*) public subsidies might be conceived as a useful policy tool for SMEs, including female-led firms, counterbalancing the credit frictions that the latter suffer on the private markets (Bellucci *et al.*, 2010; Alesina *et al.*, 2013); (*b*) varieties of democracy (i.e. differences in *de jure* and *de facto* characteristics of democracy) might differently influence the male and female likelihood of applying for credit.

These theoretical insights about the possible relations among democracy, financial markets, subsidies for credit access, and female-led firms, point to the following research hypothesis.

H. Female-led firms will apply for more (less) public subsides as the degree of democracy rises (falls).

From a macroeconomic perspective, testing this hypothesis is relevant because gender equality is a top policy priority across the globe [5]. This is the case not only because gender equality is itself an important development goal, but also because women's economic participation is "part

of the growth and stability equation" that capitalizes investment on talent to promote business initiative and boost economic performance (IMF, 2014). While from a microeconomic perspective, the hypothesis test is relevant for the possible added competitive advantage that firms may gain from the political environment within which they operate.

3. Empirical strategy

3.1 Data

The data are mainly from Survey Access to Finance Enterprise (SAFE), a resource from the European Commission and the European Central Bank that provides information on the financial situation of SMEs, according to self-assessed perceptions, gathered in "waves" that last six months. The firms included in SAFE are randomly selected from the Dun & Bradstreet Business Register and are representative of the population from which they are extracted at the country level. As far as we could ascertain, there is no other harmonized and homogenous dataset that provides similar information for our research hypothesis.

Information on subsidies refers to grants or subsidized bank loans involving support from public sources in the form of guarantees and reduced interest rate loans. Information on the gender of the entrepreneur – variously CEO, director, owner – is available only from July 2009 to March 2014 (from the second to the tenth wave), defining our time frame.

The benefits of employing SAFE data trump the cost attached to the short time frame about the gender of the firm. First, SAFE offers the appropriate information for testing the complex links between the use of public subsidies, the gender of the entrepreneur and the information at country level. Second, it allows the tracing through time of a firm's use of public subsidies. Third, it offers a rich set of qualitative information about a firm's experience in accessing credit and about a firm's performance. Fourth, data are available for a large sample of European SMEs, which allow us to consider cross-country heterogeneity.

The SAFE firm-level data are integrated with four measures of democracy defined at country level. There are several empirical measures of democracy, and all of them exhibit strengths and weaknesses (Acemoglu *et al.*, 2019). We focus on political rights (PR) from Freedom House, and three indicators from Varieties of Democracy (V-Dem), namely *Egalitarian democracy*, *Electoral democracy*, and *Liberal democracy* (V-Dem Institute dataset). The rationale for the selection of these measures is twofold. First, PR has been used extensively in the literature and V-Dem contains the most elaborate indices that measure a broad range of attributes associated with democracy (Teorell *et al.*, 2019). Second, all the measures we consider are based on expert assessment combining *de jure* and *de facto* elements of democracy. This is in line with the view, which we share, that democracy is best understood as a multidimensional notion.

The democracy indicators enter the analysis as scores, since we are interested in capturing varieties of democracy – i.e., levels – rather than an either-or status (democracy or non-democracy). PR varies from 0 to 7 (the higher the score, the lower the level of democracy), while the three V-Dem indices provide a 0–1 scale (a higher score reflects a higher level of democracy). We rely on PR for the main analysis and on V-Dem for robustness.

Our main sample consists of 31 countries. The selection of the countries is driven by the availability of data on public subsidies, female and democracy indicators. The intersection of these data leads to an unbalanced panel of 56,741 firm-level observations over 2009–2014. For robustness, we use a smaller sample of 53,831 firm-level observations for a subset of 19 countries. This smaller sample preserves country heterogeneity in terms of varieties of democracy and allows for greater firm-level heterogeneity within each country (at least 500 firm-level data points). Table A1 in the Appendix reports the two country samples.

3.2 Model specification

In light of the theoretical discussion in Section 2, we test our research hypothesis through the following model specification:

$$Pr(D_subsidy_{i,t}) = \Phi\left(\alpha F_{i,t} + \beta \boldsymbol{D}_{j,t} + \gamma F_{i,t} * Democracy_{j,t} + \eta \boldsymbol{Z}_{i,t} + \theta \boldsymbol{T}_t\right), \quad (1)$$

where $Pr(D_subsidy_{i,t})$ is the probability that the ith SME uses the subsidy, and $\alpha, \beta, \gamma, \eta$ and θ are the parameters to be estimated.

$D_subsidy_{i,t}$ is a dummy that equals 1 if the firm has experience with public subsidies for credit support in the last six months (0 otherwise). It is constructed from question Q4b of SAFE (waves 2–10) and refers to grants or subsidized bank loans involving support from public sources in the form of guarantees, reduced interest rate loans, etc. $F_{i,t}$ refers to the dummy variable *Female*. It equals 1 if the CEO, director or owner of the SME is female, and 0 if male (SAFE).

$\boldsymbol{D}_{j,t}$ is a vector that includes two variables defined at country level (j indicates the jth country): *Democracy*, which measures varieties of democracy using the PR indicator; and *Long lasting democracy* that accounts for the long run change in degree of democracy (e.g. Treisman, 2007). The latter variable is built as the squared difference from the mean value of PR over 1993–2008, a time frame that includes the transition towards democracy in many Central and East European countries.

$F_{i,t} * Democracy_{j,t}$ is our key variable. It captures the interaction between *Female* and *Democracy*, testing for our hypothesis.

$\boldsymbol{Z}_{i,t}$ is a vector of financial and standard firm-level controls (all retrieved from SAFE). *Application for bank credit* controls for bank loan application by using information about a firm's request for bank credit (Li *et al.*, 2020). It takes the value of 1 if the SME reports that it has applied for a bank loan in the past 6 months, and 0 otherwise [6]. The *Change in profit* dummy equals to 1 when a SME reveals a profit increase over the past six months, and 0 otherwise. It accounts for changes in firm profitability (viz. net income after taxes). *Creditworthiness* measures the positive change in economic and financial reliability. $\boldsymbol{Z}_{i,t}$ also includes dummies accounting for firm sector of activity, age, class, and size [7]. The inclusion of all these controls allows for the reduction of the usual problems of non-observed heterogeneity. Finally, $\boldsymbol{T}_t$ is a vector of time dummies – namely, waves. Table A2 in the Appendix tabulates the descriptive statistics of our variables.

The binary nature of our dependent variable and the characteristics of the dataset require that equation (1) be estimated through random effects panel probit [8]. In order to address the potential bias arising from intra-cluster correlation, we use a probit model with the error terms clustered at the country level. This allows us to consider different weights for each country in both samples.

Reverse causality bias could affect the relation between the dependent variable and *Female*. Legislation on public subsidies could in turn favor female entrepreneurial leadership. Omitted variables, like organizational and managerial skills or a specific corporate culture, may also influence the selection of females in a leading position (e.g. Sila *et al.*, 2016). To control for these possible sources of endogeneity, we estimate IV probit models using a maximum likelihood 2-stage probit methodology and instrumenting *Female*. We are aware that identifying a good instrument is not an easy task. We thus employ two alternative variables: (*a*) the share of female self-employment by sector of activity; and (*b*) the share of female employment by sector of activity (Mascia and Rossi, 2017) [9].

A credible instrument must satisfy the two conditions of relevance and exclusion restrictions. Share of female self-employment by sector of activity is arguably correlated with our female variable, because it reflects the presence of females in apical business positions. Concerning the share of female employment by sector of activity, in cases where female participation in an

employment sector is higher, the likelihood that women partake in entrepreneurial activity in that sector could be high as well. The transition from employee to employer is indeed typical of many entrepreneurs' background. At the same time, we do not rule out that there could be a situation where an industry exhibiting a higher share of female employees may not necessarily be an industry with a corresponding share of women in apical positions.

As for the exclusion restrictions, our instruments are plausibly exogenous. Countries characterized by a larger share of women that work or are self-employed might presumably involve a larger size of resources devoted to social welfare or public services supporting women participation in the labor market (Shelton, 2007), but not a larger size of resources to SMEs through public subsidies.

The Wald test, presented in Table A3 in the Appendix, corroborates our choice of exogenous instruments (Monfardini and Radice, 2008) [10]. Table A3 also reports the first stage of IV estimations where we use the two alternative instruments for our independent variable *Female*. The estimated coefficients for instruments signal the relevance of these exogenous variables as strong predictors of *Female*.

4. Results

Table 1 displays the marginal effects from the two econometric techniques and samples. Starting with the 31 countries, column 1 reports results from the probit estimates; while columns 2–3 show IV probit estimates using the two instruments for *Female* that correct for endogeneity.

Our results show that *Democracy per se* is not significant. This means that the level of democracy in the country does not affect the demand of public subsidy for males (control group) [11].

Results also seem to indicate that, after correcting for potential endogeneity and after having performed all controls, female-led SMEs do not behave differently from their male counterparts in terms of relying on credit subsidies. (In fact, in columns 2–3 the marginal effects associated with *Female* are not significant.) When we interact *Democracy* with *Female,* a more interesting outcome emerges: the coefficient related to the interaction is significant and with negative sign (columns 2–3). In countries with a lower degree of democracy, female-led SMEs face a lower probability (of about 0.6% on average) of demanding subsidies for credit support. Alternatively stated, democratic variety influences the financing choice of female entrepreneurs – a result that supports the more general perspective that a more democratic environment provides a wider repertoire of entrepreneurial opportunities to females (Debski *et al.*, 2018). This result aligns with our hypothesis.

When we look at the long run change in degree of democracy, we find that *Long lasting democracy* displays a positive and significant sign. This result suggests that SMEs belonging to countries that have experienced a democratization process (i.e., changes towards a higher degree of democracy over time) exhibit an increase (of about 12% in columns 2–3) in the probability of demanding public support for credit through subsidies. Moreover, it brings to mind the view that democracy is a cumulative process over time rather than a level at a particular point in time (Gerring *et al.*, 2005).

Our evidence points to some interesting firm-level features as well. The positive and significant sign of *Application for bank credit* (above 14%) indicates a kind of "complementary effect" between demand for the subsidy and request for a bank loan. Furthermore, an improvement in economic and financial reliability leads to a higher likelihood (of about 4%) of demanding public subsides (a sort of signaling effect) as displayed by the positive and significant sign of the *Creditworthiness* dummy. At the same time, an increase in profit lowers, if weakly, the probability to demand the subsidies for credit support. This relation could suggest that firms first use in-house financial resources, and only later

Table 1.
Estimated marginal effects, D-subsidy dependent variable

	Sample of 31 countries* IV probit models			Sample of 19 countries* IV probit models		
	Probit model (1)	Instrument: Self-employment female share (2)	Instrument: Employment female share (3)	Probit model (4)	Instrument: Self-employment female share (5)	Instrument: Employment female share (6)
Female	0.0707***	0.2163	−0.1228	0.0809***	0.2468	0.0390
	(0.0216)	(0.3549)	(0.1786)	(0.0221)	(0.3300)	(0.3136)
Democracy	−0.0385	−0.0301	−0.0325	−0.0679	−0.0562	−0.0592
	(0.0403)	(0.0303)	(0.0290)	(0.0541)	(0.0402)	(0.0391)
Female*Democracy♣	−0.0375***	−0.0059***	−0.0061***	−0.0441***	−0.0076***	−0.0069***
	(0.0112)	(0.0018)	(0.0019)	(0.0107)	(0.0027)	(0.0014)
Long lasting democracy	0.1460***	0.1207***	0.1199***	0.1920***	0.1633***	0.1678***
	(0.0494)	(0.0451)	(0.0434)	(0.0614)	(0.0537)	(0.0514)
Application for bank credit	0.1681***	0.1453***	0.1440***	0.1690***	0.1459***	0.1489***
	(0.0194)	(0.0227)	(0.0137)	(0.0204)	(0.0244)	(0.0155)
Change in profit	−0.0240*	−0.0207*	−0.0205*	−0.0268*	−0.0230*	−0.0234*
	(0.0138)	(0.0122)	(0.0110)	(0.0143)	(0.0128)	(0.0119)
Creditworthiness	0.0483***	0.0452***	0.0450***	0.0496***	0.0467***	0.0477***
	(0.0151)	(0.0134)	(0.0140)	(0.0159)	(0.0140)	(0.0150)
Industry	0.1476***	0.1280***	0.1050***	0.1502***	0.1305***	0.1200***
	(0.0151)	(0.0159)	(0.0224)	(0.0160)	(0.0153)	(0.0286)
Construction	0.0011	0.0065	−0.0224	0.0003	0.0082	−0.0083
	(0.0140)	(0.0299)	(0.0235)	(0.0146)	(0.0292)	(0.0364)
Trade	−0.0052	−0.0008	−0.0150	−0.0027	0.0015	−0.0080
	(0.0126)	(0.0179)	(0.0132)	(0.0132)	(0.0174)	(0.0178)
5–9 years	−0.0162	−0.0172	−0.0052	−0.0158	−0.0174	−0.0101
	(0.0121)	(0.0119)	(0.0093)	(0.0128)	(0.0118)	(0.0113)
2–4 years	−0.0492*	−0.0506**	−0.0256	−0.0504*	−0.0535**	−0.0383*
	(0.0274)	(0.0241)	(0.0180)	(0.0294)	(0.0251)	(0.0225)

(*continued*)

Table 1.

	Sample of 31 countries* IV probit models			Sample of 19 countries* IV probit models		
	Probit model (1)	Instrument: Self-employment female share (2)	Instrument: Employment female share (3)	Probit model (4)	Instrument: Self-employment female share (5)	Instrument: Employment female share (6)
<2 years	−0.1055***	−0.0971***	−0.0665***	−0.1123***	−0.1023***	−0.0864***
	(0.0345)	(0.0342)	(0.0201)	(0.0371)	(0.0348)	(0.0253)
<9 employees	−0.1144***	−0.0883***	−0.0878***	−0.1167***	−0.0897***	−0.0915***
	(0.0254)	(0.0171)	(0.0181)	(0.0272)	(0.0181)	(0.0193)
10–49 employees	−0.0372***	−0.0287***	−0.0292***	−0.0393***	−0.0306***	−0.0313***
	(0.0141)	(0.0111)	(0.0112)	(0.0150)	(0.0116)	(0.0121)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	56,741	56,591	56,741	53,831	53,831	53,831
Number of countries	31	31	31	19	19	19
Rho	0.436	−0.226	0.268	0.436	−0.258	0.0490
Log-likelihood	−36473	−58607	−58689	−34590	−55833	−55765

Note(s): In column 2 the slight drop in the observations is from the lack of observation on the instrumental variable in a few waves of some countries. The controls group are Services, 10 years or more, and 50-249 employees, for *Sector*, *Age* and *Size*, respectively. Robust standard errors in parentheses

***** We used the partial derivatives of the interaction terms to assess both their magnitude and statistical significance (Ai and Norton, 2003)

Significance levels: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

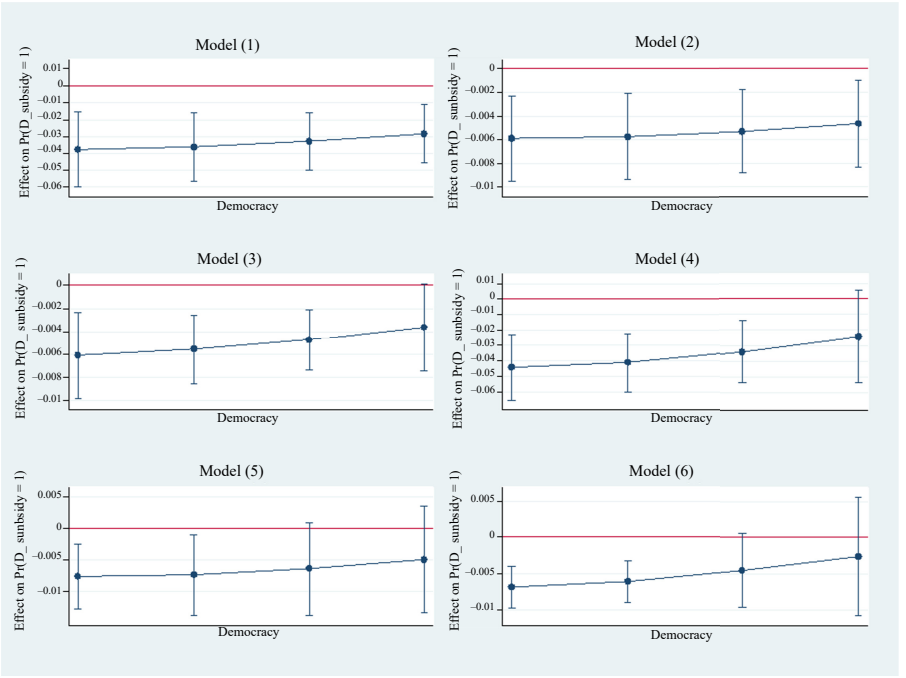
* The 31 countries of the main analysis are: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom. The 19 countries of the robustness sample are: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Romania, Spain, Sweden, United Kingdom

Source(s): Authors' elaborations on SAFE and Freedom House data for democracy PR index

resort to external ones ("pecking order theory"). Finally, insights from age, sector of activity, and size show that firm heterogeneity matters in demanding public subsidies for credit support.

To corroborate our analysis, we replicated the empirical strategy on a smaller sample of SMEs belonging to 19 countries. The findings (columns 4–6) from the different econometric techniques turn out to be stable, providing support for our results. Figure 1, which plots the marginal effects of the interactive term *Female* * *Democracy*, referring to all estimations for each level of democracy for both samples, confirms the evidence.

To further check the robustness of our estimates, we also ran the alternative specifications of equation (1) based on the use of V-Dem indices (*Egalitarian democracy*, *Electoral democracy*, and *Liberal democracy*) for both *Democracy* and *Long lasting democracy*. The choice of using these alternative democracy indicators hinges on the lack of consensus in the literature about the definition and consequently the relatively better measure of democracy (Acemoglu *et al.*, 2019). Table 2 reports robustness results from IV probit estimations (using share of female employment as instrument for *Female*). It shows the average marginal effects for the interaction terms *Female* * *Democracy* for both samples. Take note that the positive sign of these interaction terms reflects the different scale of the V-Dem indices vis-à-vis that of PR. These results are consistent with those of Table 1, reinforcing the motivation of our investigation.



Note(s): All marginal effects plotted in Figure 1 refer to estimations reported in Table 1 (columns 1-6)

Source(s): Authors' elaborations from SAFE and Freedom House data for democracy PR index

Figure 1.
Average Marginal Effects of the interaction Female*Democracy with 95% confidence intervals

Table 2.
Robustness check: estimated marginal effects of the interaction terms Female* *Democracy*

Sample of 31 countries			Sample of 19 countries		
Liberal democracy	Electoral democracy	Egalitarian democracy	Liberal democracy	Electoral democracy	Egalitarian democracy
0.0132^	0.0191*	0.0169*	0.0248***	0.0320***	0.0283***
(0.0101)	(0.0104)	(0.0090)	(0.0097)	(0.0103)	(0.0083)

Note(s): Robust standard errors in parentheses
Liberal democracy, Electoral democracy and *Egalitarian democracy* correspond respectively to v2x_libdem, v2x_poliarchy and v2x_egaldem indices from V-Dem project
We used the partial derivatives to assess both the magnitude and statistical significance (Ai and Norton, 2003) in the above IV specifications, where the share of female employment is used as instrument for *Female*. The positive sign of the interactions reflects the different scale of the V-Dem indices with respect to PR
Significance levels: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$, ^$p < 0.19$
Source(s): Authors' elaboration on data from SAFE and V-Dem indices

5. Conclusions

This work investigates the effect of democracy on SMEs' demand of public subsidies for credit support, focusing on female-run SMEs over 2009–2014. To the best of our knowledge, it is the first to study the issue. There are previous contributions that investigate the links between democracy and financial markets, democracy and gender equality, and female entrepreneurs and public policy. But none of these contributions rely – as we do – on a single empirical model to investigate all the relations at once.

We add to previous work that points out that female-led firms have less opportunities to tap into sources of credit from the private market by showing that democratic variety affects the decision of female-led SMEs to apply for public subsidies for credit support. In doing so, we underscore that the public sector can be seen as a means for female-run SMEs to access private credit. This result hints that a higher degree of democracy increases the demand of public subsidies for credit support, in the process broadening the set of opportunities to female entrepreneurs in terms of their financing choices.

Prioritizing gender equality is crucial in the debate about the growing role of "mainstreaming gender" [12] in the EU, especially after the Covid-19 pandemic. It is also a challenge according to the United Nations General Assembly's Sustainable Development Goals (SDGs) [13]. Goals 5, 10, and 16 are specifically dedicated to this topic, and also intersect with other goals, acknowledging the interconnection between women's empowerment and a better future for all. Our findings resonate especially with SDGs target 5.5, which aims at ensuring women's full and effective participation and equal opportunities for leadership at all levels of decision-making in economic, political and public life. They therefore reinforce the need for measures to support females to help to guarantee sustainable development.

A broad policy implication of this study is then that the international community should not lose sight of democracy as an important ingredient to aid the fulfillment of the SDGs. For democracy naturally provides inclusive institutions, and thus also measures (like education, empowerment, work-life balance policies and overcoming gender stereotypes) that directly or indirectly facilitate changes towards greater gender equality.

In terms of a narrower policy implication, our evidence does not rule out that there is room to introduce public subsidies for credit support specifically destined for female entrepreneurs. But the related question about how to design such public subsidies in terms of their efficient employment by the recipient female entrepreneurs (e.g. whether they should be driven by incentives tied to conditionality or to monitoring) is a matter that we leave to future research.

Notes

1. For example: https://www.economist.com/graphic-detail/2021/02/02/global-democracy-has-a-very-bad-year
2. Authors' calculations from ECB-SAFE data.
3. See the project on Varieties of Democracy of the V-Dem Institute, University of Gothenburg (https://www.v-dem.net/).
4. If credit frictions are instead caused by poor financial and economic values of firms' projects, then public subsidies may generate adverse selection by financing unworthy projects (Caballero *et al.*, 2008). At the same time, this does negate that there also may be rent seeking behavior behind the application for public subsidies for credit support. See Gustafsson *et al.* (2020) on what they call subsidy entrepreneurship.
5. See, for example, the United Nations General Assembly's Sustainable Development Goal 5: Gender Equality: https://sdgs.un.org/goals/goal5.
6. The use of bank loans as control is important, since applying for a public subsidy is related to the firm's need for funding, i.e., the firm is either facing difficulties or about to make a promising investment.
7. Firms are classified in different groups by: sector, which indicates firms operating in construction, industry, services and trade (those data are available in SAFE only at NACE 1-digit); age, which refers to four classes (firms less than 2 years old; firms aged between 2 and 4 years; firms aged between 5 and 9 years; and firms aged 10 years and older); and size, which includes three classes, namely 1 to 9 employees (micro), 10 to 49 employees (small), and 50 to 249 employees (medium-sized).
8. A random effect probit model is the most appropriate for our specifications given the structure of the data: first, recall that our dependent variable is binary; and, second, the measures of democracy – alternatively from PR or V-Dem indices – are defined at country level. In our time span (2009–2014), all measures have the same behavior of country fixed effects. Moreover, the use of these country level indicators of democracy helps to reduce potential effects from the presence of unobserved country-level heterogeneity.
9. Averaged quarterly data for the two instruments, retrieved from Eurostat and available at sector and country level, are linked to each SAFE wave.
10. The null hypothesis is the exogeneity of the instrument ($\rho = 0$), which we always fail to reject in our estimations.
11. The regression model of equation (1) includes the interaction term *Female*Democracy*. Thus, the estimated coefficient for *Democracy* is to be interpreted as the effect of only the control group (males).
12. That is to say, the view that there is a need to improve gender equality, especially by improving the socioeconomic position of females.
13. Visit https://sdgs.un.org/

References

Acemoglu, D. and Robinson, J.A. (2020), *The Narrow Corridor: States, Societies, and the Fate of Liberty*, Penguin Books, London.

Acemoglu, D., Naidu, S., Restrepo, P. and Robinson, J.A. (2019), "Democracy does cause growth", *Journal of Political Economy*, Vol. 127 No. 1, pp. 47-100.

Acharya, V. and Xu, Z. (2017), "Financial dependence and innovation: the case of public versus private firms", *Journal of Financial Economics*, Vol. 124 No. 2, pp. 223-243.

Ai, C. and Norton, E.C. (2003), "Interaction terms in logit and probit models", *Economics Letters*, Vol. 80 No. 1, pp. 123-129.

Alesina, A. and Giuliano, P. (2011), "Family ties and political participation", *Journal of the European Economic Association*, Vol. 9 No. 5, pp. 817-839.

Alesina, A. Lotti, F. and Mistrulli, P.E. (2013), "Do women pay more for credit? Evidence from Italy", *Journal of the European Economic Association,* Vol. 11 Supplement 1, pp. 45-66.

Andersen, T.B. (2023), "Does democracy cause gender equality?", *Journal of Institutional Economics*, Vol. 19 No. 2, pp. 210-228.

Bae, K.H. and Goyal, V.K. (2009), "Creditor rights, enforcement, and bank loans", *Journal of Finance*, Vol. 64 No. 2, pp. 823-860.

Beck, T., Demirgüç-Kunt, A. and Maksimovic, V. (2008), "Financing patterns around the world: are small firms different?", *Journal of Financial Economics*, Vol. 89 No. 3, pp. 467-487.

Beer, C. (2009), "Democracy and gender equality", *Studies in Comparative International Development*, Vol. 44 No. 3, pp. 212-227.

Bellucci, A., Borisov, A. and Zazzaro, A. (2010), "Does gender matter in bank-firm relationships? Evidence from small business lending", *Journal of Banking and Finance*, Vol. 34 No. 12, pp. 2968-2984.

Bueno de Mesquita, B., Smith, A., Siverson, R. and Morrow, J. (2003), *The Logic of Political Survival*, MIT Press, Cambridge.

Caballero, R.J., Hoshi, T. and Kashyap, A.K. (2008), "Zombie lending and depressed restructuring in Japan", *American Economic Review*, Vol. 98 No. 5, pp. 1943-1977.

Carter, S., Mwaura, S., Ram, M., Trehan, K. and Jones, T. (2015), "Barriers to ethnic minority and women's e nterprise: existing evidence, policy tensions and unsettled questions", *International Small Business Journal*, Vol. 33 No. 1, pp. 49-69.

Coppedge, M., Lindberg, S., Skaaning, S.E. and Teorell, J. (2016), "Measuring high level democratic principles using the V-Dem data", *International Political Science Review*, Vol. 37 No. 5, pp. 580-593.

Cowan, K., Drexler, A. and Yanez, Á. (2015), "The effect of credit guarantees on credit availability and delinquency rate", *Journal of Banking and Finance*, Vol. 59, pp. 98-110.

Croson, R. and Gneezy, U. (2009), "Gender differences in preferences", *Journal of Economic Literature*, Vol. 47 No. 2, pp. 448-474.

Dahl, R.A. (1971), *Polyarchy: Participation and Opposition*, Yale University Press, New Haven.

Dahl, R.A. (1989), *Democracy and its Critics*, Yale University Press, New Haven, CT.

Debski, J., Jetter, M., Mösle, S. and Stadelmann, D. (2018), "Gender and corruption: the neglected role of culture", *European Journal of Political Economy*, Vol. 55, pp. 526-537.

Delis, M.D., Hasan, I. and Ongena, S. (2020), "Democracy and credit", *Journal of Financial Economics*, Vol. 136 No. 2, pp. 571-596.

Eterovic, D.S. and Sweet, C.M. (2014), "Democracy and education in twentieth-century Latin America", *Economics and Politics*, Vol. 26 No. 2, pp. 237-262.

Gerring, J., Bond, P., Barndt, W.T. and Moreno, C. (2005), "Democracy and growth: a historical perspective", *World Politics*, Vol. 57 No. 3, pp. 323-364.

Giuliano, P., Mishra, P. and Spilimbergo, A. (2013), "Democracy and reforms: evidence from a new dataset", *American Economic Journal: Macroeconomics*, Vol. 5 No. 4, pp. 179-204.

Gustafsson, A., Tingvall, P.G. and Halvarsson, D. (2020), "Subsidy entrepreneurs: an inquiry into firms seeking public grants", *Journal of Industry, Competition and Trade*, Vol. 20 No. 3, pp. 439-478.

Haber, S. and Perotti, E. (2008), *The Political Economy of Financial Systems*, Tinbergen Institute Discussion Paper, Stanford and Amsterdam, TI.

Haber, S., North, D. and Weingast, B. (Eds) (2007), *Political Institutions and Financial Development*, Stanford University Press, Stanford, CA.

Horvath, A. and Lang, P. (2021), "Do loan subsidies boost the real activity of small firms?", *Journal of Banking and Finance*, Vol. 122, 105988.

Huang, Y. (2010), "Political institutions and financial development: an empirical study", *World Development*, Vol. 38 No. 12, pp. 1667-1677.

International Monetary Fund (2014), *Annual Report: from Stabilization to Sustainable Growth*, International Monetary Fund, Washington, DC.

Kotera, G. and Okada, K. (2017), "How does democratization affect the composition of government expenditure?", *Journal of Economic Behavior and Organization*, Vol. 137, pp. 145-159.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R.W. (1998), "Law and finance", *Journal of Political Economy*, Vol. 106 No. 6, pp. 1113-1155.

Landman, T. (1999), "Economic development and democracy: the view from Latin America", *Political Studies*, Vol. 47 No. 4, pp. 607-626.

Lasswell, H. (1950), *Politics: Who Gets what*, When and How, New York, Smith.

Li, J., Lee, R.P. and Wan, J. (2020), "Indirect effects of direct subsidies: an examination of signaling effects", *Industry and Innovation*, Vol. 27 No. 9, pp. 1040-1061.

Lopes, T.H.C.R. and de Jesus, C.S. (2015), "Financial liberalization and economic growth: the (ir) relevance of the democracy context", *Journal of Economic Studies*, Vol. 42 No. 2, pp. 207-223.

Lu, Y., Shi, X. and Zhong, S. (2018), "Competitive experience and gender difference in risk preference, trust preference and academic performance: evidence from Gaokao in China", *Journal of Comparative Economics*, Vol. 46 No. 4, pp. 1388-1410.

Mascia, D.V. and Rossi, S.P.S. (2017), "Is there a gender effect on the cost of bank financing?", *Journal of Financial Stability*, Vol. 31, pp. 136-153.

Monfardini, C. and Radice, R. (2008), "Testing exogeneity in the bivariate probit model: a Monte Carlo study", *Oxford Bulletin of Economics and Statistics*, Vol. 70 No. 2, pp. 271-282.

Moro, A., Wisniewski, T.P. and Mantovani, G.M. (2017), "Does a manager's gender matter when accessing credit? Evidence from European data", *Journal of Banking and Finance*, Vol. 80, pp. 119-134.

Norris, P. (1999), "Institutional explanations for political support", in Norris, P. (Ed.), *Critical Citizens: Global Support for Democratic Government*, Oxford University Press, Oxford, pp. 217-235.

North, D.C., Wallis, J.J. and Weingast, B.R. (2009), *Violence and Social Orders: A Conceptual Framework for Interpreting Recorded Human History*, Cambridge University Press, New York.

OECD (2017), *Policy Brief on Women's Entrepreneurship*, OECD/European Union, Publications Office of the EU, Luxembourg.

Osei-Tutu, F. and Weill, L. (2023), "Democracy favors access to credit of firms", *European Journal of Political Economy*, Vol. 77, 102312.

Öztürk, B. and Mrkaic, M.M. (2014), *SMEs' Access to Finance in the Euro Area: What Helps or Hampers? No. 14-78*, International Monetary Fund, Washington.

Profeta, P., Puglisi, R. and Scabrosetti, S. (2013), "Does democracy affect taxation and government spending? Evidence from developing countries", *Journal of Comparative Economics*, Vol. 41 No. 3, pp. 684-718.

Rajan, R.G. and Zingales, L. (2003), "The great reversals: the politics of financial development in the twentieth century", *Journal of Financial Economics*, Vol. 69 No. 1, pp. 5-50.

Ross, M. (2006), "Is democracy good for the poor?", *American Journal of Political Science*, Vol. 50 No. 4, pp. 860-874.

Scharpf, F.W. (1999), *Governing in Europe: Effective and Democratic?*, Oxford University Press, Oxford.

Schumpeter, J.A. (1942), *Capitalism, Socialism and Democracy*, Allen & Unwin, London.

Shelton, C.A. (2007), "The size and composition of government expenditure", *Journal of Public Economics*, Vol. 91 Nos 11-12, pp. 2230-2260.

Sila, V., Gonzalez, A. and Hagendorff, J. (2016), "Women on board: does boardroom gender diversity affect firm risk?", *Journal of Corporate Finance*, Vol. 36, pp. 26-53.

Simmons, W.O. and Emanuele, R. (2007), "Male-female giving differentials: are women more altruistic?", *Journal of Economic Studies*, Vol. 34 No. 6, pp. 534-550.

Slesman, L., Baharumshah, A.Z. and Azman-Saini, W.N.W. (2019), "Political institutions and finance-growth nexus in emerging markets and developing countries: a tale of one threshold", *Quarterly Review of Economics and Finance*, Vol. 72, pp. 80-100.

Stiglitz, J.E. and Weiss, A. (1981), "Credit rationing in markets with imperfect information", *American Economic Review*, Vol. 71 No. 3, pp. 393-410.

Teorell, J., Coppedge, M., Lindberg, S. and Skaaning, S.E. (2019), "Measuring polyarchy across the globe, 1900-2017", *Studies in Comparative International Development*, Vol. 54 No. 1, pp. 71-95.

Timmons, J.F. (2010), "Does democracy reduce economic inequality?", *British Journal of Political Science*, Vol. 40 No. 4, pp. 741-757.

Treisman, D. (2007), "What have we learned about the causes of corruption from ten years of cross-national empirical research?", *Annual Review of Political Science*, Vol. 10 No. 1, pp. 211-244.

Welzel, C., Norris, P. and Inglehart, R. (2002), "Gender equality and democracy", *Comparative Sociology*, Vol. 1 Nos 3-4, pp. 321-345.

Yang, B. (2011), "Does democracy foster financial development? An empirical analysis", *Economics Letters*, Vol. 112 No. 3, pp. 262-265.

Appendix

Sample of 31 countries				Sample of 19 countries			
Countries	Obs	% of the full sample	Female obs (% at country level)	Countries	Obs	% of the full sample	Female obs (% at country level)
Austria	2,736	4.82	12.83	Austria	2,736	5.08	12.83
Belgium	3,066	5.40	11.84	Belgium	3,066	5.70	11.84
Bulgaria	712	1.25	18.12	Bulgaria	712	1.32	18.12
Cyprus	160	0.28	7.50				
Czech Republic	674	1.19	9.35	Czech Republic	674	1.25	9.35
Denmark	749	1.32	9.21	Denmark	749	1.39	9.21
Estonia	104	0.18	15.38				
Finland	3,265	5.75	13.32	Finland	3,265	6.07	13.32
France	6,602	11.64	13.62	France	6,602	12.26	13.62
Germany	5,502	9.70	13.79	Germany	5,502	10.22	13.79
Greece	3,347	5.90	10.13	Greece	3,347	6.22	10.13
Croatia	154	0.27	19.48				
Hungary	750	1.32	13.20	Hungary	750	1.39	13.20
Ireland	3,042	5.36	11.08	Ireland	3,042	5.65	11.08
Italy	6,574	11.59	13.08	Italy	6,574	12.21	13.08
Lithuania	443	0.78	11.51				
Luxembourg	131	0.23	16.03				
Latvia	272	0.48	15.07				
Montenegro	182	0.32	12.64				
Netherlands	3,013	5.31	9.89	Netherlands	3,013	5.60	9.89
Norway	300	0.53	7.33				
Poland	1,448	2.55	16.57	Poland	1,448	2.69	16.57
Portugal	2,934	5.17	14.96	Portugal	2,934	5.45	14.96
Romania	772	1.36	20.08	Romania	772	1.43	20.08
Sweden	656	1.16	13.11	Sweden	656	1.22	13.11
Slovenia	155	0.27	14.19				
Slovak Republic	464	0.82	15.30				
Spain	6,554	11.55	13.26	Spain	6,554	12.18	13.26
Switzerland	75	0.13	14.67				
Turkey	470	0.83	5.74				
United Kingdom	1,435	2.53	12.47	United Kingdom	1,435	2.67	12.47
Total	56,741	100	12.89	Total	53,831	100	12.95

Source(s): Authors' elaborations on data from SAFE

Table A1. Samples of countries and observations

Table A2.
Descriptive statistics

Variables	Sample of 31 countries					Sample of 19 countries				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
D_subsidy	56,741	0.4514	0.4976	0	1	53,831	0.4556	0.4980	0	1
Political rights	56,741	1.1305	0.3694	1	3	53,831	1.1083	0.3107	1	2
Liberal democracy	56,741	0.8129	0.0790	0.32	0.90	53,831	0.8194	0.0637	0.55	0.90
Electoral democracy	56,741	0.8803	0.0601	0.47	0.93	53,831	0.8851	0.0475	0.66	0.93
Egalitarian democracy	56,741	0.7960	0.0783	0.31	0.88	53,831	0.8024	0.0627	0.53	0.88
Female	56,741	0.1289	0.3351	0	1	53,831	0.1295	0.3357	0	1
Long lasting PR	56,741	0.0629	0.1996	0	1.44	53,831	0.0580	0.1894	0	0.92
Long lasting Liberal democracy	56,741	0.0031	0.0081	1.50E-06	0.05	53,831	0.0029	0.0079	1.50E-06	0.04
Long lasting Electoral democracy	56,741	0.0023	0.0064	1.00E-06	0.04	53,831	0.0021	0.0063	1.00E-06	0.04
Long lasting Egalitarian democracy	56,741	0.0022	0.0046	2.00E-07	0.04	53,831	0.0020	0.0044	2.00E-07	0.02
Change in profit	56,741	0.2630	0.4402	0	1	53,831	0.2581	0.4376	0	1
Creditworthiness	56,741	0.2278	0.4194	0	1	53,831	0.2254	0.4178	0	1
Application for bank credit	56,741	0.2438	0.4294	0	1	53,831	0.2440	0.4295	0	1
Industry	56,741	0.2606	0.4390	0	1	53,831	0.2592	0.4382	0	1
Construction	56,741	0.1098	0.3126	0	1	53,831	0.1101	0.3130	0	1
Trade	56,741	0.2827	0.4503	0	1	53,831	0.2792	0.4486	0	1
Services	56,741	0.3469	0.4760	0	1	53,831	0.3515	0.4774	0	1
>10	56,741	0.7744	0.4180	0	1	53,831	0.7780	0.4156	0	1
5–9 years	56,741	0.1418	0.3488	0	1	53,831	0.1391	0.3461	0	1
2–4 years	56,741	0.0698	0.2548	0	1	53,831	0.0690	0.2535	0	1
<2 years	56,741	0.0140	0.1175	0	1	53,831	0.0138	0.1167	0	1
<9 employees	56,741	0.3505	0.4771	0	1	53,831	0.3525	0.4778	0	1
10–49 employees	56,741	0.3646	0.4813	0	1	53,831	0.3655	0.4816	0	1
50–249 employees	56,741	0.2849	0.4514	0	1	53,831	0.2819	0.4499	0	1
Instruments										
Self-Employment Female share	56,591	0.3778	0.2515	0	0.90	53,831	0.3799	0.2491	0	0.83
Employment Female share	56,741	0.4530	0.2040	0	0.79	53,831	0.4542	0.2033	0.03	0.75

Source(s): Authors' elaborations on SAFE and Freedom House and V-Dem data for democracy indices

	Sample of 31 countries		Sample of 19 countries	
	Female (1)	Female (2)	Female (3)	Female (4)
Self-Employment	0.1158***		0.1167***	
	(0.0064)		(0.0065)	
Female share Employment		0.1734***		0.1705***
Female share		(0.0097)		(0.0099)
Old	0.0333***	0.0312***	0.0342***	0.0328***
	(0.0072)	(0.0072)	(0.0075)	(0.0074)
Medium-aged	0.0636***	0.0621***	0.0667***	0.0652***
	(0.0069)	(0.0065)	(0.0070)	(0.0066)
Young	0.0711***	0.0710***	0.0717***	0.0715***
	(0.0109)	(0.0115)	(0.0115)	(0.0125)
Wave 3	0.0043	0.0023	0.0042	0.0025
	(0.0075)	(0.0083)	(0.0077)	(0.0082)
Wave 4	−0.0027	−0.0049	−0.0028	−0.0047
	(0.0070)	(0.0075)	(0.0070)	(0.0075)
Wave 5	−0.0045	−0.0061	−0.0008	−0.0029
	(0.0073)	(0.0071)	(0.0073)	(0.0071)
Wave 6	0.0007	−0.0000	0.0006	−0.0001
	(0.0065)	(0.0069)	(0.0066)	(0.0071)
Wave 7	0.0003	0.0005	0.0002	0.0002
	(0.0064)	(0.0073)	(0.0065)	(0.0073)
Wave 8	−0.0052	−0.0043	−0.0053	−0.0046
	(0.0034)	(0.0036)	(0.0034)	(0.0037)
Wave 9	−0.0002	−0.0004	−0.0017	−0.0019
	(0.0073)	(0.0072)	(0.0077)	(0.0074)
Observations	56,591	56,741	53,831	53,831
Number of countries	31	31	19	19
Log-likelihood	−58607	−58689	−55833	−58607
Wald statistics	Wald test of rho = 0: $\chi^2(1) = 0.1626$	Wald test of rho = 0: $\chi^2(1) = 0.9543$	Wald test of rho = 0: $\chi^2(1) = 0.2285$	Wald test of rho = 0: $\chi^2(1) = 0.0116$
Wald test	Prob > $\chi^2 = 0.6868$	Prob > $\chi^2 = 0.3286$	Prob > $\chi^2 = 0.6327$	Prob > $\chi^2 = 0.9141$
Result	Exogenous instruments	Exogenous instruments	Exogenous instruments	Exogenous instruments

Note(s): Robust standard errors in parentheses. In column 1 the slight drop in the observations is due to the lack of observation on the instrumental variable in a few waves of some countries
Significance levels: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$
Source(s): Authors' elaborations on SAFE and Freedom House data for democracy PR index

Table A3.
First stage of IV probit estimations

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