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ACCESS TO FINANCE: MIND THE GENDER GAP

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Abstract

Studies on financial inclusion have so far focused on assessing determinants to overall access to finance, but limited attention has been given to financial inclusion from a gender point of view, and on the gaps that separate females and males with regards to their access to the opportunities and services provided by the financial sector. We construct a database combining information from bank-level data with other variables reflecting the macro and regulatory framework across countries, as well as variables reflecting labour market female participation and gender disparities in access to property. A weighted least squares analysis is used to identify the impact of banking sector ownership structure and concentration, and of the regulatory and institutional framework on the gender gaps in selected indicators of financial access. We also assess whether these characteristics have the same effect on the overall level of access to finance.

JEL Classification: G3, E6

Keywords: gender gap, financial inclusion, access to finance

ملخص

ركزت الدراسات على الشمول المالي على تقييم المحددات للوصول الشامل إلى التمويل، ولكن تم إيلاء اهتمام محدود للإدراج المالي من وجهة نظر النوع ، وعلى الفجوات التي تفصل بين الذكور والإناث فيما يتعلق بالحصول على فرص والخدمات التي يقدمها القطاع المالي. نقوم ببناء قاعدة بيانات تجمع المعلومات على مستوى البنك مع متغيرات أخرى تنم عن الإطار الكلي والتنظيمي في مختلف البلدان، فضلا عن المتغيرات التي تعكس المشاركة في سوق العمل النسائية والفوارق بين الجنسين في الحصول على الممتلكات. ونستخدم تحليل المربعات الصغرى المرجحة للتعرف على أثر هيكل ملكية القطاع المصرفي والتركيز على تأثير الإطار التنظيمي والمؤسسي على الفجوات بين الجنسين في مؤشرات مختارة للوصول إلى الخدمات المالية. نقوم أيضا بتقييم ما إذا كانت هذه الخصائص لها نفس التأثير على المستوى العام للحصول على التمويل.

1. Introduction

Financial inclusion is generally defined in the literature as the delivery, by institutional players, of appropriate financial products and services to the various sections of the society, including the vulnerable, disadvantaged and low income groups. Attention has recently shifted in the literature to addressing issues of financial outreach and inclusion—the extent to which formal financial services are used by households and firms. An influential body of empirical research shows that improved access to finance has a critical role in helping firms overcome liquidity constraints and thus improve resource allocation in the economy (Love, 2003 and Wurgler, 2000), and in enabling them to exploit growth and investment opportunities (Beck, Demirgüç-Kunt and Maksimovic, 2005). On the household level, improved access to finance is also believed to reduce financial hardship and over indebtedness that result from the lack of appropriate banking services, affordable credit and accessible savings products.

To date, however, studies on financial inclusion have focused on assessing standard determinants to overall access to finance, including the level of economic development, the quality of the institutional and regulatory environment, the degree of development for the information and physical infrastructure and the banking ownership structure(see for example Beck and de la Torre, 2007; Beck, Demirguc-Kunt and Martinez Peria, 2007a). However, little is known about the gender gap that separates females and males with regards to their access to the opportunities and services provided by the financial sector. This is particularly important given the fact that women can have a substantial contribution to the quality and direction of economic and social development. For instance, GDP per capita losses attributable to gender gaps in the labor market are estimated at 23% in South Asia, 27% in Middle East and North Africa, and a loss of around 15% in the rest of the world (Cuberes and Teignier, 2012).

This paper contributes to the literature on access to finance by focusing on the gender angle of financial exclusion, and examining the factors that are likely to affect the female/male gaps, which may or may not be different from the factors that create hardship for both males and females. Therefore, we analyze the relative situation of women with regards to their access to finance and assess whether these determinants are different from the determinants of overall access to finance.

The paper is structured as follows. The next section presents a review of the literature on access to finance and its determinants. Section 3 presents the data and methodology used. Section 4 presents the results and their interpretations and section 5 offers some conclusions and policy recommendations.

2. Review of the Literature

Financial inclusion/exclusion has become a subject of interest, representing the degree to which individuals have/lack equal access to opportunities offered by the financial sector. One of the oldest definitions to the access dimension was introduced by Leyshon and Thrift (1995) and referred to financial exclusion as "those processes that prevent poor and disadvantaged social groups from gaining access to the financial system." Likewise, Carbo et al. (2005) broadly define financial exclusion as "the inability and/or reluctance of particular societal groups to access mainstream financial services." The growing interest has emerged from better understanding of the important role of financial inclusion in achieving economic and social sustainable development, by ensuring equal access to opportunities offered by the financial system.

Following the growing recognition of its importance, studies on financial inclusion have focused on assessing determinants to overall access to finance, which include the level of economic development, the quality of the institutional environment, the degree of credit information sharing, the development of the financial infrastructure, the cost of enforcing contracts, the degree of government and foreign ownership of banks and the level of creditor rights protection across countries.

Beck, Demirguc-Kunt and Martinez Peria, (2007a) present some indicators of banking sector outreach across 99 countries and investigate its determinants. They examine whether outreach (defined as(i) the access and the possibility to use financial services and (ii) actual use of financial services) is associated with the same factors that are found to drive financial sector depth and find many similarities but also some differences in the determinants of outreach and depth. For instance, their results suggest that country's level of economic development and the overall institutional environment are positively associated with the outreach indicators as well as with the measure of financial sector depth. While both outreach and depth indicators are correlated with the credit information environment, the specific rights of creditors appear only to affect financial sector depth but not outreach. With regards to the ownership structure for example, while the presence of both government-owned banks and foreign banks in the system has a negative effect on the extent of financial sector depth, the share of government-owned banks appears to have a negative impact on some of the access indicators (such as the branch and ATM ratios) and no significant effect on the loan and deposit indicators. They also find that the presence of foreign banks is negatively and significantly associated only with the loan and deposits per capita indicators.

Among all the determinants of financial access, the issue of foreign ownership has received particular attention. This may be due to the supposed benefits of foreign banks, in particular with regards to their effect on domestic competition and higher credit availability. As for their contribution to banking stability, cross-country evidence indicates that, on average, the entry of foreign banks with internationally diversified asset portfolios provides a stabilizing influence, especially when the host country avoids too much exposure to banks from a single country (Demirguc-Kunt *et al* (1999); Clarke *et al* 2002; Claessens 2006; and Cull & Martinez Peria, 2010). They are also perceived as being less susceptible to political pressures and less inclined to lend to connected parties. These factors imply a positive relationship between presence of foreign banks and indicators of financial sector performance and greater outreach. However, some studies find more ambiguous results, showing that foreign banks "cherry pick" borrowers (Detragiache, Gupta, and Tressel, 2006 and Beck and Martinez Peria, 2008).

In an attempt to identify the obstacles to access, Beck, Demirgüç-Kunt, & Martinez Peria (2007b) use information from 209 banks in 62 countries to develop indicators of barriers to banking services and explore their association with bank and country characteristics suggested by theory as potential determinants. They find that country characteristics linked with financial depth, such as the effectiveness of creditor rights, contract enforcement mechanisms, and credit information systems, are weakly correlated with barriers. They also find that barriers are higher where banking systems are predominantly government-owned and are lower where there is more foreign bank participation.

Focusing on transition economies, Beck and Brown (2011) use survey data for 29,000 households from 29 countries to explore how the use of banking services is related to household characteristics, bank ownership structure and the development of the financial infrastructure. At the household level, they find a positive effect of income, wealth and education on financial access in most countries. They also show that foreign bank ownership is associated with more bank accounts among high-wealth, high-income, and educated households. On the other hand, State ownership does not induce financial inclusion of rural and poorer households.

Some studies examine both the supply and demand side frictions that can lead to lower access. For example, Beck and de la Torre (2007) point to different types of limitations that make financial services inaccessible to some specific groups, including geographic and socio-economic limitations as well as the limitation of opportunities for those who lack fixed collateral or are not well connected. Beck (2006) argues that the efficiency with which financial markets and institutions overcome these frictions depends on the macroeconomic environment, market structure, and overall contractual and informational environment. For instance, the legal rights of borrowers and creditors, the predictability of their fair and impartial enforcement, the protection of private property rights and enforcement of contracts are all important pillars of an effective financial system. Likewise, credit registries can dramatically reduce the time and costs of obtaining credit history information from individual sources and therefore reduce the total costs of financial intermediation.

Most of the existing literature on financial inclusion focuses on analyzing determinants to the overall access to financial services or on the cost of using financial services. Little attention has been given to the gender angle of financial exclusion, and to the factors that are likely to affect the female/male gaps. While the former analysis offers useful insights on barriers to access to finance, focusing solely on the overall financial inclusion may be missing other important aspects. The determinants of the gender gaps in access to finance may or may not be different from the factors that create hardship for both males and females. Hence, an emphasis should be put on measuring the relative situation of women with regards to their access to finance and on identifying the most significant determinants of these gaps.

Only a few studies have focused on women's access to finance at a micro-level. For instance, a paper by Demirguc-Kunt *et al* (2013), which uses individual-level data from 98 developing countries to document and analyze gender differences in the use of financial services, does this. In their analysis of the significant gender gaps in using financial services, legal discrimination against women ((legal restrictions in their ability to work, head a household, choose where to live, and receive inheritance) and gender norms (the level of violence against women and the incidence of early marriage for women) are found to explain some of the cross-country variation in access to finance for women. Aterido *et al* (2011), also using individual-level survey data for nine countries in Sub-Saharan Africa, examine the gender gap in financial services and find that the lower use of formal financial services by women in these countries can be explained by gender differences in education and income levels, formal employment, and being the head of household. A study by Chamlou (2008) on the environment for women's entrepreneurship in the Middle East and North Africa region notes that the access to capital is one of the big challenges faced by women in this particular region. Chavan and Birajdar (2009) also analyze the subject from a gender point of view, but focus on micro finance as means of credit-based poverty alleviation and financial inclusion. They use secondary and primary data on self-help groups (SHGs) in India in order to evaluate the role played by these institutions towards financial inclusion of the groups/ regions excluded from the formal financial system, and find that women members belonging to mature SHGs continue to rely on informal sources of finance, thus raising a concern over the cost, in the form of high rates of interest of SHG loans and their affordability.

Empirical work on gender gaps in access to finance is growing but still scarce. Enhancing access to finance and reducing gender access disparities remains a major challenge in many countries across the world, requiring actions/interventions from policymakers. Women usually face greater access barriers to formal banking services and tend to be more credit-constrained than men. This following section explores which bank and country-level characteristics can explain the gender gaps in accessing finance across countries, with specific focus on the market structure and regulatory framework.

3. Data and Methodology

Economic theory and existing empirical work suggest that a number of potential factors can explain the existence of barriers to financial inclusion, which has guided the choice of the specification used in the paper. Our approach is to include variables that capture basic country characteristics, including the level of financial development and education, and those capturing the quality of the market infrastructure and the institutional environment (such as the degree of credit information sharing, the degree of legal rights enforcements, transparency on ownership and financial information, and the degree of gender discrimination in labor markets, across countries). We also consider whether a number of banking sector structural characteristics can explain cross-country variation in gender gaps when it comes to access to finance, such as the degree of concentration and banks ownership structure.

3.1 Data

Indicators used in our analysis capture three main dimensions: (i) the level of access to financial services, (ii) the banking sector ownership and structure, and (iii) the macro, regulatory and institutional framework across countries.

The indicators on financial services are obtained from the 2011 Global Findex database. The data is collected through interviews with more than 150,000 individuals aged 15 and older, randomly selected in 148 economies.[1] In this paper, we focus in particular on five main dimensions of financial inclusion: (i) ownership of an account at a formal financial institution, (ii) having saved at a financial institution in the past year (iii) having an account used for business purposes (iv) having obtained a loan from a financial institution in the past year, (v) holding a credit card and a debit card, and (vi) using an account to receive wages. The "gender gaps" of these financial services are constructed as the female-to-male ratios of the variables. One of the advantages of the Global Findex data is that it refers to individual behavior and not the household level, which allows for a measurement of women's direct control over their finances, an important component of economic empowerment.

In order to construct the variables reflecting the banking system ownership structure and concentration, we use bank-level data from the Bankscope database and extract assets values for 16,117 active banks in 141 countries, covering commercial banks, saving banks, cooperative banks and Islamic banks. Banks are then classified according to their ownership, domestic or foreign. A bank is considered foreign-owned if 50 percent or more of its shares are owned by a shareholder located in another country. We also classify banks according to their ownership type. A bank is considered as State-owned if its shareholders, owning together 50 percent or more, are one of the following types: public authorities, States or governments. These two classifications are then used to compute the share of foreign-owned banks in terms of assets values (FOB) and State-owned banks (SOB) in each country. To control for the level of asset concentration in the banking sector, we also include the Herfindahl-Hirschman Index (HHI), which is computed as the sum of the squares of the shares of total assets held by each bank in each country.

Finally, a number of variables are included to capture the level of financial sector development, the strength of the regulatory framework, and the female participation in the labor market. These variables include (i) the total assets held by deposit money banks as a share of GDP are

[1]The complete individual-level database and detailed country-level information about the data collection can be found at: www.worldbank.org/globalfindex

used as a measure of financial depth; (ii) the Credit Information Index to reflect the quality of credit information available through public or private credit registries, (iii) the Strength of Legal Rights index and, (iv) the female rate of participation in the labor market.

To account for the social institutions related to gender inequality, we also use country-level indicators that might affect women's access to financial services, as compared to men's, in particular their ability to use, control and own non-land assets. Our data indicate that men and women are treated equally by the law in about 68 percent of our countries, and that in only 5 countries[2] (that is 4 percent of the our group of countries), the law does not guarantee the same rights to own and administer property to women and men, or women have no legal rights to own and administer property other than land. Between these two legal arrangements, in about the third of our countries, the law guarantees the same rights to both women and men, but there are some customary, traditional or religious practices that discriminate against women.

The data appendix reports more details about variables definitions, scales and sources. The group of countries included in our analysis is large and heterogeneous, both in terms of income per capita and also geographically. The total number of countries is 140. However, the total number of observations used in the regressions is smaller (131 countries).

3.2 Country-Level Regressions

The effects of the banking system structure and that of the regulatory and institutional framework on the gender gaps in access to finance have not been examined before. Our constructed variables allow us to understand whether these characteristics have a different impact on the gender gaps, compared to their influence on the overall level of access to financial services. Specifically, two cross-section models are used to examine the effect of banking sector ownership and structure, country-specific characteristics, and regulatory and institutional framework on a number of financial access indicators. We also use country-level legal indicators that might affect women's access to financial services, as compared to men's, such as their ability to use, control and own non-land assets. The first model [1] examines the effect on the gender gaps, while the second model [2] examines whether our explanatory variables have the same effect on the overall access to financial services, regardless of the gender gap.

We use a weighted least squares (WLS) model to run several versions of the following two specifications:

$$RATIO_k = \beta_0 + \beta_1 Fdepth_k + \beta_2 HHI_k + \beta_3 FOB_k + \beta_4 SOB_k + \beta_5 CII_k + \beta_6 LR_k + \beta_7 fpart_k + \beta_8 property_{k+} \varepsilon_k \quad (1)$$

where the dependent variable ***RATIO*** refers to the female to male ratio (reflecting the gender inclusion gaps) in the use of a number of financial services in country k, namely having a bank account, having an account used for business purposes, using an account to receive wages, having saved, holding a credit and debit card and having obtained a loan from a financial institution in the past year.

Fdepth is measuring financial depth through the total assets held by deposit money banks as a share of GDP,***HHI*** is the Herfindahl-Hirschman Index, ***FOB*** and ***SOB*** are, respectively, the share of foreign-owned and State-owned bank assets in the total banking assets, ***CII*** is the Credit Information Index, ***LR*** is the Strength of Legal Rights index, ***fpart*** is the female participation rate in the labor market, and ***property*** is a measure of gender equality in access to property, measuring whether women and men have equal and secure access to non-land assets use, control and ownership.

[2]The five countries are Afghanistan, Cameroon, the Democratic Republic of Congo, Sierra Leone and Sudan.

We also test the effect of our explanatory variables on the overall access to finance, measured as the percentage of respondents who report using the specific financial service, males and females included. In other words, we regress our variables reflecting how people use accounts, save, hold cards and obtain loans on the independent variables reflecting the banking sector characteristics, financial sector and labor market development, and structure across countries, the regulatory framework, as well as the social institutions related to gender inequality.

$$ACCESS_k = \beta_0 + \beta_1 Fdepth_k + \beta_2 HHI_k + \beta_3 FOB_k + \beta_4 SOB_k + \beta_5 CII_k + \beta_6 LR_k + \beta_7 tpart_k + \beta_8 property_{k+} \varepsilon_k \quad (2)$$

where ACCESS refers to the percentage of respondents using the same seven financial services in country k, with no distinction between males and females. Because we are not looking at the gaps for this specification, we use the total rate of participation (*tpart*) as a measure for labor market participation rate instead of the female participation rate previously used.

The use of ordinary least squares (OLS) is not appropriate due to the presence of heteroscedasticityin the residuals, a very common problem in cross-section analyses. We conduct a Breusch-Pagan test which confirmed a heteroscedasticity problem (see test results in appendix). We use a WLS weighting proportional to GDP and transparency with the absolute value of the residuals.

4. Results and Interpretation

Regression results of the first model examining the gender gaps are shown in Table 1 of the appendix 3. Each column represents a separate regression for each type of financial services.

4.1 Gender gaps, institutions and labor market participation

Results from the first specification model reveal that the most significant variable in explaining the gender gap across different types of financial services is the equal right and de factor access to non-land assets in terms of use, control and ownership. We find that women are significantly less likely to have an account, use it to receive money for work, save and hold credit and debit cards in countries with greater discrimination[3].

At the institutional and regulatory level, women’s access to finance seems to be affected by the strength of legal rights in a particular country, that is the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. Our findings demonstrate that the gender gap in access to loans, use debit cards and use bank accounts for work purposes, decreases with the strength of these legal rights.

Finally, what is also of relevance when explaining the gaps is the female participation in labor markets. The female participation rate in the labor market has a positive and significant coefficient on the female-to-male ratio of having a bank account, using it for business purposes and using it to receive money for work. This finding is quite intuitive, since working women may have an account to receive electronic payments from their employer, and may have an increased ability to save.

4.2 Gender gaps and banking sector characteristics

Banking sector characteristics do not generally seem to affect the gender gap in accessing different types of financial services. The exception is the prevalence of State-owned banks, as a bigger share is not conducive to gender inclusion in financial services. Our results show that the share of State-owned banks significantly and negatively affects women’s ability, compared to men, to have an account, to use it for business purposes and to receive wages, and to have a

[3]The categorical variable is based on a scale of three categories (0, 0.5 and 1) where 0 represents no discrimination and 1 represents a high level of discrimination.

debit card. By contrast, we find no evidence that foreign banks presence and high concentration lead to a broader use of financial services among women.

4.3 Overall access to financial services

Table 2 shows the regression results using overall level of access to the various financial services. Our results highlight that a country's level of financial depth, as measured by the total assets held by deposit money banks as a share of GDP, is positively associated with the overall access to all our financial services. At the same time, the quality of credit information available through public or private credit registries has a significant and positive impact on the overall level of financial inclusion.

5. Results Interpretation and Conclusions

Overall, our results suggest that women are more likely to be excluded from the formal financial sector in countries where (i) laws and norms discriminate against women, (ii) women have lower participation in the labor market, and (iii) State-owned banks have a big share in the banking system.

This suggests that guaranteeing property rights for women is of particular importance to gender inclusion, as it affects women's credit worthiness and their ability to secure collateral for a formal loan. Our data show that weak property rights for women are more due to certain customs, traditions or religious practices that discriminate against them and less to the legal provisions that prevent them from having equal access and control over their properties.

While access to finance is often cited as a major determinant for women's participation, especially as entrepreneurs, our results show that the inverse relationship is valid as well. Increasing women's economic opportunities through their participation in the labor force positively affects their access to finance, whether through their higher need to obtain loans or as employees with regular income who may use financial services to receive their payments or to save for greater financial security.

Achieving gender equality in financial inclusion is an important way to unlock resources for economic empowerment and for fostering growth, by enhancing access to economic opportunity for a wide segment of the society. Gender inequalities in access to finance can be as harmful as the overall limited access, for two main reasons. First, gender barriers to financial inclusion contribute to the prevalence of informal sources of finance, resulting in over indebtedness and lack of appropriate economic opportunities for women. Second, for sustainable financial sector reforms to take place, they have to reach and be beneficial to large sections of the economy. In that sense, gender based financial exclusion can increase the risk of reforms reversibility. Therefore, the gender approach to financial inclusion should be integrated into the overall strategies on financial sector development, which have often focused on improving overall financial stability or on increasing the overall availability of financial services. This will likely have a positive effect on sustainable growth by giving economic opportunities to a wide sector of the economy that remains underserved.

Our analysis shows that women are more likely to be excluded from the formal financial sector in countries where laws and norms discriminate against women, and in countries where women have lower participation in the labor market. State-own presence in the banking sector also seems to provide fewer opportunities for women to use a formal account for different purposes.

What is also important to note from our results is that the determinants of gender gaps in accessing financial services are different than the ones affecting the overall level of access, which seems to depend more on the country's degree of financial depth and on some traits of the regulatory framework, such as the availability and quality of credit information. This means that men are not affected by the same restrictions regarding work and asset ownership that women face, and that closing the gender gaps in financial inclusion needs a specific focus on women's economic empowerment.

A simple bank account at a formal financial institution can increase women inclusion, as it provides a safe place to save, obtain loans and obtain a reliable payment connection with an employer or the government. It is also a first step towards obtaining loans, often important for investing in education or in a business. Countries that aim to close the gender gap in access to finance shall design, implement and enforce laws and measures that improve women's equal access to property rights and increase their integration in the labor markets, and also to enforce legal rights for all in order to level the playing field.

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Table 1: Gender Gaps in Access to Financial Services WLS Cross-Sectional Regressions - Type: proportional to abs(e)

	RATIO_acco~t	RATIO_busacc	RATIO_save	RATIO_ccard	RATIO_dcard	RATIO_loan	RATIO_wages
	b/t	b/t	b/t	b/t	b/t	b/t	b/t
HHI	-0.102	-0.447	0.063	-0.137	0.090	-0.200	-0.144
	(-0.81)	(-1.59)	(0.28)	(-0.40)	(0.51)	(-0.85)	(-0.67)
SOB	-0.002**	-0.004*	-0.001	0.001	-0.002*	0.001	-0.003**
	(-2.64)	(-2.13)	(-1.12)	(0.38)	(-2.23)	(0.40)	(-3.08)
FOB	0.000	0.000	0.000	-0.001	0.000	0.001	0.001
	(0.51)	(0.46)	(0.31)	(-0.51)	(0.37)	(1.02)	(0.89)
CII	0.005	-0.022	0.022	-0.034	-0.005	-0.017	0.012
	(0.60)	(-1.37)	(1.67)	(-1.67)	(-0.44)	(-1.19)	(0.95)
LR	0.010	0.004	0.017	0.020	0.022**	0.025*	0.020*
	(1.75)	(0.32)	(1.54)	(1.22)	(2.72)	(2.24)	(2.06)
fdepth	0.000	-0.000	-0.001	-0.001	0.000	-0.001	-0.000
	(1.85)	(-0.65)	(-1.45)	(-1.28)	(1.06)	(-1.90)	(-0.09)
fpart	0.002**	0.009***	0.001	0.002	-0.001	0.003	0.003*
	(3.07)	(4.60)	(0.69)	(0.94)	(-0.54)	(1.61)	(2.42)
Women access to pr~t	-0.307***	-0.172	-0.309*	-0.663***	-0.333**	-0.123	-0.319*
	(-3.92)	(-1.18)	(-2.38)	(-3.44)	(-2.93)	(-0.91)	(-2.41)
Constant	0.710***	0.375*	0.679***	0.906***	0.771***	0.678***	0.503***
	(9.74)	(2.27)	(5.17)	(4.56)	(7.43)	(4.90)	(4.08)
N	131	130	131	130	131	131	131
R-sqr	0.41	0.25	0.17	0.11	0.28	0.12	0.26

* p<0.05, ** p<0.01, *** p<0.001

Table 2: Overall Access to Financial Services WLS Cross-Sectional Regressions - Type: proportional to abs(e)

	account	busacc	save	ccard	dcard	loan	wages
	b/t	b/t	b/t	b/t	b/t	b/t	b/t
HHI	5.037	2.428	8.269	9.710	2.160	-2.996	2.493
	(0.35)	(0.71)	(1.11)	(1.42)	(0.17)	(-0.70)	(0.29)
SOB	0.035	-0.030	-0.057	-0.027	0.048	0.023	-0.068
	(0.34)	(-0.97)	(-0.99)	(-0.46)	(0.48)	(0.76)	(-1.06)
FOB	-0.011	-0.028	-0.058	-0.014	0.060	-0.019	0.013
	(-0.17)	(-1.56)	(-1.67)	(-0.43)	(1.01)	(-1.00)	(0.34)
CII	2.499**	0.169	0.603	1.528***	1.908*	0.526*	1.506**
	(2.92)	(0.73)	(1.32)	(3.45)	(2.43)	(2.07)	(2.87)
LR	1.187	0.151	0.766	0.085	0.393	0.272	0.740
	(1.47)	(0.64)	(1.72)	(0.19)	(0.51)	(1.16)	(1.48)
fdepth	0.428***	0.115***	0.221***	0.252***	0.384***	0.030*	0.237***
	(9.58)	(6.41)	(8.15)	(8.10)	(8.05)	(2.50)	(8.33)
Total Labor force ~	-0.160	0.014	0.151	0.041	-0.107	0.094	-0.116
	(-0.99)	(0.33)	(1.76)	(0.50)	(-0.73)	(1.96)	(-1.17)
Women access to pr~t	-1.299	1.795	2.638	2.414	-0.528	-1.963	-4.785
	(-0.19)	(1.07)	(0.74)	(0.73)	(-0.09)	(-0.94)	(-1.14)
Constant	13.546	-0.145	-10.604	-8.584	2.818	0.384	5.890
	(1.05)	(-0.04)	(-1.53)	(-1.29)	(0.24)	(0.10)	(0.74)
N	131	131	131	131	131	131	131
R-sqr	0.64	0.36	0.50	0.53	0.54	0.25	0.61

* p<0.05, ** p<0.01, *** p<0.001

Appendix 1

List of variables and sources

Variable	Measuring	Source
Foreign-owned banks (*FOB*)	Share of assets for banks owned by foreign shareholders to the total banking assets in the country.	Authors' computation, based on Bankscope data.
State-owned banks (*SOB*)	Share of assets for banks owned by public authorities, States or governments to the total banking assets in the country.	Authors' computation, based on Bankscope data.
Herfindahl-Hirschman Index (*HHI*)	A measure of banking concentration, computed as the sum of the square of the market share of each bank in each country.	Authors' computation, based on Bankscope data.
Depth of credit information index (*CII*)	Measures rules affecting the scope, accessibility, and quality of credit information available through public or private credit registries. The index ranges from 0 to 8, with higher values indicating the availability of more credit information, from either a public registry or a private bureau, to facilitate lending decisions.	World Bank, Doing Business project
Strength of legal rights index (*LR*)	Measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The index ranges from 0 to 12, with higher scores indicating that these laws are better designed to expand access to credit.	World Bank, Doing Business project
Female Labor force participation rate, (*fpart*)	Labor force participation rate, female (% of female population ages 15+)	World Bank, World Development Indicators (WDI)
Total labor force participation rate (*tpart*)	Labor force participation rate, total (% of total population ages 15+)	
Financial depth (*fdepth*)	Total assets held by deposit money banks as a share of GDP.	World Bank, World Development Indicators (WDI)
Access to property (*property*)	Whether women and men have equal and secure access to non-land assets use, control and ownership. Categorical variables are based on a scale of three categories (0, 0.5 and 1) where 0 represents no discrimination and 1 represents a high level of discrimination. • 0: The law guarantees the same rights to own and administer property other than land to both women and men. • 0.5: The law guarantees the same rights to own and administer property other than land to both women and men, but there are some customary, traditional or religious practices that discriminate against women. • 1: The law does not guarantee the same rights to own and administer property other than land to women and men, or women have no legal rights to own and administer property other than land.	OECD, Social Institution and Gender Index (SIGI)

List of variables and sources (Continued)

Variable	Measuring	Source
Financial Inclusion (*FINDEX*)	Measuring how adults save, borrow, make payments and manage risk:	World Bank, Global Financial Inclusion (Global Findex) database, 2011
account	▪ Percentage of respondents with an account at a financial institution	
account_female	▪ Percentage of respondents with an account at a financial institution, (% female, age 15+)	
account_male	▪ Percentage of respondents with an account at a financial institution, (% male, age 15+)	
account_bus	▪ Percentage of respondents who report using their accounts at a formal financial institution for business purposes (% age 15+)	
account_bus_female	▪ Percentage of respondents who report using their accounts at a formal financial institution for business purposes (%female, age 15+)	
account_bus_male	▪ Percentage of respondents who report using their accounts at a formal financial institution for business purposes (%male,age 15+)	
save	▪ Percentage of respondents who report saving at a formal financial institution in the past 12 months (% age 15+)	
save_female	▪ Percentage of respondents who report saving at a formal financial institution in the past 12 months (% female, age 15+)	
save_male	▪ Percentage of respondents who report saving at a formal financial institution in the past 12 months (% male, age 15+)	
ccard	▪ Percentage of respondents with a credit card(%, age 15+)	
ccard_female	▪ Percentage of respondents with a credit card(% female, age 15+)	
ccard_male	▪ Percentage of respondents with a credit card (% male, age 15+)	
dcard	▪ Percentage of respondents with a debit card(%, age 15+)	
dcard_female	▪ Percentage of respondents with a debit card(% female, age 15+)	
dcard_male	▪ Percentage of respondents with a debit card (% male, age 15+)	
loan	▪ Percentage of respondents who report borrowing any money from a financial institution in the past 12 months (% age 15+)	
loan_female	▪ Percentage of respondents who report borrowing any money from a financial institution in the past 12 months (% female, age 15+)	
loan_male	▪ Percentage of respondents who report borrowing any money from a financial institution in the past 12 months (% male, age 15+)	
wages	▪ Percentage of respondents who report using their accounts at a formal financial institution to receive payments for work or from selling goods in the past 12 months (% age 15+)	
wages_female	▪ Percentage of respondents who report using their accounts at a formal financial institution to receive payments for work or from selling goods in the past 12 months (% female, age 15+)	
wages_male	▪ Percentage of respondents who report using their accounts at a formal financial institution to receive payments for work or from selling goods in the past 12 months (% male, age 15+)	

Appendix 2

List of Countries

AFGHANISTAN	GABON	NEPAL	UZBEKISTAN
ALBANIA	GERMANY	NETHERLANDS	VENEZUELA
ALGERIA	GHANA	NEW ZEALAND	VIETNAM
ANGOLA	GREECE	NICARAGUA	ZAMBIA
ARGENTINA	GUATEMALA	NIGER	ZIMBABWE
ARMENIA	GUINEA	NIGERIA	
AUSTRALIA	HAITI	PARAGUAY	
AUSTRIA	HONDURAS	PERU	
AZERBAIJAN	HONG KONG	PHILIPPINES	
BAHRAIN	HUNGARY	POLAND	
BANGLADESH	INDIA	PORTUGAL	
BELARUS	INDONESIA	QATAR	
BELGIUM	IRAN	ROMANIA	
BENIN	IRAQ	RUSSIAN FEDERATION	
BOLIVIA	IRELAND	RWANDA	
BOSNIA AND HERZEGOVINA	ISRAEL	SAUDI ARABIA	
BOTSWANA	ITALY	SENEGAL	
BRAZIL	JAMAICA	SERBIA	
BULGARIA	JAPAN	SIERRA LEONE	
BURKINA FASO	JORDAN	SINGAPORE	
BURUNDI	KAZAKHSTAN	SLOVAKIA	
CAMBODIA	KENYA	SLOVENIA	
CAMEROON	KOREA	SOUTH AFRICA	
CANADA	KOSOVO	SPAIN	
CENTRAL AFRICAN REPUBLIC	KUWAIT	SRI LANKA	
CHAD	KYRGYZSTAN	SUDAN	
CHILE	LAO PEOPLE'S DEMOCRATIC REPUBLIC	SWAZILAND	
CHINA	LATVIA	SWEDEN	
COLOMBIA	LEBANON	SYRIAN ARAB REPUBLIC	
CONGO	LESOTHO	TAIWAN	
COSTA RICA	LITHUANIA	TAJIKISTAN	
CROATIA	LUXEMBOURG	TANZANIA	
CYPRUS	MACEDONIA	THAILAND	
CZECH REPUBLIC	MADAGASCAR	TOGO	
CONGO, DEM. REPUBLIC	MALAWI	TRINIDAD AND TOBAGO	
DENMARK	MALAYSIA	TUNISIA	
DJIBOUTI	MALI	TURKEY	
DOMINICAN REPUBLIC	MALTA	TURKMENISTAN	
ECUADOR	MAURITIUS	UGANDA	
EGYPT	MEXICO	UKRAINE	
EL SALVADOR	MOLDOVA	UAE	
ESTONIA	MONTENEGRO	UNITED KINGDOM	
FINLAND	MOROCCO	URUGUAY	
FRANCE	MOZAMBIQUE	USA	

Appendix 3

Tests and Regressions Results

Results for the Breusch-Pagan Test

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Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: HHI SOB FOB fdepth CII LR fpart property

         chi2(8)      =   132.56
         Prob > chi2  =   0.0000
```

The Breusch-Pagan tests the null hypothesis that the error variances are all equal versus the alternative hypothesis stating that the error variances increase (or decrease) as the predicted values of Y increase. The large chi-square in our test, with a p value of 0.0000, indicates that we can very soundly reject the no hypothesis of no-heteroscedasticity.