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# Does Financial Development Reduce Gender Disparity in Top Manager Positions in Manufacturing SMEs in Developing Countries?

*Mohammad Amin*
*Norma Gomez*

**WORLD BANK GROUP**

## Abstract

Women often face more hurdles than men in obtaining finance. This is especially so when credit supply is limited and financial markets are less developed. As a result, owners of firms may prefer men over women as top managers of their firms, widening the gender gap in top manager positions. This paper tests this idea using firm-level survey data for small and medium-size formal manufacturing enterprises in 47 developing countries. The results confirm a positive relationship between credit supply and the likelihood of having a woman versus a man as the top manager.

This positive relationship is much stronger in industries that are more dependent on external sources of finance for technological reasons. It is also stronger in countries with poor coverage by credit bureaus and low competition between banks, which is consistent with "statistical" and "taste-based" discrimination against women borrowers. The main result is robust to several endogeneity checks, sample alterations, and alternative measures of credit supply and financial development.

Produced by the Research Support Team

# Does Financial Development Reduce Gender Disparity in Top Manager Positions in Manufacturing SMEs in Developing Countries?

## By: Mohammad Amin* and Norma Gomez**

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* Corresponding author. Senior Economist, Enterprise Analysis Unit, DECEA, World Bank, Washington, DC. Email: mamin@worldbank.org. ORCID: https://orcid.org/0000-0002-9451-3629

** Economist, Enterprise Analysis Unit, DECEA, World Bank, Washington, DC. Email: ngomez1@worldbank.org. ORCID: https://orcid.org/0000-0002-9934-4123

# 1. Introduction

Women often face greater hurdles in obtaining finance than men. This is especially so when credit supply is limited and financial markets are not well developed. As a result, firm owners may prefer men over women as top managers of their firms. Alternatively put, easier credit availability increases the likelihood of a woman versus a man being the top manager in a firm and thereby narrows the gender gap in top management positions. The present paper empirically confirms this insight for a sample of manufacturing SMEs in 47 developing countries. The positive relationship between credit supply and the likelihood of having a woman top manager that we find is much stronger in industries that are more dependent on external sources of finance. It is also stronger where credit bureaus have poor coverage and competition between banks is low, which is consistent with women experiencing "statistical" and "taste-based" discrimination in the financial markets.

Access to finance is important because firms need cash up front and before sales are realized. Cash is needed up front to pay workers and suppliers (Chodorow-Reich 2014, Bacchetta et al. 2019), maintain inventories (Blinder and Maccini 1991, Deloof 2003, Aktas et al. 2015), advance credit to customers (Brennan et al. 1988, Aktas et al. 2015), and make long-term investments (Fazzari et al. 1988, Blalock et al. 2008, Levine and Warusawitharana 2021).

Ensuring a smooth flow of cash throughout the production cycle is an important task for firm managers. Women may be disadvantaged in conducting this task relative to men because of discrimination in the financial markets (Section 2 reviews the literature). This is especially likely when credit supply is limited. That is, when credit supply contracts and lenders prefer men over women borrowers, there is lesser credit left for women borrowers. There are similar examples of greater gender bias against women following a resource crunch. For example, Muravyev et al.

(2009) find that female-led firms are more likely to be financially constrained than male-led firms, and this gap is bigger in financially less developed countries. Also see Maccini and Yang (2009), Feeny et al. (2021), Jayachandran and Pande (2017), and Jayachandran and Kuziemko (2011) on how adverse shocks to household incomes increase the disparity between boys and girls in the allocation of nutritional and educational expenses. Regarding the mechanisms, several studies indicate the presence of "statistical" and/or "taste-based" discrimination by lenders against women borrowers (Section 2 reviews the literature). We explore these pathways below.

Our empirical results confirm a positive relationship between credit supply and the likelihood of having a woman top manager (figures 1 and 2). A one standard deviation increase in the bank credit to GDP ratio is associated with an increase in the odds of having a woman vs. man top manager by 0.35 to 0.48 log points. The corresponding increase in the probability of having a woman top manager is 4.4 to 4.8 percentage points against 18 percent women managers in the full sample. Consistent with our theoretical predictions, the positive relationship between the bank credit to GDP ratio and the likelihood of having a woman top manager is significantly higher in sectors that are more dependent on external sources of finance, in countries where it is difficult for women to signal their creditworthiness due to absence of credit bureaus, and in countries where competition in the banking industry is low.

We contribute to the literature in several ways. First, to the best of our knowledge, our paper is the first to explore the finance channel for explaining the gender gap in top management positions. Second, we uncover several heterogeneities in the credit supply and gender of the top manager relationship. The exercise enriches our understanding of the possible mechanisms at play. It also allows for targeted policy intervention. Third, we pay due attention to endogeneity concerns. We control for all time invariant country specific factors (country fixed effects), which are a major

source of omitted variable bias. Further, following the strategy of Rajan and Zingales (1998) for guarding against endogeneity concerns, we test for some theoretical predictions about how credit supply affects the choice of woman vs. man top manager. Fourth, we focus on developing countries, which is a novelty in the literature (see Section 2). Fifth, we use firm-level survey data which allows us to account for several potential omitted variables such as firm size and productivity, industry, and gender composition of workers and firm owners.

## 2. Conceptual framework and literature review

2.1 *Gender gap in top management*

Gender gaps favoring men over women exist in most countries and in diverse areas like labor market outcomes, health, education, and political empowerment (see Klasen 2020, World Bank 2011). Likewise, the share of women among top managers of firms is also low when compared to their share in total population and in lower-level jobs. See Fernandez and Campero (2017), European Union (2016), Coric (2018), Peng and She (2020), Islam and Amin (2016), Islam et al. (2019), and Sekkat et al. (2015). For example, Coric (2018) for 45 countries in Europe and Islam and Amin (2016) for 73 developing countries report that only 26 percent and 19 percent of the top management positions, respectively, are held by women.

Direct evidence on the drivers of the gender gap in top management positions is limited. However, the broader literature on gender gaps offers several potential explanations. First, studies report that compared to men, women are more risk averse (see Croson and Gneezy 2009, Dohmen et al. 2011), and prefer less competitive environments (see Niederle and Vesterlund 2007, Gneezy et al. 2003) and more flexible work conditions (see Goldin 2014, Bertrand 2018). Thus, women may shy away from managerial work that is more risky, competitive, and requires a long and

inflexible work schedule. Second, greater absence from the labor market due to children and less education among women than men (Bertocchi and Bozzano 2020, Bertrand 2018) implies that fewer women than men have the necessary skills and experience to become top managers. Third, there is discrimination against women prospective managers stemming from cultural beliefs and norms about gender roles (see Gao et al. 2016, Bertrand and Hallock 2001, Gorman and Kmec 2009, Powell et al. 2002, Paris and Decker 2012).

2.2 *Access to finance and gender*

Several studies show that women and women-led firms face greater difficulty in obtaining finance than their men counterparts. Relative to men-led firms, women-led firms are more likely to report access to finance as a major or bigger obstacle (Asiedu et al. 2013), less likely to apply for a loan because of anticipated rejection (Moro et al. 2017, Cavalluzzo et al. 2002), face higher rejection rates on loan applications (Muravyev et al. 2009, Cavalluzzo et al. 2002, Belluci et al. 2010), less likely to have a loan (Chaudhuri et al. 2018, Aristei and Gallo 2016), pay higher interest rates and/or other borrowing costs (Mascia and Rossi 2017, Muravyev et al. 2009, Alesina et al. 2013), and face stricter collateral requirements (Belluci et al. 2010). To provide an example, Muravyev et al. (2009) consider firms that have a single majority shareholder who is also its manager in 34 countries in Central Asia and Europe. They find that the probability of receiving a bank loan is about 5 percent lower for women-managed firms than men-managed firms. The former also pay 0.5 percentage points higher interest on bank loans.

Poorer access to finance for women as highlighted in the above studies is not a forgone conclusion. Other studies show no significant gender gap in loan applications (Pham and Talavera 2018), lower likelihood of women-led firms being financially constrained (Wellalage and Locke 2017), and lower interest rates charged to women-owned firms than male-owned firms (Pham and

Talavera 2018). Also, see Asiedu et al. (2012) and Blanchflower et al. (2003). Thus, more empirical analysis is needed on the nexus between gender and finance.

2.3 *Industry dependence on external finance*

Our claim is that firms prefer men over women managers because the latter face greater difficulty in obtaining finance. Naturally, the preference for men over women managers will be stronger in industries that depend more on external finance. Rajan and Zingales (1998) estimate industries' dependence on external finance arising from technological reasons, such as initial project scale, gestation period, cash harvest period, requirement for ongoing investment, and available growth opportunities. As Rajan and Zingales (1998) among others argue, showing that the impact of credit supply is stronger in industries more dependent on external finance can serve as a "smoking gun" in the debate on causality. Buccirossi et al. (2013) nicely summarize the point in estimating the impact of competition policy on the total factor productivity (TFP) of firms. They note that (page 1327):

"We search for situations where we expect competition policy to have a differential effect on productivity as compared to other omitted factors or policies. If we were to observe this kind of behavior in the data, this would enhance our confidence that the estimated nexus between the quality of a competition policy regime and TFP growth can be interpreted in a causal way."

Likewise, if the positive relationship that we find between credit supply and the likelihood of having a woman top manager is driven by omitted factors, measurement errors, or reverse causality, then there is no reason for the stated relationship to be stronger in those industries that Rajan and Zingales (1998) identify as more dependent on external finance for technological reasons. We summarize this heterogeneity-based check against endogeneity concerns as follows:

*Hypothesis 1*: The positive relationship between the bank credit to GDP ratio and the likelihood of having a woman vs. man top manager is much stronger (more positive) in industries that rely more on external sources of finance for technological reasons.

2.4 *Credit bureaus and competition between banks*

We explore two other sources of heterogeneity involving "statistical" and "taste-based" discrimination against women in the financial market. "Statistical" discrimination (Phelps 1972) occurs when lenders do not have perfect information about the borrowers' creditworthiness. Thus, lenders may proxy a borrower's creditworthiness by an easily observable demographic characteristic, such as gender, which is believed to be correlated with creditworthiness. Discrimination occurs if lenders believe that women-led firms have on average lower creditworthiness than men-led firms. Note that being a manifestation of information-related frictions, "statistical" discrimination is likely to be much less, and therefore the nexus between credit supply and gender of the top manager much weaker, when more information becomes available through for example, expansion of credit reporting agencies like credit bureaus in the country. Such a result is unlikely or less likely if the credit supply and gender of the top manager relationship that we uncover suffers from omitted variable bias, measurement errors, or reverse causality. Thus, in the spirit of Rajan and Zingales (1998) as detailed above, the proposed prediction can raise our confidence against endogeneity concerns. We summarize this heterogeneity-based test against endogeneity concerns as follows:

*Hypothesis 2*: The positive relationship between the bank credit to GDP ratio and the likelihood of having a woman vs. man top manager is much weaker (less positive) when credit bureaus provide better coverage.

"Taste-based" discrimination (Becker 1957) arises because of prejudicial preferences of lenders about gender roles and norms. Such discrimination is characterized by lack of adherence to objective criteria in formulating a judgement about individuals. However, such discrimination is costly to lenders because it involves foregoing profitable lending opportunities. The higher is the cost of discrimination, the lesser is the severity of "taste-based" discrimination, and therefore the weaker is the nexus between credit supply and the gender of the top manager. One factor that raises the cost of "taste-based" discrimination is more competition between banks (see Becker 1957, Cooke et al. 2019, Blau and Kahn 2017). Thus, we predict the following:

*Hypothesis 3*: The positive relationship between the bank credit to GDP ratio and the likelihood of having a woman vs. man top manager is much weaker (less positive) when there is more competition in the banking industry.

This hypothesis is based on the specific ways in which credit supply impacts women's chances of becoming top managers. It is unlikely or less likely to hold if the credit supply and gender of the top manager relationship suffers from omitted variable bias, measurement errors, or reverse causality. Thus, in the spirit of Rajan and Zingales (1998), *Hypothesis 3* is a useful test against endogeneity concerns.

## 3. Data description and main variables

### 3.1 *Data sources*

Our primary data source consists of firm-level survey data collected by the World Bank's Enterprise Surveys (WBES). The WBES focus on formal or registered private firms with five or more full-time permanent workers. The survey incorporates the entire manufacturing sector but excludes agriculture, extractive industries, and certain service industries like finance and health care. The WBES is nationally representative of the targeted private sector. All the surveys use a common sampling methodology, stratified random sampling, and a common questionnaire. The sampling stratification is done on firm size, industry, and location within the country. Sampling weights provided by the WBES are used in all the regressions.[1]

Our baseline sample includes all SMEs in the manufacturing sector. Following the definition used by WBES for stratification purposes, SMEs are all firms with fewer than 100 full-time permanent workers. Large firms (100 or more workers) have very different financing needs and access than SMEs and therefore they are analyzed separately. The focus on the manufacturing sector is to keep the sample relatively homogenous. Our empirical strategy is based on change over time in credit supply in a country. Thus, our sample includes all developing and emerging countries with multiple rounds of WBES administered across years. We note that our sample is a repeated cross-section and not a firm-panel. The WBES tracks firms over time but the observed attrition rates are quite high to generate sizeable panels. Our baseline sample includes 15,460 manufacturing SMEs in 47 countries. Table A1 in the Appendix provides the list of countries covered along with the survey years.

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[1] The firm-level WBES data that we use are publicly available at https://www.enterprisesurveys.org/en/enterprisesurveys. All the other data sources that we use are also publicly available.

We complement the WBES with other data sources. These include World Development Indicators (WDI), World Bank; Global Financial Development Database (GFDD), World Bank; Inter Parliamentary Union (IPU); Doing Business, World Bank; and Women Business and Law (WBL), World Bank.

3.2 *Estimation methodology*

Our baseline results are based on the following logistic equation:

$$p(Y_{ijkt} = 1) = \frac{1}{1 + e^{-(\alpha + \beta_1 X_{kt} + CFE_k + YFE_t + IFE_j + Firm\ Controls_{ijkt} + Country\ Controls_{kt} + u_{ijkt})}} \quad (1)$$

where the subscript $i$ denotes the firm, $j$ the industry (at the 2-digit ISIC Rev. 3.1 level), $k$ the country where the firm operates, and $t$ the year the WBES was administered in the country. p(.) is the probability of success. $Y$ is a dummy variable equal to 1 if the top manager of the firm is a woman and 0 otherwise. $X$ is bank credit to GDP ratio, our main explanatory variable that varies across countries and time. CFE, YFE, and IFE denote country fixed effects, year fixed effects, and industry fixed effects, respectively. *Firm controls* and *Country controls* include various controls for firm and country characteristics, and $u$ is the error term. The parameters in equation (1) are estimated by applying maximum likelihood estimation to the following transformed log odds equation:

$$\ln\left(\frac{p(Y_{ijkt})}{1-p(Y_{ijkt})}\right)$$

$$= \alpha + \beta_1 X_{kt} + CFE_j + YFE_t + IFE_j + Firm\ Controls_{ijkt}$$

$$+ Country\ Controls_{kt} + u_{ijkt} \qquad (2)$$

The heterogeneities in *Hypotheses 1-3* are analyzed using the following equation:

$$\ln\left(\frac{p(Y_{ijkt})}{1-p(Y_{ijkt})}\right)$$

$$= \alpha + \beta_1 X_{kt} + \beta_2 X_{kt} * Z_{j,kt} + \beta_3 Z_{j,kt} + CFE_j + YFE_t + IFE_j$$

$$+ Firm\ Controls_{ijkt} + Country\ Controls_{kt} + Interaction\ Controls_{ijkt}$$

$$+ u_{ijkt} \qquad (3)$$

Equation (3) differs from equation (2) because it includes the interaction term between the bank credit to GDP ratio ($X$) and industry/country-year characteristics of interest captured by $Z$. It also includes as controls interaction terms between the bank credit to GDP ratio and country and firm characteristics (defined below). Equation (3) is estimated using the maximum likelihood estimation method. All regressions use Huber-White robust standard errors clustered on the country-year. In the Appendix, a formal definition of all the variables is provided in table A2 and summary statistics are provided in table A3.

3.3 *Dependent variable*

The dependent variable is a dummy equal to 1 if the top manager of the firm is a woman and 0 otherwise (*Woman top manager*). The data source is WBES. The mean value of the variable is about 0.18 or 18 percent and the standard deviation is 0.38.

3.4 *Main explanatory variable*

Our main explanatory variable is total domestic credit provided by banks to the private sector as a ratio of GDP (*Bank credit*). The variable is lagged by 1 year from the date of WBES in the country-year.[2] We focus on bank credit because it is one of the most important sources of credit for private SMEs in the developing world (see Berger and Udell 1998, Muravyev et al. 2009). In our sample, the mean value of *Bank credit* equals 0.41 and the standard deviation is 0.18. The data source is WDI, World Bank.

For robustness, we show that our main result holds for alternative measures of credit availability and financial development (all lagged by 1 year). These include total credit by banks and non-bank financial intermediaries provided to the private sector as a ratio of GDP (*Total credit to private sector*), log of number of ATMs per 100,000 adults, and log of number of bank branches per 100,000 adults. The data source for all these variables is WDI, World Bank. We also use total bank credit to the private sector as a ratio of total bank deposits (*Bank credit to bank deposit ratio*) taken from GFDD, World Bank. This variable captures the quality of financial intermediation and therefore the availability of credit (see Beck et al. 2007, Dutta and Sobel 2018).

3.5 *Controls*

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[2] Average values of the variable are used where the average is computed over one year lagged values of the variable for the years the WBES round under consideration was administered in the country and for which data are available. Unless specified otherwise, the same holds for all the other country-year level variables.

We control for several firm and country characteristics to further raise our confidence against omitted variable bias problem. For this, we draw on the broader literature on gender gaps in the labor markets. We provide a brief description of the variables below and a more detailed description is provided in table A2 in the Appendix.

3.5.1 *Baseline* c*ontrols*

We begin with controlling for all time invariant country specific factors such as social norms and culture and slow-moving institutions. We do so by using a set of dummy variables indicating the country where the firm operates (*Country fixed effects*). Industry specific factors and global annual shocks to the dependent variable are accounted for by dummy variables indicating the industry (2-digit ISIC Rev. 3.1) of the firm (*Industry fixed effects*) and by dummy variables for the year the WBES round was administered (*Year fixed effects*). The data source is WBES.

At the macro-level, gender gaps in the labor market are found to be correlated with income levels or GDP per capita (see Coric 2018, Gaddis and Klasen 2014), gender parity in education (see Klasen et al. 2021, Bussemakers et al. 2017, Islam and Amin 2016), and macroeconomic growth (see Klasen 2019). Country size and demographics may also matter. Smaller countries tend to rely more on international markets that are more competitive. This incentivizes cost cutting via less discrimination against women. Demographics matter as ceteris paribus, more women relative to men in the age group relevant for managers implies proportionately more women managers. We account for all these factors using the following controls (all lagged by 1 year): log of GDP per capita (PPP adjusted and at constant 2017 int'l dollars); ratio of gross primary enrollment rate of women to men (*Primary enrollment gender parity index*); log of total population in the country;

growth rate of GDP per capita (percent, annual); and the percentage of women in the 35-64 years age group relevant for managers. The data source for all these variables is WDI, World Bank.

We control for several firm characteristics that may be correlated with the gender of the top manager and vary systematically with credit supply. Direct evidence on differences between women- and men-led firms is limited to a few firm characteristics. These include labor productivity and growth rate of sales and employment (see Allison et al. 2023, Islam et al. 2020), firm size (see Fairlie and Robb 2009), age of firm (see Blum et al. 1994, Islam et al. 2020), exposure to international markets (see Marques 2015, Haddoud et al. 2021), gender composition of the owners (Sekkat et al. 2015), and gender composition of the workforce (Hurley and Choudhary 2016). We go beyond and account for additional factors such as, quality of the regulatory and business environment that may have gendered effects on firm functioning (see Vershinina et al. 2022. Hanousek et al. 2019), and therefore may affect the choice of woman vs. man top manager.

Based on the discussion above, the baseline firm-level controls include the following (all taken from WBES): firm size proxied by log of number of workers employed at the firm 3 fiscal years ago (lagged) and a dummy variable equal to 1 if the firm is part of a larger establishment and 0 otherwise (*Multi establishment firm*); log of age of the firm; labor productivity equal to log of the ratio of annual sales (in 2009 USD) to the number of workers three fiscal years ago; firm growth proxied by the average annual growth rate of employment (log difference) at the firm over the last 3 fiscal years; dummy variable equal to 1 if the firm purchased fixed assets during the last fiscal year and 0 otherwise; dummy variable equal to 1 if the firm has one or more women owners and 0 otherwise (*Women owners*); share of women workers in the workforce at the firm at the end of the last fiscal year (*Women workers*); exposure to international markets proxied by the share of firms' sales in the last fiscal year that were made directly abroad (*Exports*), proportion of firms'

ownership that is with foreign individuals, entities, and organizations (*Foreign ownership*), and a dummy variable equal to 1 if the firm has internationally recognized quality certification and 0 otherwise (*Quality certification*); access to financial services captured by a dummy variable equal to 1 if the firm has overdraft facility and 0 otherwise[3]; financial transparency proxied by a dummy variable equal to 1 if the firm had its financial statements audited externally in the last fiscal year and 0 otherwise (*Firm audited*), and a dummy variable equal to 1 if the firm was registered with the relevant authority when it started operations (*Registered when started)*; a set of dummy variables indicating the current legal status of the firm (see table A2 for details); quality of the business environment proxied by a dummy variable equal to 1 if obtaining licenses and permits is a major or bigger obstacle for the firm and 0 if it is a lesser obstacle, losses from power outages in the last fiscal year as a ratio of total sales in the last fiscal year, and a dummy variable equal to 1 if the firm was visited or inspected by tax officials in the last year and 0 otherwise (*Visited by tax officials*).

### 3.5.2 *Robustness* c*ontrols*

We use additional controls for robustness purposes. Some of these controls involve a noticeable loss in sample due to missing data. We first check if replacing gender parity in primary education with that in tertiary education (data source is WDI, World Bank) affects our main result. Next, we add country-year level controls. The data source is WDI or as stated in brackets. The controls include the percentage of seats in the lower house of the parliament that are held by women (taken from IPU); fertility rate; percentage of women in total population; cost of starting a business as a

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[3] Results are unchanged if we use whether the firm has a checking or savings account instead of an overdraft facility. Having a checking/savings account is included as robustness control (see section 3.4.2).

percentage of GNI (Doing Business, World Bank); and a dummy variable equal to 1 if the law prohibits discrimination in hiring practices based on gender (WBL, World Bank).

Additional firm-level controls taken from WBES include a dummy variable equal to 1 if the firm currently uses technology licensed from a foreign-owned firm and 0 otherwise; a dummy equal to 1 if the firm spent on R&D activity during the last fiscal year and 0 otherwise; a dummy variable equal to 1 if the firm has a checking and/or savings account and 0 otherwise; a dummy variable equal to 1 if the firm competes against unregistered or informal businesses and 0 otherwise; number of times either inspected or required to meet with tax officials during the last 12 months; proportion of the firm's senior management time spent in dealing with government regulations in a typical week over the last 12 months (*Time tax*); a dummy variable equal to 1 if the firm suffered losses due to crime during the last fiscal year and 0 otherwise; and a dummy variable equal to 1 if the firm reports that typically firms make bribe payments to government officials to "get things done" and 0 otherwise.

3.6 *Interaction variables*

For testing *Hypothesis 1*, we use interaction term between bank credit and industries' dependence on external finance (*Financial dependence*) as reported in Rajan and Zingales (1998). For robustness, we also use the percentile ranks of *Financial dependence*. For testing *Hypothesis 2*, we use interaction term between bank credit and (one year lagged values of) a dummy variable equal to 1 if credit bureaus are present in the country-year and 0 otherwise. For robustness, we show that our results with (one year lagged values of) the percentage of the total population in the country-year that is covered by credit bureaus (*Credit bureau coverage*). The data source for the credit bureau dummy and coverage is Doing Business, World Bank. For *Hypothesis 3*, we use the

interaction term between bank credit and a proxy measure of the level of competition in the banking industry which equals the assets of the five largest banks in the country-year as a share of total commercial banking assets (*5-bank asset concentration*). For robustness, we also report results using a similar index for the three largest banks (3-*bank asset concentration*). Higher values of the concentration indices imply less competition in the banking industry. The data source is GFDD, World Bank.

In all the heterogeneity estimations, we include as controls interaction terms between bank credit and the following variables (defined above): log of GDP per capita, log of number of workers at the firm (firm size), log of age of the firm., and labor productivity of the firm (logs). These controls guard against the possibility that our main interaction term (as stated in Hypotheses 1-3) is spuriously picking up the differential effect of bank credit in countries with high vs. low GDP per capita, and firms of different size, age, and labor productivity.

## 4. Base regression results

Base regression results are provided in table 1. Panel A in table 1 contains the estimated log odds ratios while Panel B contains the estimated marginal effects of the bank credit to GDP ratio.[4] Table 1 shows that regardless of the controls, the relationship between the bank credit to GDP ratio and the likelihood (log odds ratios and marginal effect) of a having a woman top manager is positive and statistically significant at the 1 percent level. Without any controls (except for country, year, and industry fixed effects), the odds of having a woman top manager increase by 2.0 log points due a unit increase in the bank credit to GDP ratio (column 1, Panel A). The corresponding increase with various baseline controls included (columns 2-5) is larger, equaling 2.7 log points for the final

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[4] Unless stated otherwise, all marginal effects throughout the paper are evaluated at the mean value of the various explanatory variables.

specification (column 5). The marginal effects reveal a similar pattern. That is, without any controls (except for country, year, and industry fixed effects), a unit increase in the bank credit to GDP ratio increases the probability of having a woman top manager by 26.4 percentage points (column 1, Panel B). This marginal effect increases but only slightly when the remaining controls are added to the specification, equaling 27.1 percentage points for the final baseline specification (column 5, Panel B). Alternatively, across the different specifications in table 1, a one standard deviation increase in the bank credit to GDP ratio is associated with an increase of 4.4 to 4.8 percentage points in the probability (marginal effect) of having a woman top manager. The corresponding increase for the final baseline specification is 4.8 percentage points. This is an economically large increase against the share of 18 percent of women managed firms in the sample.

Some of the controls are significantly correlated with the dependent variable. Focusing on log odds ratios (Panel A), the odds of having a woman top manager are significantly lower for large firms (number of workers) and in countries with higher primary education enrollment rate among women relative to men. The odds are significantly higher for firms that have proportionately more women workers, firms that have women owners, firms that face higher losses due to power outages, and in countries that have a higher proportion of women in the 35-64 years age group. Given the counter-intuitive result for primary education, we confirm that our main result for the bank credit to GDP ratio continues to hold, and slightly more strongly, if we do not control for primary education gender parity index or replace it with tertiary education gender parity index.[5]

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[5] That is, for the final baseline specification and without controlling for primary education gender parity index, the estimated coefficient value of the bank credit to GDP ratio (log odds ratio) equals 2.83 (significant at 1 percent level). The corresponding figure with controlling for primary education gender parity index is roughly the same, equaling 2.71 (column 5, Panel A, table 1). Results replacing the primary education gender parity index with the one for tertiary education are discussed in the section 5.1.

**5. Robustness**

5.1 *Additional controls*

We check if the results discussed above hold if we replace gender parity in primary education with gender parity in tertiary education. The results are provided in column 1 in table A4 in the Appendix. We find that the relationship between the bank credit to GDP ratio and the chances (log odds and marginal effect) of having a woman top manager survives. It remains positive and significant (at the 1 percent level) and is quantitatively larger than in the baseline model (column 5, table 1).

Next, starting with the final baseline specification (column 5, table 1), we include the additional controls that were discussed above. Regression results are provided in columns 2-4 in table A4 in the Appendix. These results show that the positive relationship between the bank credit to GDP ratio and the chances of having a woman top manager survives. In fact, the relationship is quantitatively larger than in the baseline model. For instance, with all the additional controls included in the specification, the probability of having a woman top manager increases by 0.38 percentage points for each percentage point increase in the bank credit to GDP ratio (see column 4, Panel B, table A4). The corresponding increase in the final baseline specification was lower at 0.27 percentage points (see column 5, Panel B, table 1).

5.2 *Alternative measures of financial development*

Regression results using alternative measures of credit supply or financial development are provided in table 2. For brevity, the results are shown with no controls (except for country, industry, and year fixed effects) and with all the baseline controls. Columns 1 and 2 in table 2

contain the results for total credit to the private sector, columns 3 and 4 contain the results for bank credit to bank deposit ratio, columns 5 and 6 contain the results for number of ATMs per 100,000 adults, and columns 7 and 8 contain the results for number of bank branches per 100,000 adults. Our main result of a positive and statistically significant relationship between credit supply or financial development and the likelihood (odds ratio and marginal effect) of having a woman top manager holds for all the measures considered. The relationship is significant at close to the 5 percent level in one specification (p-value of 0.051, column 4) and at less than the 5 percent or 1 percent level in the remaining specifications. To provide an example, a one standard deviation increase in bank credit to bank deposit ratio is associated with an increase in the probability of having a woman top manager (marginal effect) by 3.9 percentage points with all the baseline controls included in the specification (column 4, table 2).

5.3 *Dropping one country at a time*

We checked that our main result is not driven by any single country. To this end, we ran the baseline regressions with and without the controls dropping one country at a time from the sample. The estimated coefficient value of the bank credit to GDP ratio remained positive and statistically significant at the 1 percent level regardless of which country was dropped. For example, for the final baseline specification, the estimated coefficient value of the bank credit to GDP ratio (log odds ratio) ranged between 2.07 (when the Slovak Republic was dropped) and 3.4 (when Slovenia was dropped).

## 6. Heterogeneity

6.1 *Financial dependence of sectors*

Above, we argued that a stronger (more positive) relationship between financial development and the likelihood of having a woman top manager in sectors that are more dependent on external finance will bolster our confidence against endogeneity concerns with our main result (*Hypothesis 1*). To test this, we repeat the baseline regressions after adding the interaction term between the bank credit to GDP ratio and the financial dependence of sectors on external finance in the specification. The results are provided in table 3. Panel A in the table contains the estimated log odds ratios while the mean marginal effect of the interaction term is provided in Panel B.

Focusing on the log odds ratio, the interaction term between the bank credit to GDP ratio and the dependence of sectors on external finance is positive and statistically significant at less than the 1 percent or 5 percent level. That is, the odds of having a woman top manager increases with the level of financial development in the country but much more so in sectors that are more dependent on external sources of finance. In fact, for sectors with very low dependence on external finance, there is no significant relationship between financial development and the odds of having a woman top manager. For instance, consider the final baseline specification (column 5 in table 3). For this specification, a one standard deviation increase in the bank credit to GDP ratio leads to an increase in the odds of having a woman top manager by 0.92 log points (significant at the 1 percent level) in sectors most dependent on external finance. In contrast, the increase is a mere 0.11 log points (insignificant at the 10 percent level) in sectors that are least dependent on external finance. Like the log odds ratios, the marginal effect of the interaction term is also positive, large, and statistically significant at the 1 percent level across all the specifications (see Panel B, table 3).

For robustness, we replace the absolute measure of sectors' dependence on external finance with its percentile rank. The regression results are provided in table A5 in the Appendix. These are qualitatively like the ones discussed in the previous paragraph.

6.2 *Credit bureaus*

We argued above that a weaker (less positive) relationship between financial development and the likelihood of having a woman top manager in countries where credit bureaus are more prevalent will bolster our confidence against endogeneity concerns with our main result (*Hypothesis 2*). To test this, in table 4, we provide the regression results for the interaction term between bank credit to GDP ratio and a dummy variable equal to 1 if credit bureaus are present in the country and 0 otherwise. Panel A in table 4 contains the estimated log odds ratios and Panel B contains the estimated marginal effects of the interaction term.

As evident from table 4 *Hypothesis 2* is easily passed. The interaction term the between bank credit to GDP ratio and the presence of credit bureaus is negative and statistically significant at the 1 percent or 5 percent level. This holds for the estimated log odds ratio (Panel A) and the marginal effect (Panel B) of the interaction term. In other words, likelihood of having a woman top manager increases with financial development much more in countries with no credit bureaus than in countries with credit bureaus. We note that for all the baseline specifications, the impact of a given increase in bank credit to GDP ratio on the odds of having a woman top manager is positive and statistically significant (at the 5 percent level or less) in countries that have a credit bureau as well as in countries that do not have a credit bureau, but the latter impact is much smaller in magnitude. To get a sense of the magnitudes involved, consider the final baseline specification (column 5, table 4). For this specification, a one standard deviation increase in the bank credit to

GDP ratio increases the odds of having a woman top manager by 1.21 log points (significant at the 1 percent level) in countries with no credit bureaus. The corresponding increase in countries with credit bureaus is much smaller, equaling 0.36 log points (significant at the 1 percent level).

For robustness, we check if the results discussed in the previous paragraph hold if we replace the credit bureau dummy with the percentage of the total population in the country that is covered by credit bureaus. Regression results for the interaction term between the bank credit to GDP ratio and credit bureau coverage are provided in table A6 in the Appendix. The interaction term is negative (log odds ratios and marginal effects). The estimated log odds ratio for the interaction term is statistically significant at the 10 percent level without any controls (except for country, year, and industry fixed effects) and with the controls for GDP per capita and firm size (see columns 1 and 2, Panel A, table A6). It is significant at 1 percent level in the remaining specifications including the final baseline specification.[6]

6.3 *Bank concentration*

Our last heterogeneity check is for the nexus between financial development and the level of concentration in the banking industry (*Hypothesis 3*). Regression results for the interaction term between the bank credit to GDP ratio and 5-bank asset concentration index are provided in table 5. The interaction term is positive and statistically significant at the 1 percent level in most specifications considered and at the 5 percent level in the remaining specifications. This holds for log odds ratios and marginal effect. Thus, *Hypothesis 3* is easily passed. Briefly, financial

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[6] The average marginal effect of the interaction term is insignificant at the 10 percent level without any controls and with the control for GDP per capita and firm size (see columns 1 and 2, Panel B, table A6). It is significant at the 1 percent level in the remaining specifications including the final baseline specification (see columns 3-6, Panel B, table A6).

development improves women's likelihood or chances of becoming top managers much more in countries with a heavier concentration of banking activity. Focusing on the log odds ratios, for all the specifications in table 5, a given increase in the bank credit to GDP ratio is associated with a statistically significant increase in the odds of having a woman top manager when bank concentration is above a critical threshold level, and no significant change (at the 10 percent level or less) at sufficiently low levels of bank concentration. To provide an example, consider the final baseline specification (column 5, table 5). For this specification, a one standard deviation increase in the bank credit to GDP ratio is associated with an increase in the likelihood of having a woman top manager by 0.93 log points (significant at the 1 percent level) when bank concentration is highest (100 percent). The corresponding change when bank concentration is at its lowest level in our sample (36.2 percent) is a decrease in the odds but only by a mere 0.128 points (insignificant at the 10 percent level or less).

For robustness, we repeat the regression exercise in the previous paragraph after replacing the 5-bank asset concentration index with the 3-bank asset concentration index. The results are provided in table A7 in the Appendix, and they are qualitatively like the ones discussed in the previous paragraph.

6.4 *Adding all interaction terms simultaneously*

Regression results with all the interaction terms discussed above included simultaneously are provided in table 6. The interaction terms are those between the bank credit to GDP ratio and the following variables: financial dependence of sectors, presence of credit bureaus, and the 5-bank asset concentration index. As evidence from table 6, all the three interaction terms maintain their

signs as above and are statistically significant. Thus, the interaction terms results discussed above are independent of each other.

6.5 *Falsification test*

Large firms tend to have better access to finance in part because there is more information available about their creditworthiness. As a result, the gender of the top manager is less important in securing finance for large firms when compared to SMEs. If such a result is observed in the data (falsification test), it will eliminate several potential omitted factors from affecting our results that have similar effects on SMEs and large firms.

Regression results for the large firm sample are provided in table A8 in the Appendix. The relationship between the bank credit to GDP ratio and the likelihood of having a woman top manager is much weaker for the large firm sample than for the SME sample above. In fact, for the large firm sample, the relationship is negative in most specifications and positive in only the final specification (column 5). Regardless, it is statistically insignificant (at the 10 percent level or less) in all the specifications considered. Thus, the falsification test is passed.

**7. Conclusion**

Understanding the gender gap in top management positions is important for various reasons. Women in top positions may help reduce gender inequality by undermining beliefs about competence difference. They could improve work–life balance for women and reduce the gender wage gap at lower hierarchical levels. If innate talent is equally distributed between women and men, it follows that economic efficiency can be improved if women had the same odds as men to

reach top management positions (see Hsieh et al. 2019). Further, diversity in leadership may improve firm efficiency (see Bertrand 2018).

The existing literature attributes the low presence of women in top manager positions to factors such as less education and job experience among women, discrimination by firm owners and directors against women, time devoted to providing care in the family by women, and greater aversion to risk and competition among women compared to men. The present paper contributes to this literature by highlighting another factor, which is credit supply in the country. Our empirical results reveal that easier credit supply increases women's chances of becoming top managers of private manufacturing SMEs in the developing world.

Our main result of a positive link between credit supply and the likelihood of a woman vs. man top manager is important to policy makers for several reasons. First, reducing prejudice and discrimination against women in top management positions may take several years or even generations. Our results suggest an alternative policy option, which is financial development. Second, our results suggest that different aspects of financial development should be considered in tandem with each other. That is, expanding credit supply is effective in reducing gender gaps at the top level but less so when credit bureaus are well-functioning and/or competition in the banking industry is high. Third, several countries have implemented policies to promote SMEs in part because SMEs encourage inclusive growth. Our results suggest some caution here as ceteris paribus, large firms are likely to have better gender parity in top management positions in countries at low levels of financial development than SMEs.

Our results offer several avenues for future researchers. We provide a few examples here. First, our results suggest that the broader business environment may be a factor driving gender gaps at the high end of the income and wage distribution. For instance, it is possible that women

may have weaker political connections, and poorer access government institutions, government programs, and physical infrastructure facilities. Thus, like credit supply, these factors may magnify the gender gap in top management positions. Future research can explore this issue. Second, the positive link between gender of the top manager and credit supply uncovered above suggests that findings in the existing studies that treat gender of the top manager as exogenous to the firm may suffer from omitted variable bias and a selection bias. The former bias may arise because the gender of the top manager is correlated with credit supply as shown above. The latter bias may exist because to compensate for poorer access to finance, women who become top managers are likely to be superior to men in other areas such as education, job experience, and innate talent. The implication of these biases remains to be properly analyzed. Third, to keep the sample relatively homogenous, we focused on manufacturing SMEs alone. Future research can extend the analysis to services industries such as retail, hospitality, and health care that are important providers of jobs for women. Fourth, data and space limitations did not allow us to explore the impact of the gender of the top manager on how firms structure their finances. For instance, are firms led by women more likely to use microfinance institutions and trade credit vs. bank finance than firms led by men? What about the choice between debt and equity? Last, apart from gender, there is evidence of racial disparities in obtaining finance. It will be interesting to extend the above analysis to racial disparity in top management positions.

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**Figure 1: Share of women-managed firms is higher in countries that have higher bank credit to GDP ratio**
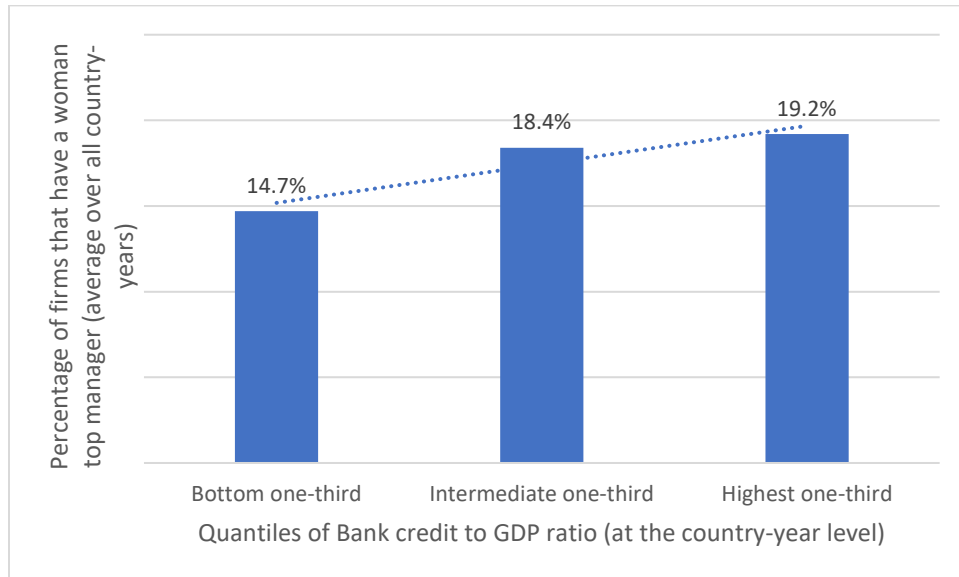
**Figure 2: Proportion of women-managed firms increases with bank credit to GDP ratio**
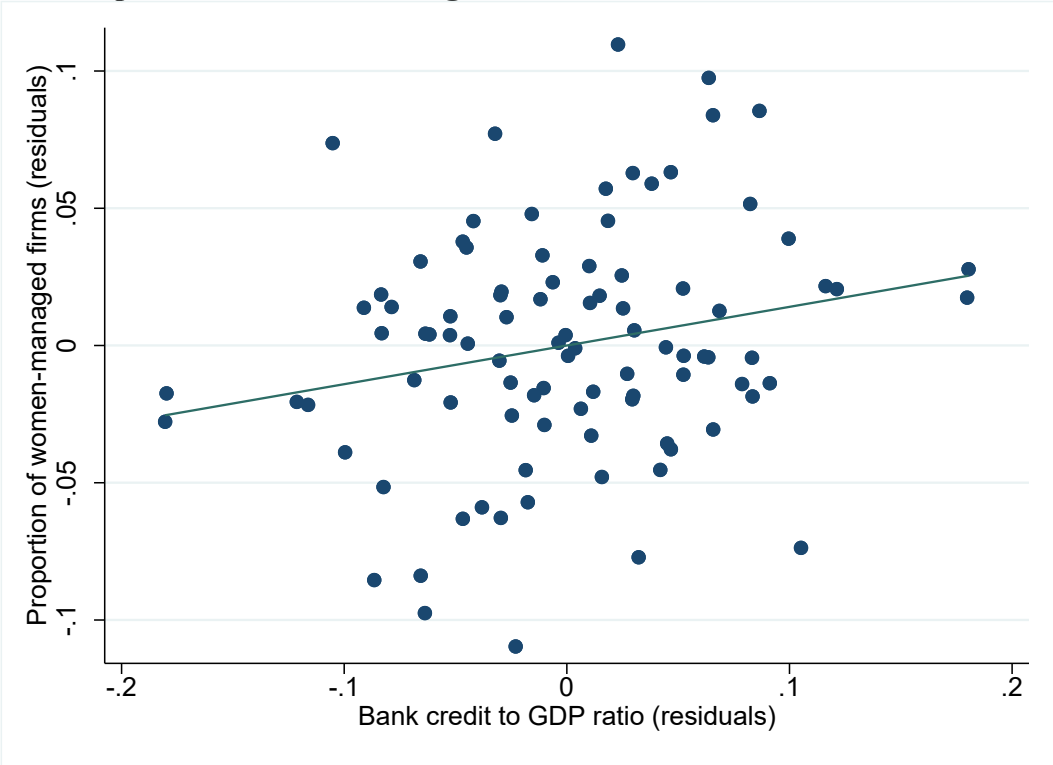


Note: The figure is a partial scatter plot obtained of country-year level variables obtained after controlling for country dummies. The line of fit shown is statistically significant at the 1 percent level.

| Dependent variable: Woman top manager Y:1 N:0 | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| **Table 1: Base regression results** | | | | | |
| **Panel A: Log odds ratios** | | | | | |
| Bank credit (ratio of GDP) | 2.007*** | 2.027*** | 2.680*** | 2.480*** | 2.712*** |
| | (0.352) | (0.401) | (0.598) | (0.646) | (0.636) |
| GDP per capita (logs) | | -0.181 | -0.739 | -0.499 | -1.259 |
| | | (0.716) | (0.998) | (0.971) | (1.045) |
| Number of workers (logs) | | -0.208*** | -0.229*** | -0.193*** | -0.189*** |
| | | (0.048) | (0.062) | (0.062) | (0.062) |
| Age of firm (logs) | | | -0.084 | -0.103 | -0.110 |
| | | | (0.108) | (0.112) | (0.113) |
| Labor productivity (logs) | | | -0.012 | 0.011 | -0.003 |
| | | | (0.046) | (0.048) | (0.045) |
| Women owners Y:1 N:0 | | | 2.564*** | 2.664*** | 2.667*** |
| | | | (0.136) | (0.150) | (0.151) |
| Women workers (proportion) | | | 1.492*** | 1.497*** | 1.532*** |
| | | | (0.209) | (0.206) | (0.208) |
| Exports (direct, share of sales) | | | -0.121 | -0.121 | -0.130 |
| | | | (0.246) | (0.242) | (0.241) |
| Foreign ownership | | | 0.280 | 0.318 | 0.330 |
| | | | (0.301) | (0.303) | (0.303) |
| Quality certification Y:1 N:0 | | | 0.095 | 0.119 | 0.118 |
| | | | (0.139) | (0.138) | (0.137) |
| Overdraft Y:1 N:0 | | | | -0.096 | -0.103 |
| | | | | (0.128) | (0.128) |
| Multi establishment firm Y:1 N:0 | | | | 0.112 | 0.075 |
| | | | | (0.171) | (0.174) |
| Obtaining license is a major obstacle Y:1 N:0 | | | | 0.066 | 0.070 |
| | | | | (0.185) | (0.186) |
| Losses from power outages | | | | 1.528* | 1.653** |
| | | | | (0.793) | (0.772) |
| Firm audited Y:1 N:0 | | | | -0.082 | -0.085 |
| | | | | (0.115) | (0.116) |
| Registered when started Y:1 N:0 | | | | 0.048 | 0.038 |
| | | | | (0.208) | (0.208) |
| Legal form fixed effects | | | | Yes | Yes |
| Visited by tax officials Y:1 N:0 | | | | -0.039 | -0.036 |
| | | | | (0.106) | (0.106) |
| Employment growth rate (per annum, log difference) | | | | -0.248 | -0.244 |
| | | | | (0.301) | (0.300) |

| | | | | | |
|---|---|---|---|---|---|
| Bought assets last year Y:1 N:0 | | | | 0.127 | 0.128 |
| | | | | (0.121) | (0.121) |
| GDP per capita growth rate (%, annual) | | | | | 0.003 |
| | | | | | (0.030) |
| Primary enrollment gender parity index | | | | | -0.146** |
| | | | | | (0.070) |
| % of women in 35-64 years age group | | | | | 0.540*** |
| | | | | | (0.195) |
| Total population (logs) | | | | | -2.230 |
| | | | | | (1.390) |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes |
| Number of observations | 15,460 | 15,460 | 15,460 | 15,460 | 15,460 |
| **Panel B: Marginal effect** | | | | | |
| Bank credit (ratio of GDP) | 0.264*** | 0.265*** | 0.272*** | 0.248*** | 0.271*** |
| | (0.046) | (0.052) | (0.059) | (0.063) | (0.062) |
| Controls (as above) | Yes | Yes | Yes | Yes | Yes |

All coefficient values are log odds ratios obtained from logit estimation. Huber-White robust standard errors clustered on country in brackets. *** (1%), ** (5%), * (10%).

| | Total credit to private sector | | Bank credit to bank deposit ratio | | ATMs per 100,000 adults | | Bank branches per 100,000 adults | |
|---|---|---|---|---|---|---|---|---|
| **Table 2: Alternative measures of financial development** | | | | | | | | |
| Dependent variable: Woman top manager Y:1 N:0 | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |

**Panel A: Log odds ratios**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Total credit to private sector (ratio of GDP) | 1.940*** (0.350) | 2.539*** (0.679) | | | | | | |
| Bank credit to bank deposit ratio | | | 0.509*** (0.165) | 0.462* (0.237) | | | | |
| ATMs per 100,000 adults (logs) | | | | | 0.391*** (0.089) | 0.620*** (0.187) | | |
| Bank branches per 100,000 adults (logs) | | | | | | | 0.522*** (0.156) | 0.547** (0.245) |
| GDP per capita (logs) | | -0.429 (1.039) | | -0.120 (1.019) | | -0.877 (0.979) | | -0.347 (1.004) |
| Number of workers (logs) | | -0.185*** (0.062) | | -0.182*** (0.062) | | -0.181*** (0.063) | | -0.186*** (0.063) |
| Age of firm (logs) | | -0.098 (0.113) | | -0.111 (0.114) | | -0.113 (0.117) | | -0.108 (0.114) |
| Labor productivity (logs) | | -0.005 (0.045) | | -0.004 (0.045) | | -0.002 (0.047) | | -0.005 (0.045) |
| Women owners Y:1 N:0 | | 2.645*** (0.153) | | 2.654*** (0.149) | | 2.629*** (0.149) | | 2.655*** (0.150) |
| Women workers (proportion) | | 1.524*** (0.209) | | 1.548*** (0.208) | | 1.618*** (0.209) | | 1.548*** (0.209) |
| Exports (direct, share of sales) | | -0.091 (0.240) | | -0.125 (0.241) | | -0.098 (0.241) | | -0.120 (0.242) |
| Foreign ownership | | 0.314 (0.303) | | 0.317 (0.306) | | 0.261 (0.304) | | 0.314 (0.305) |
| Quality certification Y:1 N:0 | | 0.095 (0.138) | | 0.120 (0.137) | | 0.100 (0.138) | | 0.122 (0.138) |
| Overdraft Y:1 N:0 | | -0.091 (0.129) | | -0.110 (0.127) | | -0.095 (0.127) | | -0.108 (0.128) |
| Multi establishment firm Y:1 N:0 | | 0.075 (0.176) | | 0.087 (0.176) | | 0.116 (0.177) | | 0.079 (0.176) |
| Obtaining license is a major obstacle Y:1 N:0 | | 0.100 (0.187) | | 0.070 (0.186) | | 0.088 (0.188) | | 0.069 (0.186) |
| Losses from power outages | | 1.593** (0.779) | | 1.664** (0.773) | | 1.018 (0.781) | | 1.631** (0.775) |
| Firm audited Y:1 N:0 | | -0.082 (0.117) | | -0.085 (0.115) | | -0.054 (0.114) | | -0.080 (0.115) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Registered when started Y:1 N:0 | 0.040 (0.209) | | 0.047 (0.209) | | 0.003 (0.206) | | 0.039 (0.208) |
| Legal form fixed effects | Yes | | Yes | | Yes | | Yes |
| Visited by tax officials Y:1 N:0 | -0.014 (0.105) | | -0.031 (0.106) | | -0.048 (0.109) | | -0.040 (0.106) |
| Employment growth rate (per annum, log difference) | -0.216 (0.304) | | -0.257 (0.298) | | -0.241 (0.304) | | -0.251 (0.298) |
| Bought assets last year Y:1 N:0 | 0.131 (0.124) | | 0.116 (0.121) | | 0.115 (0.123) | | 0.117 (0.121) |
| GDP per capita growth rate (%, annual) | 0.030 (0.030) | | -0.007 (0.030) | | 0.004 (0.031) | | -0.021 (0.032) |
| Primary enrollment gender parity index | -0.179** (0.070) | | -0.193** (0.081) | | -0.173** (0.076) | | -0.175** (0.080) |
| % of women in 35-64 years age group | 0.335* (0.188) | | 0.627*** (0.209) | | 0.436** (0.214) | | 0.526** (0.229) |
| Total population (logs) | -1.763 (1.298) | | -0.511 (1.349) | | -1.244 (1.448) | | -1.283 (1.486) |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of observations | 15,132 | 15,132 | 15,460 | 15,460 | 15,219 | 15,219 | 15,460 | 15,460 |

**Panel B: Marginal effect**

| | Total credit to private sector | | Bank credit to bank deposit ratio | | ATMs per 100,000 adults | | Bank branches per 100,000 adults | |
|---|---|---|---|---|---|---|---|---|
| Financial development measure as above | 0.255*** (0.045) | 0.254*** (0.067) | 0.067*** (0.022) | 0.046* (0.024) | 0.051*** (0.011) | 0.062*** (0.018) | 0.069*** (0.020) | 0.054** (0.024) |
| Controls (as above) | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

All coefficient values are log odds ratios obtained from logit estimation. Huber-White robust standard errors clustered on country in brackets. *** (1%), ** (5%), * (10%).

## Table 3: Financial dependence of sectors

| Dependent variable: Woman top manager Y:1 N:0 | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Bank credit (ratio of GDP)*Financial dependence | 3.030*** | 3.106*** | 2.971** | 2.682** | 2.725** | 2.806** |
| | (1.080) | (1.097) | (1.275) | (1.310) | (1.310) | (1.303) |
| Bank credit (ratio of GDP) | 1.155** | 1.098** | 1.794** | 1.707** | 1.853** | 24.394* |
| | (0.487) | (0.537) | (0.741) | (0.792) | (0.797) | (13.903) |
| Financial dependence | 0.044 | 0.041 | 0.339 | 0.478 | 0.498 | 0.459 |
| | (0.495) | (0.504) | (0.689) | (0.718) | (0.729) | (0.719) |
| GDP per capita (logs) | | 0.168 | -0.454 | -0.262 | -1.131 | -1.300 |
| | | (0.751) | (1.043) | (1.021) | (1.069) | (1.052) |
| Number of workers (logs) | | -0.208*** | -0.228*** | -0.194*** | -0.189*** | -0.000 |
| | | (0.049) | (0.062) | (0.061) | (0.061) | (0.153) |
| Age of firm (logs) | | | -0.096 | -0.124 | -0.131 | -0.327 |
| | | | (0.110) | (0.115) | (0.116) | (0.307) |
| Labor productivity (logs) | | | -0.006 | 0.019 | 0.004 | 0.135 |
| | | | (0.047) | (0.048) | (0.045) | (0.093) |
| Women owners Y:1 N:0 | | | 2.600*** | 2.700*** | 2.703*** | 2.715*** |
| | | | (0.134) | (0.148) | (0.149) | (0.150) |
| Women workers (proportion) | | | 1.444*** | 1.446*** | 1.482*** | 1.497*** |
| | | | (0.205) | (0.202) | (0.205) | (0.207) |
| Exports (direct, share of sales) | | | -0.125 | -0.122 | -0.133 | -0.096 |
| | | | (0.252) | (0.248) | (0.248) | (0.245) |
| Foreign ownership | | | 0.259 | 0.298 | 0.314 | 0.299 |
| | | | (0.297) | (0.296) | (0.296) | (0.291) |
| Quality certification Y:1 N:0 | | | 0.082 | 0.108 | 0.107 | 0.117 |
| | | | (0.142) | (0.142) | (0.141) | (0.141) |
| Overdraft Y:1 N:0 | | | | -0.095 | -0.102 | -0.105 |
| | | | | (0.126) | (0.126) | (0.125) |
| Multi establishment firm Y:1 N:0 | | | | 0.127 | 0.091 | 0.105 |
| | | | | (0.178) | (0.181) | (0.179) |
| Obtaining license is a major obstacle Y:1 N:0 | | | | 0.055 | 0.059 | 0.055 |
| | | | | (0.185) | (0.186) | (0.186) |
| Losses from power outages | | | | 1.538* | 1.671** | 1.841** |
| | | | | (0.802) | (0.779) | (0.799) |
| Firm audited Y:1 N:0 | | | | -0.084 | -0.087 | -0.076 |
| | | | | (0.119) | (0.119) | (0.119) |
| Registered when started Y:1 N:0 | | | | -0.019 | -0.028 | -0.065 |
| | | | | (0.214) | (0.214) | (0.210) |
| Publicly listed company Y:1 N:0 | | | | 0.607 | 0.564 | 0.627 |
| | | | | (0.585) | (0.595) | (0.597) |
| Privately held Limited Liability company Y:1 N:0 | | | | 0.853* | 0.838 | 0.878* |

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | | | | (0.512) | (0.521) | (0.526) |
| Sole proprietorship Y:1 N:0 | | | | 1.464*** | 1.425*** | 1.473*** |
| | | | | (0.524) | (0.532) | (0.539) |
| Partnership company Y:1 N:0 | | | | 0.805 | 0.772 | 0.823 |
| | | | | (0.548) | (0.557) | (0.559) |
| Limited partnership company Y:1 N:0 | | | | 1.143** | 1.102** | 1.155** |
| | | | | (0.519) | (0.526) | (0.530) |
| Visited by tax officials Y:1 N:0 | | | | -0.035 | -0.031 | -0.041 |
| | | | | (0.105) | (0.104) | (0.104) |
| Employment growth rate (per annum, log difference) | | | | -0.343 | -0.339 | -0.312 |
| | | | | (0.303) | (0.301) | (0.302) |
| Bought assets last year Y:1 N:0 | | | | 0.112 | 0.113 | 0.111 |
| | | | | (0.120) | (0.121) | (0.121) |
| GDP per capita growth rate (%, annual) | | | | | -0.006 | -0.040 |
| | | | | | (0.031) | (0.037) |
| Primary enrollment gender parity index | | | | | -0.164** | -0.150** |
| | | | | | (0.068) | (0.064) |
| % of women in 35-64 years age group | | | | | 0.611*** | 0.326 |
| | | | | | (0.187) | (0.218) |
| Total population (logs) | | | | | -2.299 | -3.014* |
| | | | | | (1.410) | (1.754) |
| Bank credit (ratio of GDP)*GDP per capita (logs) | | | | | | -1.909 |
| | | | | | | (1.438) |
| Bank credit (ratio of GDP)*Number of workers (logs) | | | | | | -0.472 |
| | | | | | | (0.330) |
| Bank credit (ratio of GDP)*Age of firm (logs) | | | | | | 0.494 |
| | | | | | | (0.662) |
| Bank credit (ratio of GDP)*Labor productivity (logs) | | | | | | -0.338* |
| | | | | | | (0.193) |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of observations | 15,299 | 15,299 | 15,299 | 15,299 | 15,299 | 15,299 |
| **Panel B: Marginal effect** | | | | | | |
| Bank credit (ratio of GDP)*Financial dependence | 0.578*** | 0.585*** | 0.440*** | 0.413*** | 0.413*** | 0.473*** |
| | (0.171) | (0.171) | (0.148) | (0.143) | (0.143) | (0.147) |
| Controls (as above) | Yes | Yes | Yes | Yes | Yes | Yes |

All coefficient values are log odds ratios obtained from logit estimation. Huber-White robust standard errors clustered on country in brackets. *** (1%), ** (5%), * (10%).

## Table 4: Interaction with the presence of credit bureaus

| Dependent variable: Woman top manager Y:1 N:0 | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| **Panel A: Log odds ratios** | | | | | | |
| Bank credit (ratio of GDP)*Credit bureau present Y:1 N:0 | -2.603** | -2.536** | -4.121*** | -3.985*** | -4.693*** | -4.082*** |
| | (1.154) | (1.141) | (1.152) | (1.147) | (1.248) | (1.305) |
| Bank credit (ratio of GDP) | 4.111*** | 4.045*** | 5.708*** | 5.387*** | 6.695*** | 32.956 |
| | (0.975) | (1.013) | (0.896) | (0.867) | (1.283) | (20.064) |
| Credit bureau present Y:1 N:0 | 1.817** | 1.789** | 2.537*** | 2.394*** | 3.001*** | 2.551*** |
| | (0.843) | (0.840) | (0.740) | (0.743) | (0.853) | (0.863) |
| GDP per capita (logs) | | -0.086 | -0.439 | -0.230 | -1.146 | -1.513* |
| | | (0.651) | (0.965) | (0.900) | (0.932) | (0.913) |
| Number of workers (logs) | | -0.200*** | -0.231*** | -0.200*** | -0.197*** | 0.021 |
| | | (0.050) | (0.065) | (0.064) | (0.064) | (0.155) |
| Age of firm (logs) | | | -0.084 | -0.107 | -0.112 | -0.363 |
| | | | (0.111) | (0.116) | (0.116) | (0.307) |
| Labor productivity (logs) | | | -0.017 | 0.007 | -0.009 | 0.136 |
| | | | (0.048) | (0.049) | (0.047) | (0.102) |
| Women owners Y:1 N:0 | | | 2.560*** | 2.662*** | 2.664*** | 2.675*** |
| | | | (0.140) | (0.155) | (0.155) | (0.156) |
| Women workers (proportion) | | | 1.491*** | 1.498*** | 1.534*** | 1.552*** |
| | | | (0.215) | (0.211) | (0.214) | (0.216) |
| Exports (direct, share of sales) | | | -0.108 | -0.108 | -0.117 | -0.084 |
| | | | (0.245) | (0.240) | (0.240) | (0.237) |
| Foreign ownership | | | 0.291 | 0.332 | 0.338 | 0.324 |
| | | | (0.304) | (0.307) | (0.308) | (0.304) |
| Quality certification Y:1 N:0 | | | 0.104 | 0.128 | 0.128 | 0.139 |
| | | | (0.139) | (0.138) | (0.138) | (0.138) |
| Overdraft Y:1 N:0 | | | | -0.086 | -0.092 | -0.099 |
| | | | | (0.128) | (0.128) | (0.127) |
| Multi establishment firm Y:1 N:0 | | | | 0.113 | 0.068 | 0.088 |
| | | | | (0.174) | (0.176) | (0.175) |
| Obtaining license is a major obstacle Y:1 N:0 | | | | 0.088 | 0.093 | 0.091 |
| | | | | (0.187) | (0.188) | (0.188) |
| Losses from power outages | | | | 1.493* | 1.625** | 1.834** |
| | | | | (0.800) | (0.781) | (0.805) |
| Firm audited Y:1 N:0 | | | | -0.073 | -0.075 | -0.068 |
| | | | | (0.118) | (0.118) | (0.118) |
| Registered when started Y:1 N:0 | | | | 0.035 | 0.024 | -0.004 |
| | | | | (0.216) | (0.216) | (0.213) |
| Legal form fixed effects | | | | Yes | Yes | Yes |
| Visited by tax officials Y:1 N:0 | | | | -0.019 | -0.010 | -0.018 |

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | | | | (0.106) | (0.106) | (0.106) |
| Employment growth rate (per annum, log difference) | | | | -0.321 | -0.309 | -0.299 |
| | | | | (0.313) | (0.313) | (0.310) |
| Bought assets last year Y:1 N:0 | | | | 0.129 | 0.131 | 0.128 |
| | | | | (0.123) | (0.124) | (0.125) |
| GDP per capita growth rate (%, annual) | | | | | 0.014 | -0.029 |
| | | | | | (0.027) | (0.040) |
| Primary enrollment gender parity index | | | | | -0.167** | -0.149** |
| | | | | | (0.071) | (0.067) |
| % of women in 35-64 years age group | | | | | 0.322 | 0.066 |
| | | | | | (0.216) | (0.239) |
| Total population (logs) | | | | | -3.198** | -4.096** |
| | | | | | (1.421) | (2.062) |
| Bank credit (ratio of GDP)*GDP per capita (logs) | | | | | | -2.316 |
| | | | | | | (2.020) |
| Bank credit (ratio of GDP)*Number of workers (logs) | | | | | | -0.527 |
| | | | | | | (0.327) |
| Bank credit (ratio of GDP)*Age of firm (logs) | | | | | | 0.626 |
| | | | | | | (0.657) |
| Bank credit (ratio of GDP)*Labor productivity (logs) | | | | | | -0.364* |
| | | | | | | (0.204) |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of observations | 14,275 | 14,275 | 14,275 | 14,275 | 14,275 | 14,275 |
| **Panel B: Marginal effects** | | | | | | |
| Bank credit (ratio of GDP)*Credit bureau present Y:1 N:0 | -0.247** | -0.239** | -0.356*** | -0.351*** | -0.375*** | -0.267** |
| | (0.122) | (0.120) | (0.111) | (0.112) | (0.105) | (0.106) |
| Controls (as above) | Yes | Yes | Yes | Yes | Yes | Yes |

All coefficient values are log odds ratios obtained from logit estimation. Huber-White robust standard errors clustered on country in brackets. *** (1%), ** (5%), * (10%).

| Dependent variable: Woman top manager Y:1 N:0 | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | | | | | | |

<div align="center">

**Table 5: Bank concentration**

**Panel A: Log odds ratios**

</div>

| Dependent variable: Woman top manager Y:1 N:0 | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Bank credit (ratio of GDP)*5-bank asset concentration | 0.061*** | 0.063*** | 0.078*** | 0.094*** | 0.067** | 0.067** |
| | (0.016) | (0.015) | (0.028) | (0.029) | (0.032) | (0.033) |
| Bank credit (ratio of GDP) | -2.541* | -2.457* | -2.561 | -4.124* | -1.606 | 28.846** |
| | (1.339) | (1.264) | (2.333) | (2.483) | (2.542) | (13.169) |
| 5-bank asset concentration | -0.019** | -0.017** | -0.011 | -0.022 | 0.002 | 0.007 |
| | (0.009) | (0.008) | (0.013) | (0.015) | (0.019) | (0.020) |
| GDP per capita (logs) | | -0.855 | -1.854* | -1.460 | -1.690 | -2.029* |
| | | (0.792) | (1.064) | (1.112) | (1.145) | (1.187) |
| Number of workers (logs) | | -0.205*** | -0.230*** | -0.198*** | -0.195*** | 0.007 |
| | | (0.050) | (0.064) | (0.063) | (0.064) | (0.154) |
| Age of firm (logs) | | | -0.066 | -0.088 | -0.088 | -0.334 |
| | | | (0.110) | (0.115) | (0.115) | (0.310) |
| Labor productivity (logs) | | | -0.024 | 0.001 | -0.023 | 0.089 |
| | | | (0.047) | (0.049) | (0.046) | (0.097) |
| Women owners Y:1 N:0 | | | 2.595*** | 2.692*** | 2.698*** | 2.714*** |
| | | | (0.140) | (0.153) | (0.154) | (0.156) |
| Women workers (proportion) | | | 1.472*** | 1.474*** | 1.511*** | 1.523*** |
| | | | (0.216) | (0.214) | (0.217) | (0.218) |
| Exports (direct, share of sales) | | | -0.104 | -0.118 | -0.118 | -0.089 |
| | | | (0.252) | (0.249) | (0.248) | (0.247) |
| Foreign ownership | | | 0.097 | 0.132 | 0.151 | 0.145 |
| | | | (0.257) | (0.255) | (0.255) | (0.253) |
| Quality certification Y:1 N:0 | | | 0.055 | 0.085 | 0.084 | 0.095 |
| | | | (0.139) | (0.139) | (0.138) | (0.138) |
| Overdraft Y:1 N:0 | | | | -0.131 | -0.133 | -0.136 |
| | | | | (0.127) | (0.127) | (0.126) |
| Multi establishment firm Y:1 N:0 | | | | 0.082 | 0.072 | 0.069 |
| | | | | (0.181) | (0.183) | (0.181) |
| Obtaining license is a major obstacle Y:1 N:0 | | | | 0.074 | 0.068 | 0.069 |
| | | | | (0.195) | (0.197) | (0.197) |
| Losses from power outages | | | | 1.453* | 1.638** | 1.789** |
| | | | | (0.822) | (0.796) | (0.812) |
| Firm audited Y:1 N:0 | | | | -0.091 | -0.094 | -0.085 |
| | | | | (0.120) | (0.121) | (0.120) |
| Registered when started Y:1 N:0 | | | | 0.051 | 0.035 | -0.005 |
| | | | | (0.217) | (0.217) | (0.214) |
| Legal form fixed effects | | | | Yes | Yes | Yes |
| Visited by tax officials Y:1 N:0 | | | | -0.043 | -0.043 | -0.050 |

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | | | | (0.108) | (0.108) | (0.108) |
| Employment growth rate (per annum, log difference) | | | | -0.335 | -0.317 | -0.296 |
| | | | | (0.302) | (0.301) | (0.301) |
| Bought assets last year Y:1 N:0 | | | | 0.180* | 0.188* | 0.184* |
| | | | | (0.108) | (0.108) | (0.109) |
| GDP per capita growth rate (%, annual) | | | | | 0.008 | -0.037 |
| | | | | | (0.030) | (0.036) |
| Primary enrollment gender parity index | | | | | -0.259*** | -0.230*** |
| | | | | | (0.081) | (0.078) |
| % of women in 35-64 years age group | | | | | 0.606*** | 0.338 |
| | | | | | (0.235) | (0.265) |
| Total population (logs) | | | | | -1.090 | -2.217 |
| | | | | | (1.260) | (1.532) |
| Bank credit (ratio of GDP)*GDP per capita (logs) | | | | | | -2.757** |
| | | | | | | (1.334) |
| Bank credit (ratio of GDP)*Number of workers (logs) | | | | | | -0.504 |
| | | | | | | (0.330) |
| Bank credit (ratio of GDP)*Age of firm (logs) | | | | | | 0.611 |
| | | | | | | (0.667) |
| Bank credit (ratio of GDP)*Labor productivity (logs) | | | | | | -0.290 |
| | | | | | | (0.202) |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of observations | 14,727 | 14,727 | 14,727 | 14,727 | 14,727 | 14,727 |
| **Panel B: Marginal effect** | | | | | | |
| Bank credit (ratio of GDP)*5-bank asset concentration | 0.009*** | 0.010*** | 0.010*** | 0.011*** | 0.010*** | 0.012*** |
| | (0.003) | (0.003) | (0.003) | (0.003) | (0.003) | (0.004) |
| Controls (as above) | Yes | Yes | Yes | Yes | Yes | Yes |

All coefficient values are log odds ratios obtained from logit estimation. Huber-White robust standard errors clustered on country in brackets. *** (1%), ** (5%), * (10%).

| Dependent variable: Woman top manager Y:1 N:0 | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| **Table 6: All interaction terms included simultaneously (Log odds ratios)** | | | | | | |
| Bank credit (ratio of GDP)*Financial dependence | 3.384*** | 3.461*** | 3.492*** | 3.213** | 3.234** | 3.306** |
| | (1.120) | (1.132) | (1.270) | (1.314) | (1.306) | (1.303) |
| Bank credit (ratio of GDP)*Credit bureau present Y:1 N:0 | -3.945*** | -3.895*** | -6.302*** | -6.238*** | -7.564*** | -6.950*** |
| | (1.111) | (1.080) | (1.033) | (1.028) | (1.251) | (1.324) |
| Bank credit (ratio of GDP)*5-bank asset concentration | 0.084*** | 0.087*** | 0.128*** | 0.149*** | 0.151*** | 0.140*** |
| | (0.019) | (0.018) | (0.025) | (0.027) | (0.035) | (0.040) |
| | | | | | | |
| Financial dependence | -0.411 | -0.436 | -0.444 | -0.302 | -0.307 | -0.348 |
| | (0.515) | (0.523) | (0.574) | (0.623) | (0.618) | (0.623) |
| Credit bureau present Y:1 N:0 | 2.538*** | 2.516*** | 3.757*** | 3.614*** | 4.719*** | 4.254*** |
| | (0.797) | (0.785) | (0.648) | (0.642) | (0.813) | (0.891) |
| 5-bank asset concentration | -0.031*** | -0.030*** | -0.031*** | -0.043*** | -0.050** | -0.043 |
| | (0.009) | (0.008) | (0.011) | (0.014) | (0.021) | (0.026) |
| GDP per capita (logs) | | -0.502 | -1.684 | -1.249 | -2.034 | -2.447* |
| | | (0.750) | (1.149) | (1.170) | (1.254) | (1.278) |
| Number of workers (logs) | | -0.197*** | -0.226*** | -0.202*** | -0.198*** | 0.037 |
| | | (0.052) | (0.067) | (0.065) | (0.066) | (0.161) |
| Age of firm (logs) | | | -0.080 | -0.116 | -0.117 | -0.359 |
| | | | (0.115) | (0.122) | (0.122) | (0.327) |
| Labor productivity (logs) | | | -0.026 | 0.002 | -0.014 | 0.092 |
| | | | (0.049) | (0.050) | (0.049) | (0.099) |
| Women owners Y:1 N:0 | | | 2.622*** | 2.720*** | 2.719*** | 2.728*** |
| | | | (0.146) | (0.160) | (0.160) | (0.161) |
| Women workers (proportion) | | | 1.451*** | 1.453*** | 1.496*** | 1.511*** |
| | | | (0.220) | (0.215) | (0.220) | (0.221) |
| Exports (direct, share of sales) | | | -0.100 | -0.114 | -0.119 | -0.090 |
| | | | (0.257) | (0.254) | (0.253) | (0.251) |
| Foreign ownership | | | 0.093 | 0.139 | 0.137 | 0.128 |
| | | | (0.270) | (0.267) | (0.266) | (0.264) |
| Quality certification Y:1 N:0 | | | 0.044 | 0.077 | 0.071 | 0.081 |
| | | | (0.143) | (0.143) | (0.143) | (0.143) |
| Overdraft Y:1 N:0 | | | | -0.117 | -0.120 | -0.126 |
| | | | | (0.126) | (0.127) | (0.125) |
| Multi establishment firm Y:1 N:0 | | | | 0.065 | 0.044 | 0.053 |
| | | | | (0.189) | (0.190) | (0.187) |
| Obtaining license is a major obstacle Y:1 N:0 | | | | 0.094 | 0.094 | 0.093 |
| | | | | (0.196) | (0.198) | (0.198) |

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Losses from power outages | | | | 1.420* | 1.538* | 1.691** |
| | | | | (0.834) | (0.813) | (0.838) |
| Firm audited Y:1 N:0 | | | | -0.090 | -0.086 | -0.082 |
| | | | | (0.126) | (0.127) | (0.126) |
| Registered when started Y:1 N:0 | | | | -0.028 | -0.044 | -0.071 |
| | | | | (0.231) | (0.232) | (0.230) |
| Legal form fixed effects | | | | Yes | Yes | Yes |
| Visited by tax officials Y:1 N:0 | | | | -0.021 | -0.013 | -0.018 |
| | | | | (0.107) | (0.108) | (0.108) |
| Employment growth rate (per annum, log difference) | | | | -0.527* | -0.495 | -0.484 |
| | | | | (0.320) | (0.319) | (0.316) |
| Bought assets last year Y:1 N:0 | | | | 0.167 | 0.171 | 0.171 |
| | | | | (0.112) | (0.112) | (0.113) |
| GDP per capita growth rate (%, annual) | | | | | -0.002 | -0.033 |
| | | | | | (0.030) | (0.043) |
| % of women in 35-64 years age group | | | | | 0.042 | -0.078 |
| | | | | | (0.272) | (0.291) |
| Primary enrollment gender parity index | | | | | -0.211*** | -0.179** |
| | | | | | (0.080) | (0.081) |
| Total population (logs) | | | | | -4.505*** | -4.789** |
| | | | | | (1.661) | (2.011) |
| Bank credit (ratio of GDP)*GDP per capita (logs) | | | | | | -1.702 |
| | | | | | | (2.280) |
| Bank credit (ratio of GDP)*Number of workers (logs) | | | | | | -0.567* |
| | | | | | | (0.344) |
| Bank credit (ratio of GDP)*Age of firm (logs) | | | | | | 0.605 |
| | | | | | | (0.704) |
| Bank credit (ratio of GDP)*Labor productivity (logs) | | | | | | -0.273 |
| | | | | | | (0.199) |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of observations | 13,399 | 13,399 | 13,399 | 13,399 | 13,399 | 13,399 |

All coefficient values are log odds ratios obtained from logit estimation. Huber-White robust standard errors clustered on country in brackets. *** (1%), ** (5%), * (10%).

# Appendix A

**Table A1: List of countries and survey years**

| Country | Year | | Country | Year | |
|---|---|---|---|---|---|
| Albania | 2019 | 2013 | Lithuania | 2019 | 2013 |
| Argentina | 2017 | 2010 | Mongolia | 2019 | 2013 |
| Armenia | 2020 | 2013 | Morocco | 2019 | 2013 |
| Azerbaijan | 2019 | 2013 | Nepal | 2013 | 2009 |
| Belarus | 2018 | 2013 | Nicaragua | 2016 | 2010 |
| Bolivia | 2017 | 2010 | North Macedonia | 2019 | 2013 |
| Bulgaria | 2019 | 2013 | Paraguay | 2017 | 2010 |
| Colombia | 2017 | 2010 | Peru | 2017 | 2010 |
| Croatia | 2019 | 2013 | Poland | 2019 | 2013 |
| Czechia | 2019 | 2013 | Romania | 2019 | 2013 |
| Dominican Republic | 2016 | 2010 | Russian Federation | 2019 | 2012 |
| Ecuador | 2017 | 2010 | Rwanda | 2019 | 2011 |
| Egypt, Arab Rep. | 2020 | 2016 | Serbia | 2019 | 2013 |
| El Salvador | 2016 | 2010 | Slovak Republic | 2019 | 2013 |
| Estonia | 2019 | 2013 | Slovenia | 2019 | 2013 |
| Georgia | 2019 | 2013 | Tajikistan | 2019 | 2013 |
| Guatemala | 2017 | 2010 | Tunisia | 2020 | 2013 |
| Hungary | 2019 | 2013 | Türkiye | 2019 | 2013 |
| Indonesia | 2015 | 2009 | Ukraine | 2013 | 2008 |
| Jordan | 2019 | 2013 | Uruguay | 2017 | 2010 |
| Kazakhstan | 2019 | 2013 | Viet Nam | 2015 | 2009 |
| Kenya | 2018 | 2013 | West Bank and Gaza | 2019 | 2013 |
| Kyrgyz Republic | 2019 | 2013 | Zambia | 2019 | 2013 |
| Latvia | 2019 | 2013 | | | |

| Table A2: Description of variables | |
|---|---|
| Woman top manager Y:1 N:0 | Dummy variable equal to 1 if the top manager of the firm is a woman and 0 otherwise.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Bank credit (ratio of GDP) | Total domestic credit to private sector by banks as a ratio of GDP. Average values of the variable are used where the average is computed over one year lagged values of the variable for the years the WBES round under consideration was administered in the country and for which data are available.<br>Source: World Development Indicators, World Bank. |
| GDP per capita (logs) | Log of GDP per capita (PPP adjusted and at constant 2017 International Dollars). Average values of the variable are used where the average is computed over one year lagged values of the variable for the years the WBES round under consideration was administered in the country.<br>Source: World Development Indicators, World Bank. |
| Number of workers (logs) | Log of number of full-time permanent workers employed in the firm 3 fiscal years ago.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Age of firm (logs) | Log of age of the firm.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Labor productivity (logs) | Log of annual sales of the firm (in USD and at 2009 prices) three fiscal years ago divided by total number of permanent full-time workers employed at the firm three fiscal years ago.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Women owners Y:1 N:0 | Dummy variable equal to 1 if the firm has one or more women owners and 0 otherwise.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Women workers (proportion) | Total number of full-time permanent women workers employed at the firm at the end of the last fiscal year as a ratio of all (women and men) full-time permanent workers.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Exports (direct, share of sales) | Firm's sales during the last fiscal year made directly abroad divided by the total sales of the firm in the last fiscal year.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Foreign ownership | Proportion of the firm's ownership that is with foreign individuals, entities, and organizations.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Quality certification Y:1 N:0 | Dummy variable equal to 1 if the firm has internationally recognized quality certification and 0 otherwise.<br>Source: World Bank Enterprise Surveys |

| | |
|---|---|
| Overdraft Y:1 N:0 | Dummy variable equal to 1 if the firm currently has overdraft facility and 0 otherwise.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Multi establishment firm Y:1 N:0 | Dummy variable equal to 1 if the firm is part of a larger establishment and 0 otherwise.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Obtaining license is a major obstacle Y:1 N:0 | Dummy variable equal to 1 if the firm reports obtaining licenses and permits as a major or very severe obstacle to its current operations and 0 if the firms reports it as a less severe obstacle (no obstacle, minor obstacle, or moderate obstacle).<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Losses from power outages | Loss due to power outages in the last year as reported by the firm as a ratio of its total sales in the last year.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Firm audited Y:1 N:0 | Dummy variable equal to 1 if the firm had its financial statements checked & certified by external auditor in the last fiscal year and 0 otherwise.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Registered when started Y:1 N:0 | Dummy variable equal to 1 if the firm was registered with the relevant national authority when it started operations and 0 otherwise.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Visited by tax officials Y:1 N:0 | Dummy variable equal to 1 if the firm was visited or inspected by tax officials during the last 12 months and 0 otherwise.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Employment growth rate (per annum, log difference) | Log of number of permanent full-time workers at the firm at the end of last fiscal year minus the same in the initial year. The initial year is 3 fiscal years ago for most countries and two fiscal years ago in the remaining cases. The log difference in employment is divided by the number of years between last fiscal year and the initial year.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Bought assets last year Y:1 N:0 | Dummy variable equal to 1 if the firm bought assets during the last fiscal year and 0 otherwise.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| GDP per capita growth rate (%, annual) | Annual average growth rate of GDP per capita. Average value of the variable is computed over one year lagged values of the variable for the years the WBES round under consideration was administered in the country. |

| | |
|---|---|
| | Source: World Development Indicators, World Bank. |
| Primary enrollment gender parity index | Average value of the gender parity index for gross enrollment ratio in primary education defined as the ratio of girls to boys enrolled at primary level in public and private schools. Average value of the variable is computed over one year lagged values of the variable for the years the WBES round under consideration was administered in the country. Source: World Development Indicators, World Bank. |
| Tertiary enrollment gender parity index | Average value of the gender parity index for gross enrollment ratio in tertiary education defined as the ratio of women to men enrolled at tertiary level in public and private schools. Average value of the variable is computed over one year lagged values of the variable for the years the WBES round under consideration was administered in the country. Source: World Development Indicators, World Bank. |
| % of women in 35-64 years age group | Female population in the 35-64 years age group as a percentage of the total female population in the country. Average value is computed over one year lagged values of the variable for the years the WBES round under consideration was administered in the country. Source: World Development Indicators, World Bank. |
| Total population (logs) | Log of average total population in the country. Average value of the variable used is computed over one year lagged values of the variable for the years the WBES round under consideration was administered in the country. Source: World Development Indicators, World Bank. |
| Total credit to private sector (ratio of GDP) | Total domestic credit to private sector provided by financial corporations (banks and non-banks) as a ratio of GDP. Average values of the variable are used where the average is computed over one year lagged values of the variable for the years the WBES round under consideration was administered in the country and for which data are available. Source: World Development Indicators, World Bank. |
| Bank credit to bank deposit ratio | Ratio of total credit provided by banks to private sector provided to the total deposits of banks. Average values of the variable are used where the average is computed over one year lagged values of the variable for the years the WBES round under consideration was administered in the country and for which data are available. Source: Global Financial Development Database (GFDD), World Bank. |
| ATMs per 100,000 adults (logs) | Log of average value of the number of ATMs per 100,000 adults in the country. Average values of the variable used are computed over one year lagged values of the variable for the years the WBES round under consideration was administered in the country and for which data are available. Source: World Development Indicators, World Bank. |
| Bank branches per 100,000 adults (logs) | Log of average value of the number of bank branches per 100,000 adults in the country. Average values of the variable used are computed over one year lagged values of the variable |

| | |
|---|---|
| | for the years the WBES round under consideration was administered in the country and for which data are available. Source: World Development Indicators, World Bank. |
| Financial dependence | A measure of the dependence of sectors on external sources of finance taken from Rajan and Zingales (1998). The estimates used are for "external dependence" for "All companies" as listed in table 1 in Rajan and Zingales (1998). Source: Rajan, Raghuram and Luigi Zingales (1998), Financial Dependence and Growth, *American Economic Review*, 88(3): 559-586. |
| Financial dependence (percentile rank) | Percentile rank of the "Financial dependence" variable as defined above and divided by 100. Source: Computed from financial dependence data provided in Rajan, Raghuram and Luigi Zingales (1998), Financial Dependence and Growth, *American Economic Review*, 88(3): 559-586. |
| Credit bureau coverage | Private credit bureau coverage equals the number of individuals or firms listed by a private credit bureau with current information on repayment history, unpaid debts, or credit outstanding. The number is expressed as a percentage of the adult population. Average values of the variable are used, where the average is taken over (for which data are available) during which the WBES survey round that we use was administer in the country. Source: Doing Business, World Bank. Data retrieved from World Development Indicators, World Bank. |
| Credit bureau present Y:1 N:0 | Dummy variable equal to 1 if the credit bureau coverage as defined above is strictly positive and 0 otherwise. Source: Doing Business, World Bank. Data retrieved from World Development Indicators, World Bank. |
| 5-bank asset concentration | Assets of five largest banks in a country-year as a share of total commercial banking assets averaged over all years (for which data are available) during which the WBES survey round that we use was administer in the country. Total assets include total earning assets, cash and due from banks, foreclosed real estate, fixed assets, goodwill, other intangibles, current tax assets, deferred tax, discontinued operations, and other assets. Source: Global Financial Development Database (GFDD), World Bank. |
| 3-bank asset concentration | Assets of three largest banks in a country-year as a share of total commercial banking assets averaged over all years (for which data are available) during which the WBES survey round that we use was administer in the country. Total assets include total earning assets, cash and due from banks, foreclosed real estate, fixed assets, goodwill, other intangibles, current tax assets, deferred tax, discontinued operations, and other assets. Source: Global Financial Development Database (GFDD), World Bank. |

| | |
|---|---|
| Year fixed effects | A set of dummy variables indicating the year the WBES round was administered in the country.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Country fixed effects | Dummy variables indicating the country where the firms operate.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Industry fixed effects | Dummy variables indicating the industry (within manufacturing) to which the firm belongs. Industry definition is the one used by WBES for survey stratification purposes. It is defined at the 2-digit ISIC Rev. 3.1 level.<br>Source: World Bank Enterprise Surveys (WBES)<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Legal form fixed effects | A set of dummy variables indicating the legal form of the firm. The various legal forms include publicly listed company, privately hold limited liability company, sole proprietorship, partnership company, limited partnership company, and all other legal status.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Women in Parliament (%) | Average value of the percentage of seats held by women in the lower house of the national parliament, where the average value is taken over one year lagged values of the variable for the years the WBES round under consideration was administered in the country and for which data are available.<br>Source: Inter-Parliamentary Union (IPU). Data retrieved from World Development Indicators, World Bank. |
| Fertility rate | Number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with age-specific fertility rates of the specified year. Average value of the variable is used which is computed over one year lagged values of the variable for the years the WBES round under consideration was administered in the country and for which data are available.<br>Source: World Development Indicators, World Bank. |
| % of women in total population | Total female population as a percentage of total (male plus female) population. Average value of the variable is used which is computed over one year lagged values of the variable for the years the WBES round under consideration was administered in the country and for which data are available.<br>Source: World Development Indicators, World Bank. |
| Non-discrimination in hiring law Y:1 N:0 | Average value of the dummy variable equal to 1 if the law prohibits discrimination in employment based on gender and 0 otherwise, where the average is computed over one year lagged values of the variable for the years the WBES round under consideration was administered in the country and for which data are available.<br>Source: Women, Business, and Law database, World Bank. |

| | |
|---|---|
| Cost of starting a business | Average value of the cost of starting a business (% of GNI per capita), where the average is computed over one year lagged values of the variable for the years the WBES round under consideration was administered in the country and for which data are available.<br>Source: Doing Business, World Bank. Data retrieved from World Development Indicators, World Bank. |
| Competes against informal businesses Y:1 N:0 | Dummy variable equal to 1 if the firm reports competing against informal or unregistered businesses and 0 otherwise.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Checking account Y:1 N:0 | Dummy variable equal to 1 if the firm currently has a checking and/or savings account and 0 otherwise.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Spent on R&D activity Y:1 N:0 | Dummy variable equal to 1 if the firm spent on R&D activity in the last fiscal year and 0 otherwise.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Foreign technology Y:1 N:0 | Dummy variable equal to 1 if the firm currently uses technology licensed from a foreign-owned company and 0 otherwise.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Number of inspections/meetings with tax officials | Number of times either inspected by tax officials or required to meet with them during the last 12 months.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Time tax (proportion) | Proportion of the firm's senior management's time spent in dealing with government regulations in a typical week over the last 12 months.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Losses due to crime Y:1 N:0 | Dummy variable equal to 1 if the firm experienced losses due to theft, robbery, vandalism, or arson during the last fiscal year and 0 otherwise.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |
| Bribe paid to get things done Y:1 N:0 | Dummy variable equal to 1 if the firm reports that firms like itself normally pay bribes to public officials to "get things done" and 0 otherwise.<br>Source: World Bank Enterprise Surveys<br>https://www.enterprisesurveys.org/en/enterprisesurveys |

| Variable | Mean | Standard deviation | Minimum | Maximum | Obs. |
|---|---|---|---|---|---|
| Woman top manager Y:1 N:0 | 0.180 | 0.384 | 0 | 1 | 15,483 |
| Bank credit (ratio of GDP) | 0.411 | 0.177 | 0.104 | 0.843 | 15,483 |
| GDP per capita (logs) | 9.390 | 0.754 | 7.273 | 10.561 | 15,483 |
| Number of workers (logs) | 2.672 | 0.876 | 0 | 6.215 | 15,483 |
| Age of firm (logs) | 2.813 | 0.606 | 0.693 | 5.361 | 15,483 |
| Labor productivity (logs) | 10.239 | 1.859 | -12.339 | 21.831 | 15,483 |
| Women owners Y:1 N:0 | 0.373 | 0.484 | 0 | 1 | 15,483 |
| Women workers (proportion) | 0.340 | 0.301 | 0 | 1 | 15,483 |
| Exports (direct, share of sales) | 0.099 | 0.241 | 0 | 1 | 15,483 |
| Foreign ownership | 0.054 | 0.213 | 0 | 1 | 15,483 |
| Quality certification Y:1 N:0 | 0.186 | 0.389 | 0 | 1 | 15,483 |
| Overdraft Y:1 N:0 | 0.396 | 0.489 | 0 | 1 | 15,483 |
| Multi establishment firm Y:1 N:0 | 0.108 | 0.310 | 0 | 1 | 15,483 |
| Obtaining license is a major obstacle Y:1 N:0 | 0.103 | 0.304 | 0 | 1 | 15,483 |
| Losses from power outages | 0.022 | 0.073 | 0 | 1 | 15,483 |
| Firm audited Y:1 N:0 | 0.403 | 0.491 | 0 | 1 | 15,483 |
| Registered when started Y:1 N:0 | 0.897 | 0.304 | 0 | 1 | 15,483 |
| Visited by tax officials Y:1 N:0 | 0.433 | 0.496 | 0 | 1 | 15,483 |
| Employment growth rate (per annum, log difference) | 0.029 | 0.173 | -1.498 | 1.431 | 15,483 |
| Bought assets last year Y:1 N:0 | 0.445 | 0.497 | 0 | 1 | 15,483 |
| GDP per capita growth rate (%, annual) | 2.781 | 1.931 | -1.108 | 8.140 | 15,483 |
| Primary enrollment gender parity index | 99.232 | 2.109 | 89.249 | 104.923 | 15,483 |
| % of women in 35-64 years age group | 50.339 | 1.265 | 48.297 | 54.536 | 15,483 |
| Total population (logs) | 16.257 | 1.243 | 14.092 | 19.350 | 15,483 |
| Total credit to private sector (ratio of GDP) | 0.431 | 0.189 | 0.120 | 0.860 | 15,155 |
| Bank credit to bank deposit ratio) | 1.108 | 0.844 | 0.363 | 7.459 | 15,483 |
| ATMs per 100,000 adults (logs) | 3.533 | 0.848 | 0.246 | 5.104 | 15,242 |
| Bank branches per 100,000 adults (logs) | 2.602 | 0.858 | -0.191 | 4.334 | 15,483 |
| Financial dependence | 0.309 | 0.219 | -0.450 | 1.225 | 15,318 |
| Credit bureau present Y:1 N:0 | 0.803 | 0.397 | 0 | 1 | 14,294 |
| Credit bureau coverage | 0.404 | 0.351 | 0 | 1 | 14,294 |
| 5-bank asset concentration | 76.116 | 14.593 | 36.184 | 100 | 14,747 |
| 3-bank asset concentration | 60.990 | 16.850 | 24.895 | 100 | 15,324 |

Number of observations varies due to missing data.

## Table A4: Robustness for additional controls

| Dependent variable: Woman top manager Y:1 N:0 | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| **Panel A: Log odds ratios** | | | | |
| Bank credit (ratio of GDP) | 3.156*** | 2.699*** | 2.769*** | 3.970*** |
| | (0.747) | (0.901) | (0.901) | (0.819) |
| GDP per capita (logs) | -1.355 | -1.760 | -1.951 | -2.230* |
| | (1.126) | (1.156) | (1.227) | (1.279) |
| Number of workers (logs) | -0.178*** | -0.187*** | -0.193*** | -0.151* |
| | (0.067) | (0.062) | (0.068) | (0.077) |
| Age of firm (logs) | -0.160 | -0.116 | -0.118 | -0.203 |
| | (0.118) | (0.112) | (0.129) | (0.128) |
| Labor productivity (logs) | -0.001 | -0.002 | 0.009 | -0.019 |
| | (0.053) | (0.046) | (0.051) | (0.059) |
| Women owners Y:1 N:0 | 2.675*** | 2.673*** | 2.699*** | 2.781*** |
| | (0.157) | (0.151) | (0.162) | (0.191) |
| Women workers (proportion) | 1.563*** | 1.543*** | 1.582*** | 1.860*** |
| | (0.219) | (0.208) | (0.229) | (0.286) |
| Exports (direct, share of sales) | -0.104 | -0.127 | -0.226 | -0.319 |
| | (0.247) | (0.242) | (0.238) | (0.323) |
| Foreign ownership | 0.380 | 0.332 | 0.200 | 0.663* |
| | (0.315) | (0.304) | (0.329) | (0.394) |
| Quality certification Y:1 N:0 | 0.151 | 0.119 | 0.172 | 0.133 |
| | (0.139) | (0.137) | (0.138) | (0.179) |
| Overdraft Y:1 N:0 | -0.083 | -0.102 | -0.107 | -0.059 |
| | (0.133) | (0.128) | (0.139) | (0.174) |
| Multi establishment firm Y:1 N:0 | 0.157 | 0.066 | 0.076 | 0.093 |
| | (0.182) | (0.176) | (0.188) | (0.203) |
| Obtaining license is a major obstacle Y:1 N:0 | 0.025 | 0.083 | 0.168 | 0.131 |
| | (0.200) | (0.187) | (0.199) | (0.258) |
| Losses from power outages | 1.985** | 1.707** | 1.606* | 1.454 |
| | (0.942) | (0.777) | (0.823) | (0.955) |
| Firm audited Y:1 N:0 | -0.101 | -0.084 | -0.079 | -0.045 |
| | (0.114) | (0.115) | (0.117) | (0.145) |
| Registered when started Y:1 N:0 | 0.048 | 0.064 | 0.022 | -0.160 |
| | (0.206) | (0.208) | (0.218) | (0.227) |
| Legal form fixed effects | Yes | Yes | Yes | Yes |
| Visited by tax officials Y:1 N:0 | -0.051 | -0.026 | 0.014 | 0.052 |
| | (0.106) | (0.106) | (0.112) | (0.192) |
| Employment growth rate (per annum, log | -0.220 | -0.231 | -0.386 | -0.069 |

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| difference) | (0.310) | (0.301) | (0.337) | (0.408) |
| Bought assets last year Y:1 N:0 | 0.153 | 0.120 | 0.137 | 0.259* |
| | (0.125) | (0.121) | (0.131) | (0.153) |
| GDP per capita growth rate (%, annual) | 0.032 | 0.020 | 0.021 | 0.091 |
| | (0.033) | (0.035) | (0.051) | (0.056) |
| Primary enrollment gender parity index | | -0.162* | -0.272*** | -0.557*** |
| | | (0.086) | (0.089) | (0.113) |
| % of women in 35-64 years age group | 0.423** | 0.348 | 0.203 | -0.611** |
| | (0.204) | (0.234) | (0.246) | (0.273) |
| Total population (logs) | -0.757 | -0.069 | 0.612 | 3.030 |
| | (1.630) | (1.374) | (1.534) | (1.988) |
| Tertiary enrollment gender parity index | -0.007 | | | |
| | (0.016) | | | |
| Women in Parliament (%) | | -0.017 | -0.024 | -0.016 |
| | | (0.012) | (0.016) | (0.018) |
| Fertility rate | | 0.806 | 0.935** | 1.579*** |
| | | (0.545) | (0.476) | (0.582) |
| % of women in total population | | 0.230 | 0.187 | 0.433 |
| | | (0.473) | (0.475) | (0.526) |
| Non-discrimination in hiring law Y:1 N:0 | | | -0.550 | -2.206*** |
| | | | (0.438) | (0.486) |
| Cost of starting a business | | | 0.002 | 0.033** |
| | | | (0.014) | (0.016) |
| Competes against informal businesses Y:1 N:0 | | | -0.036 | -0.218 |
| | | | (0.129) | (0.147) |
| Checking account Y:1 N:0 | | | -0.081 | 0.013 |
| | | | (0.224) | (0.192) |
| Spent on R&D activity Y:1 N:0 | | | | -0.351 |
| | | | | (0.220) |
| Foreign technology Y:1 N:0 | | | | 0.075 |
| | | | | (0.230) |
| Number of inspections/meetings with tax officials | | | | -0.058 |
| | | | | (0.040) |
| Time tax (proportion) | | | | 0.162 |
| | | | | (0.502) |
| Losses due to crime Y:1 N:0 | | | | 0.079 |
| | | | | (0.217) |
| Bribe paid to get things done Y:1 N:0 | | | | 0.022 |
| | | | | (0.234) |
| Country fixed effects | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes |

| | | | | |
|---|---|---|---|---|
| Number of observations | 14,583 | 15,304 | 13,254 | 10,022 |

| **Panel B: Marginal effect** | | | | |
|---|---|---|---|---|
| Bank credit (ratio of GDP) | 0.318*** | 0.275*** | 0.279*** | 0.377*** |
| | (0.074) | (0.091) | (0.090) | (0.078) |
| Controls (as above) | Yes | Yes | Yes | Yes |

All coefficient values are log odds ratios obtained from logit estimation. Huber-White robust standard errors clustered on country in brackets. *** (1%), ** (5%), * (10%).

| Table A5: Financial dependence of sectors (percentile rank) | | | | | | |
|---|---|---|---|---|---|---|
| Dependent variable: Woman top manager Y:1 N:0 | **(1)** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** |
| **Panel A: Log odds ratios** | | | | | | |
| Bank credit (ratio of GDP)*Financial dependence (percentile rank) | 2.109** | 2.198** | 2.216** | 1.993** | 2.039** | 2.116** |
| | (0.852) | (0.879) | (0.906) | (0.899) | (0.899) | (0.892) |
| Bank credit (ratio of GDP) | 1.090* | 1.014 | 1.640** | 1.569* | 1.726** | 25.166* |
| | (0.561) | (0.617) | (0.756) | (0.806) | (0.823) | (13.632) |
| Financial dependence (percentile rank) | 0.235 | 0.186 | 0.261 | 0.333 | 0.344 | 0.312 |
| | (0.485) | (0.495) | (0.596) | (0.613) | (0.617) | (0.611) |
| GDP per capita (logs) | | | 0.150 | -0.484 | -0.288 | -1.102 | -1.269 |
| | | | (0.744) | (1.032) | (1.010) | (1.066) | (1.046) |
| Number of workers (logs) | | | -0.205*** | -0.221*** | -0.187*** | -0.182*** | 0.009 |
| | | | (0.049) | (0.062) | (0.061) | (0.062) | (0.152) |
| Age of firm (logs) | | | | -0.096 | -0.121 | -0.128 | -0.322 |
| | | | | (0.109) | (0.113) | (0.114) | (0.302) |
| Labor productivity (logs) | | | | -0.008 | 0.015 | 0.001 | 0.133 |
| | | | | (0.047) | (0.048) | (0.046) | (0.096) |
| Women owners Y:1 N:0 | | | | 2.590*** | 2.689*** | 2.691*** | 2.704*** |
| | | | | (0.135) | (0.149) | (0.149) | (0.151) |
| Women workers (proportion) | | | | 1.447*** | 1.452*** | 1.488*** | 1.503*** |
| | | | | (0.207) | (0.204) | (0.206) | (0.208) |
| Exports (direct, share of sales) | | | | -0.137 | -0.132 | -0.142 | -0.104 |
| | | | | (0.255) | (0.252) | (0.251) | (0.248) |
| Foreign ownership | | | | 0.269 | 0.308 | 0.322 | 0.308 |
| | | | | (0.305) | (0.305) | (0.305) | (0.301) |
| Quality certification Y:1 N:0 | | | | 0.085 | 0.110 | 0.110 | 0.120 |
| | | | | (0.141) | (0.140) | (0.140) | (0.140) |
| Overdraft Y:1 N:0 | | | | | -0.090 | -0.097 | -0.100 |
| | | | | | (0.127) | (0.127) | (0.126) |
| Multi establishment firm Y:1 N:0 | | | | | 0.113 | 0.077 | 0.090 |
| | | | | | (0.176) | (0.179) | (0.177) |
| Obtaining license is a major obstacle Y:1 N:0 | | | | | 0.058 | 0.062 | 0.058 |
| | | | | | (0.184) | (0.185) | (0.185) |
| Losses from power outages | | | | | 1.501* | 1.634** | 1.803** |
| | | | | | (0.804) | (0.782) | (0.802) |
| Firm audited Y:1 N:0 | | | | | -0.087 | -0.091 | -0.080 |
| | | | | | (0.118) | (0.119) | (0.119) |
| Registered when started Y:1 N:0 | | | | | 0.006 | -0.002 | -0.039 |
| | | | | | (0.212) | (0.212) | (0.208) |
| Legal form fixed effects | | | | | Yes | Yes | Yes |
| Visited by tax officials Y:1 N:0 | | | | | -0.039 | -0.035 | -0.045 |

|  | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
|  |  |  |  | (0.105) | (0.105) | (0.105) |
| Employment growth rate (per annum, log difference) |  |  |  | -0.323 | -0.318 | -0.291 |
|  |  |  |  | (0.308) | (0.307) | (0.308) |
| Bought assets last year Y:1 N:0 |  |  |  | 0.113 | 0.114 | 0.111 |
|  |  |  |  | (0.120) | (0.121) | (0.121) |
| GDP per capita growth rate (%, annual) |  |  |  |  | -0.001 | -0.037 |
|  |  |  |  |  | (0.031) | (0.037) |
| Primary enrollment gender parity index |  |  |  |  | -0.160** | -0.146** |
|  |  |  |  |  | (0.071) | (0.067) |
| % of women in 35-64 years age group |  |  |  |  | 0.586*** | 0.297 |
|  |  |  |  |  | (0.190) | (0.221) |
| Total population (logs) |  |  |  |  | -2.227 | -3.014* |
|  |  |  |  |  | (1.425) | (1.747) |
| Bank credit (ratio of GDP)*GDP per capita (logs) |  |  |  |  |  | -1.994 |
|  |  |  |  |  |  | (1.411) |
| Bank credit (ratio of GDP)*Number of workers (logs) |  |  |  |  |  | -0.477 |
|  |  |  |  |  |  | (0.326) |
| Bank credit (ratio of GDP)*Age of firm (logs) |  |  |  |  |  | 0.488 |
|  |  |  |  |  |  | (0.649) |
| Bank credit (ratio of GDP)*Labor productivity (logs) |  |  |  |  |  | -0.340* |
|  |  |  |  |  |  | (0.200) |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of observations | 15,299 | 15,299 | 15,299 | 15,299 | 15,299 | 15,299 |
| **Panel B: Marginal effect** |  |  |  |  |  |  |
| Bank credit (ratio of GDP)*Financial dependence (percentile rank) | 0.431*** | 0.436*** | 0.328*** | 0.294*** | 0.307*** | 0.355*** |
|  | (0.134) | (0.135) | (0.107) | (0.100) | (0.099) | (0.107) |
| Controls (as above) | Yes | Yes | Yes | Yes | Yes | Yes |

All coefficient values are log odds ratios obtained from logit estimation. Huber-White robust standard errors clustered on country in brackets. *** (1%), ** (5%), * (10%).

| Dependent variable: Woman top manager Y:1 N:0 | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| **Panel A: Log odds ratios** | | | | | | |
| Bank credit (ratio of GDP)*Credit bureau coverage | -2.020* | -2.072* | -4.345*** | -4.508*** | -5.404*** | -4.935*** |
| | (1.081) | (1.081) | (1.312) | (1.349) | (1.478) | (1.482) |
| Bank credit (ratio of GDP) | 2.716*** | 2.792*** | 4.121*** | 3.966*** | 5.018*** | 21.435 |
| | (0.432) | (0.480) | (0.493) | (0.551) | (0.804) | (18.686) |
| Credit bureau coverage | 1.374** | 1.469** | 2.544*** | 2.551*** | 3.068*** | 2.790*** |
| | (0.637) | (0.637) | (0.673) | (0.706) | (0.757) | (0.770) |
| GDP per capita (logs) | | -0.567 | -0.920 | -0.607 | -2.195** | -2.422** |
| | | (0.806) | (1.040) | (0.994) | (1.078) | (1.066) |
| Number of workers (logs) | | -0.203*** | -0.234*** | -0.199*** | -0.194*** | 0.029 |
| | | (0.050) | (0.065) | (0.064) | (0.065) | (0.154) |
| Age of firm (logs) | | | -0.083 | -0.106 | -0.115 | -0.371 |
| | | | (0.112) | (0.116) | (0.116) | (0.307) |
| Labor productivity (logs) | | | -0.017 | 0.007 | -0.002 | 0.146 |
| | | | (0.048) | (0.050) | (0.047) | (0.100) |
| Women owners Y:1 N:0 | | | 2.562*** | 2.663*** | 2.668*** | 2.678*** |
| | | | (0.140) | (0.155) | (0.155) | (0.156) |
| Women workers (proportion) | | | 1.492*** | 1.501*** | 1.536*** | 1.550*** |
| | | | (0.217) | (0.213) | (0.216) | (0.217) |
| Exports (direct, share of sales) | | | -0.117 | -0.118 | -0.130 | -0.094 |
| | | | (0.245) | (0.240) | (0.239) | (0.237) |
| Foreign ownership | | | 0.294 | 0.335 | 0.346 | 0.334 |
| | | | (0.304) | (0.308) | (0.307) | (0.304) |
| Quality certification Y:1 N:0 | | | 0.114 | 0.138 | 0.132 | 0.145 |
| | | | (0.139) | (0.138) | (0.138) | (0.138) |
| Overdraft Y:1 N:0 | | | | -0.095 | -0.101 | -0.106 |
| | | | | (0.128) | (0.128) | (0.127) |
| Multi establishment firm Y:1 N:0 | | | | 0.108 | 0.068 | 0.090 |
| | | | | (0.174) | (0.177) | (0.175) |
| Obtaining license is a major obstacle Y:1 N:0 | | | | 0.089 | 0.098 | 0.093 |
| | | | | (0.187) | (0.187) | (0.187) |
| Losses from power outages | | | | 1.539* | 1.610** | 1.828** |
| | | | | (0.803) | (0.780) | (0.805) |
| Firm audited Y:1 N:0 | | | | -0.075 | -0.078 | -0.071 |
| | | | | (0.118) | (0.118) | (0.118) |
| Registered when started Y:1 N:0 | | | | 0.038 | 0.029 | 0.000 |
| | | | | (0.216) | (0.216) | (0.213) |
| Legal form fixed effects | | | | Yes | Yes | Yes |
| Visited by tax officials Y:1 N:0 | | | | -0.026 | -0.016 | -0.022 |
| | | | | (0.107) | (0.106) | (0.106) |

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Employment growth rate (per annum, log difference) | | | | -0.306 (0.313) | -0.298 (0.312) | -0.288 (0.310) |
| Bought assets last year Y:1 N:0 | | | | 0.118 (0.124) | 0.117 (0.124) | 0.118 (0.125) |
| GDP per capita growth rate (%, annual) | | | | | -0.037 (0.032) | -0.060 (0.043) |
| Primary enrollment gender parity index | | | | | -0.139* (0.073) | -0.131* (0.070) |
| % of women in 35-64 years age group | | | | | 0.420** (0.186) | 0.171 (0.229) |
| Total population (logs) | | | | | -4.482*** (1.529) | -4.473** (2.094) |
| Bank credit (ratio of GDP)*GDP per capita (logs) | | | | | | -1.292 (1.869) |
| Bank credit (ratio of GDP)*Number of workers (logs) | | | | | | -0.543* (0.325) |
| Bank credit (ratio of GDP)*Age of firm (logs) | | | | | | 0.642 (0.654) |
| Bank credit (ratio of GDP)*Labor productivity (logs) | | | | | | -0.378* (0.200) |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of observations | 14,275 | 14,275 | 14,275 | 14,275 | 14,275 | 14,275 |
| **Panel B: Marginal effect** | | | | | | |
| Bank credit (ratio of GDP)*Credit bureau coverage | -0.196 (0.132) | -0.191 (0.134) | -0.375*** (0.134) | -0.399*** (0.135) | -0.456*** (0.140) | 0.382*** (0.141) |
| Controls (as above) | Yes | Yes | Yes | Yes | Yes | Yes |

All coefficient values are log odds ratios obtained from logit estimation. Huber-White robust standard errors clustered on country in brackets. *** (1%), ** (5%), * (10%).

| Dependent variable: Woman top manager Y:1 N:0 | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Table A7: 3-bank asset concentration | | | | | |
| | **Panel A: Log odds ratios** | | | | | |
| Bank credit (ratio of GDP)*3-bank asset concentration | 0.044*** | 0.046*** | 0.075*** | 0.086*** | 0.067*** | 0.077*** |
| | (0.014) | (0.013) | (0.020) | (0.021) | (0.026) | (0.025) |
| Bank credit (ratio of GDP) | -0.493 | -0.500 | -1.304 | -2.330 | -0.997 | 25.522** |
| | (0.987) | (0.951) | (1.512) | (1.623) | (1.718) | (11.628) |
| 3-bank asset concentration | -0.012** | -0.012** | -0.016** | -0.023*** | -0.009 | -0.011 |
| | (0.006) | (0.005) | (0.007) | (0.008) | (0.010) | (0.010) |
| GDP per capita (logs) | | -0.564 | -1.440 | -1.213 | -1.866* | -2.174** |
| | | (0.694) | (0.919) | (0.963) | (1.021) | (1.017) |
| Number of workers (logs) | | -0.209*** | -0.232*** | -0.192*** | -0.189*** | 0.009 |
| | | (0.049) | (0.062) | (0.062) | (0.062) | (0.150) |
| Age of firm (logs) | | | -0.089 | -0.110 | -0.113 | -0.363 |
| | | | (0.108) | (0.112) | (0.112) | (0.299) |
| Labor productivity (logs) | | | -0.008 | 0.017 | 0.002 | 0.157 |
| | | | (0.047) | (0.049) | (0.047) | (0.100) |
| Women owners Y:1 N:0 | | | 2.569*** | 2.669*** | 2.671*** | 2.687*** |
| | | | (0.136) | (0.149) | (0.150) | (0.152) |
| Women workers (proportion) | | | 1.491*** | 1.496*** | 1.532*** | 1.547*** |
| | | | (0.209) | (0.206) | (0.208) | (0.210) |
| Exports (direct, share of sales) | | | -0.121 | -0.123 | -0.126 | -0.090 |
| | | | (0.246) | (0.242) | (0.242) | (0.240) |
| Foreign ownership | | | 0.312 | 0.354 | 0.365 | 0.356 |
| | | | (0.302) | (0.305) | (0.306) | (0.301) |
| Quality certification Y:1 N:0 | | | 0.096 | 0.120 | 0.119 | 0.132 |
| | | | (0.140) | (0.138) | (0.138) | (0.138) |
| Overdraft Y:1 N:0 | | | | -0.097 | -0.098 | -0.100 |
| | | | | (0.127) | (0.128) | (0.127) |
| Multi establishment firm Y:1 N:0 | | | | 0.069 | 0.045 | 0.057 |
| | | | | (0.175) | (0.177) | (0.176) |
| Obtaining license is a major obstacle Y:1 N:0 | | | | 0.065 | 0.067 | 0.062 |
| | | | | (0.184) | (0.186) | (0.185) |
| Losses from power outages | | | | 1.611** | 1.708** | 1.918** |
| | | | | (0.804) | (0.785) | (0.805) |
| Firm audited Y:1 N:0 | | | | -0.089 | -0.093 | -0.084 |
| | | | | (0.115) | (0.115) | (0.115) |
| Registered when started Y:1 N:0 | | | | 0.072 | 0.062 | 0.021 |
| | | | | (0.209) | (0.209) | (0.204) |
| Legal form fixed effects | | | | Yes | Yes | Yes |
| Visited by tax officials Y:1 N:0 | | | | -0.034 | -0.034 | -0.044 |
| | | | | (0.106) | (0.106) | (0.106) |
| Employment growth rate (per | | | | -0.258 | -0.246 | -0.224 |

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| annum, log difference) | | | | (0.302) | (0.302) | (0.300) |
| Bought assets last year Y:1 N:0 | | | | 0.115 | 0.119 | 0.116 |
| | | | | (0.120) | (0.121) | (0.121) |
| GDP per capita growth rate (%, annual) | | | | | -0.014 | -0.058 |
| | | | | | (0.029) | (0.037) |
| Primary enrollment gender parity index | | | | | -0.201*** | -0.190*** |
| | | | | | (0.072) | (0.069) |
| % of women in 35-64 years age group | | | | | 0.501** | 0.153 |
| | | | | | (0.224) | (0.248) |
| Total population (logs) | | | | | -1.275 | -2.069 |
| | | | | | (1.368) | (1.556) |
| Bank credit (ratio of GDP)*GDP per capita (logs) | | | | | | -2.331* |
| | | | | | | (1.240) |
| Bank credit (ratio of GDP)*Number of workers (logs) | | | | | | -0.498 |
| | | | | | | (0.322) |
| Bank credit (ratio of GDP)*Age of firm (logs) | | | | | | 0.630 |
| | | | | | | (0.646) |
| Bank credit (ratio of GDP)*Labor productivity (logs) | | | | | | -0.394* |
| | | | | | | (0.204) |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of observations | 15,304 | 15,304 | 15,304 | 15,304 | 15,304 | 15,304 |
| **Panel B: Marginal effect** | | | | | | |
| Bank credit (ratio of GDP)*3-bank asset concentration | 0.007*** | 0.007*** | 0.009*** | 0.010*** | 0.009*** | 0.011*** |
| | (0.002) | (0.002) | (0.002) | (0.002) | (0.003) | (0.003) |
| Controls (as above) | Yes | Yes | Yes | Yes | Yes | Yes |

All coefficient values are log odds ratios obtained from logit estimation. Huber-White robust standard errors clustered on country in brackets. *** (1%), ** (5%), * (10%).

| Dependent variable: Woman top manager Y:1 N:0 | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| **Table A8: Large firm sample** | | | | | |
| **Panel A: Log odds ratios** | | | | | |
| Bank credit (ratio of GDP) | -1.490 | -0.872 | -0.925 | -0.472 | 0.464 |
| | (1.069) | (1.165) | (1.148) | (1.105) | (1.481) |
| GDP per capita (logs) | | -1.713 | -1.721 | -0.030 | -1.764 |
| | | (1.485) | (1.798) | (1.990) | (2.340) |
| Number of workers (logs) | | -0.208** | -0.287** | -0.420*** | -0.416** |
| | | (0.088) | (0.136) | (0.162) | (0.162) |
| Age of firm (logs) | | | 0.025 | 0.088 | 0.090 |
| | | | (0.133) | (0.137) | (0.138) |
| Labor productivity (logs) | | | 0.072 | 0.090 | 0.080 |
| | | | (0.063) | (0.067) | (0.070) |
| Women owners Y:1 N:0 | | | 1.386*** | 1.500*** | 1.501*** |
| | | | (0.190) | (0.197) | (0.197) |
| Women workers (proportion) | | | 0.731* | 0.928** | 0.955** |
| | | | (0.383) | (0.379) | (0.390) |
| Exports (direct, share of sales) | | | -0.228 | -0.184 | -0.198 |
| | | | (0.274) | (0.308) | (0.310) |
| Foreign ownership | | | 0.380 | 0.606** | 0.620** |
| | | | (0.260) | (0.256) | (0.257) |
| Quality certification Y:1 N:0 | | | 0.008 | 0.076 | 0.080 |
| | | | (0.217) | (0.212) | (0.214) |
| Overdraft Y:1 N:0 | | | | 0.411** | 0.415** |
| | | | | (0.193) | (0.194) |
| Multi establishment firm Y:1 N:0 | | | | -0.208 | -0.223 |
| | | | | (0.234) | (0.237) |
| Obtaining license is a major obstacle Y:1 N:0 | | | | -0.111 | -0.095 |
| | | | | (0.300) | (0.303) |
| Losses from power outages | | | | -0.868 | -0.779 |
| | | | | (2.228) | (2.167) |
| Firm audited Y:1 N:0 | | | | -0.267 | -0.247 |
| | | | | (0.238) | (0.240) |
| Registered when started Y:1 N:0 | | | | -0.120 | -0.101 |
| | | | | (0.365) | (0.370) |
| Legal form fixed effects | | | | Yes | Yes |
| Visited by tax officials Y:1 N:0 | | | | -0.155 | -0.149 |
| | | | | (0.254) | (0.259) |
| Employment growth rate (per annum, log difference) | | | | -1.304* | -1.214* |
| | | | | (0.667) | (0.682) |

| | | | | | |
|---|---|---|---|---|---|
| Bought assets last year Y:1 N:0 | | | | 0.233 | 0.213 |
| | | | | (0.216) | (0.223) |
| GDP per capita growth rate (%, annual) | | | | | -0.034 |
| | | | | | (0.070) |
| Primary enrollment gender parity index | | | | | 0.032 |
| | | | | | (0.160) |
| % of women in 35-64 years age group | | | | | 0.484 |
| | | | | | (0.384) |
| Total population (logs) | | | | | -5.085 |
| | | | | | (3.156) |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes |
| Number of observations | 8,590 | 7,911 | 5,837 | 5,366 | 5,366 |
| **Panel B: Marginal effect** | | | | | |
| Bank credit (ratio of GDP) | -0.129 | -0.077 | -0.081 | -0.041 | 0.040 |
| | (0.092) | (0.103) | (0.100) | (0.095) | (0.127) |
| Controls (as above) | Yes | Yes | Yes | Yes | Yes |

All coefficient values are log odds ratios obtained from logit estimation. Huber-White robust standard errors clustered on country in brackets. *** (1%), ** (5%), * (10%).