

Financial Inclusion and Legal Discrimination Against Women

Evidence from Developing Countries

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Abstract

This paper documents and analyzes gender differences in the use of financial services using individual-level data from 98 developing countries. The data, drawn from the Global Financial Inclusion (Global Findex) database, highlight the existence of significant gender gaps in ownership of accounts and usage of savings and credit products. Even after controlling for a host of individual characteristics including income, education, employment status, rural residency and age, gender remains significantly related to usage of financial services. This study also finds that legal discrimination against women and gender norms may explain some of the cross-

country variation in access to finance for women. The analysis finds that in countries where women face legal restrictions in their ability to work, head a household, choose where to live, and receive inheritance, women are less likely to own an account, relative to men, as well as to save and borrow. The results also confirm that manifestations of gender norms, such as the level of violence against women and the incidence of early marriage for women, contribute to explaining the variation in the use of financial services between men and women, after controlling for other individual and country characteristics.

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Financial Inclusion and Legal Discrimination Against Women: Evidence from Developing Countries

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1. Introduction

Access to the formal financial system can increase asset ownership and serve as a catalyst to greater economic empowerment among women.¹ Even a basic financial tool such as a deposit account at a formal financial institution can be of great value. A formal account provides a safe place to save and creates a reliable payment connection with family members, an employer, or the government. It can also open up channels to formal credit critical to investing in education or in a business. Yet more than 1.3 billion women worldwide remain largely outside the formal financial system (Demirguc-Kunt and Klapper, 2013). Efforts to improve gender parity in the formal financial system have been hindered by the lack of systematic indicators on the use of different financial services—both formal and informal—in most economies.

This paper documents and analyzes gender differences in the use of financial services using the Global Financial Inclusion (Global Findex) database, which provides indicators measuring how people in 148 economies around the world save, borrow, make payments, and manage risk. These new indicators are constructed with survey data from interviews with more than 150,000 nationally representative and randomly selected adults. The data show a persistent gender gap in developing countries in the ownership of bank accounts and savings and borrowing behavior. Even after controlling for a host of individual characteristics including income, education, employment status, rural residency and age, gender remains significantly related to access to and use of financial services.

We also explore the degree to which country-level legal discrimination against women and cultural norms of gender equality are related to differences in account penetration and

¹ The lack of access to financial services is often a critical element underlying persistent income inequality, as well as slower economic growth. For additional discussion see, for example, Beck, Demirguc-Kunt and Levine (2007), Beck, Levine and Loayza (2000), Demirguc-Kunt and Levine (2009), Klapper, Laeven, and Rajan (2006) and World Bank (2008).

savings and credit behavior across countries. We use indicators of a women's legal ability to earn an income, as codified in laws and regulations, from the World Bank's Women, Business and the Law (WBL) database. We also use measures of gender norms from the OECD's Gender, Institutions and Development (GID) database. We find that women are significantly less likely to have an account, save, and borrow in countries with greater legal discrimination, even after controlling for other individual and country characteristics.

Previous literature on Women and Financial Inclusion

While the role of well-functioning financial systems in addressing income inequality and promoting economic growth is widely recognized, relatively little is known about the observed gender gap in access to finance or the specific barriers that limit access to finance for women relative to men. Our paper is related to a small but growing literature on the gender gap in access to financial services. Previous literature has highlighted the intrinsic value of equal access to finance for women and its potential as a tool for initiating a "virtuous spiral of social, economic, and political empowerment" (Cheston and Kuhn 2002). In addition, barriers that constrain women's access to finance, compared to men's, limit (by approximately half) the poverty reducing and growth promoting potential of finance and may prove costly in terms of foregone development and potential macroeconomic gains (Narain, 2009).

Differential treatment under law or customs may also constrain women to enter contracts under their own name, including the opening of a bank account (IFC, 2011 and World Bank, 2012). Gender norms also often influence women's access to the public realm and the level of autonomy that women enjoy in managing their own income stream. For example, restrictions on social mobility or interactions outside the home, especially across gender lines, may limit

women's access to finance. The influence of gender norms on intra-household dynamics such as access and control of income and expenditure may also play a role. As a result, women may exhibit – voluntarily or involuntarily – a lower demand for financial services than men (Johnson, 2004). Research in rural Paraguay shows that women are more knowledgeable about financial institutions and loan requirements when they control a larger share of family assets and when their husbands do not oppose them taking out loans (Fletschner and Mesbah, 2011).

While a growing literature examines household finance and especially households' borrowing and savings decisions,² systematic data on household and individual use of financial services remains limited. The absence of such data contributes to the scarcity of empirical literature investigating the link between access to finance and gender at the individual level. One exception is the paper by Aterido, Beck, and Iacovone (2011) that uses individual-level survey data from FinMark Trust (Finscope) for nine countries in Sub-Saharan Africa to examine the gender gap in financial services. They find that the lower use of formal financial services by women in nine Sub-Saharan Africa countries can be explained by gender differences in education and income levels, formal employment, and being the head of household. The evidence on a gender gap in the use of informal financial services is more mixed; the study finds that while in some countries women are more likely to use informal services, the reverse is true in other countries. One shortcoming of the FinMark data, however, is that surveys were carried out over a span of six years, 2004 to 2009, and may not be appropriate for cross-country comparisons.

Much of the literature on the gender gap in access to financial services has focused on access to credit in the context of financing entrepreneurial activities, rather than on household

² For a detailed literature review, see Beck, et al. (2008a) and references therein. Campbell (2006) also provides an overview of the household finance field.

and individual use of a broad range of financial services.³ Yet, even for policymakers and researchers interested in entrepreneurship, consumer finance should not be overlooked: many entrepreneurs depend on personal credit or collateral to finance the establishment and operation of new firms. Cross-country studies in this strand of the literature have shown that a formal institution is less likely to provide financing to female entrepreneurs or more likely to charge them a higher interest rate relative to male entrepreneurs (Muravyev, Schaefer, and Talavera, 2009; Demirguc-Kunt, Beck and Honohan, 2008).

However, evidence from Latin America suggests that there is no systematic difference in access to external finance between female-owned and male-owned firms (Bruhn, 2009). Similarly, evidence from high income countries including the United Kingdom, the United States, Canada, and New Zealand as well as certain developing countries such as Ecuador and Peru show that women applying for funding generally do not face arbitrarily higher denial rates than men. This result suggests that gender differences in the use of credit might be explained by differences in the demand for external financing (Buvinic and Berger, 1990; Aguilera-Alfred, Baydas and Meyer, 1994; Baydas, Meyer, and Aguilera-Alfred, 1994; Coleman, 2000 and 2002; Carter and Shaw, 2006).

In many developing countries (including Bangladesh, Malawi, India, Pakistan, Ethiopia, Kenya, Tanzania, Uganda, and Zambia), women entrepreneurs report facing greater and more systemic barriers to accessing formal financial services (Rose, 1992; Diagne, Zeller and Sharma, 2000; Goheer, 2003; Faisel, 2004; ILO/AfDB, 2004; Richardson, Howarth and Finnegan, 2004; GEM/IFC, 2005; Bardasi, Blackden and Guzman, 2007; Ellis et al., 2007a and 2007b; Demirguc-Kunt, Beck and Honohan, 2008; Narain, 2009). Though these studies do not find evidence of explicit legal discrimination against female borrowers, there is evidence that banks

³ See Klapper and Parker (2011) for a survey of the literature.

discriminate against women in their lending practices. For example, in Pakistan, banks require two male guarantors who are not family members, and will not permit woman guarantors; almost all women borrowers are required to have the permission of their husband to access a loan, even in group lending schemes; and unmarried women are generally not considered credit worthy (Safavian, 2012).

Women might face greater challenges than men in accessing formal finance due to several potential factors. On the one hand, female entrepreneurs might choose to enter less capital intensive industries that require less debt. They might also be less inclined to seek external financing because of their own perceptions that women might find it more difficult to secure bank loans (Coleman, 2000). Alternatively, female loan applicants, relative to male applicants, might constitute weaker loan applications. For instance, women face relatively greater difficulties in completing complicated loan applications (Buvinic and Berger, 1990). They also have lower financial literacy rates (Lusardi and Tufano, 2009), which may make it harder for them to navigate the loan market. A study using loan-level bank data also shows that women randomly assigned male loan officers (and visa versa) are less likely to return for a second loan, pay higher interest rates, and receive lower loan amounts (Beck, et al., 2013).

In addition, women have been found to possess weaker business backgrounds than men, including a lack of relevant education (especially technical) and a lack of business experience (Carter et al., 2003; Menzies, Diochon and Gasse, 2004). On average, women may find it more challenging to provide collateral (Buvinic and Berger, 1990) and personal guarantees (Coleman, 2002) and may have weaker credit histories (“reputational collateral”). These findings suggest that women, on average, might possess lower credit scores, which are important for modern lending technologies (Narain, 2009).

Differences in access to physical and reputational collateral for men and women are not accidental. They have to be understood in the context of the legal regulations and customary norms that shape the relationship between men and women and their relative access to resources. In this context, contract and property rights are of particular importance. These rights are often restricted for women and in turn affect the ability of lenders to collateralize assets and seize them in the case of default. In particular, women may not be deemed creditworthy because they do not possess the title to their land or house. Weak property rights or titles may be due to differential treatment under the law. Certain customs may also constrain women to enter contracts in their own name, control property, or receive an equal share of assets on divorce or in inheritance (Goheer, 2003; ILO/AfDB, 2004; GEM/IFC, 2005; Ellis et al., 2007b; Morrison, Raju and Sinha, 2007; Demirguc-Kunt, Beck and Honohan, 2008).

Differential treatment either under the law or customs extends beyond property rights. Other cultural norms that directly affect access to finance include requirements in many Middle Eastern and South Asian countries to have a husband or male family member co-sign a loan (Chamlou, 2008; Safavian, 2012). Laws might require married women to obtain their husband's signature and approval for all banking transactions. Husbands' adverse credit histories may also affect women as they might need to repay debt or could be denied future credit (Blanchard, Zhao, and Yinger 2005; Naidoo and Hilton 2006).⁴ Women may also find it more challenging to obtain national identification documents (often required for opening an account). Overall, restrictions on mobility or interactions outside the home and across gender lines may limit women's' access to finance (IFC, 2011).

⁴ Although men may also have to repay their wife's debt under the same circumstances, it is more likely that the husband has incurred previous debts.

The rest of the paper is organized as follows. Section 2 presents the Global Findex data and some descriptive statistics on the differential use of financial services by gender across income groups and regions across the globe. Section 3 describes the additional data used in the regression analysis, including our data on legal discrimination against women and gender norms. Section 4 discusses the regression methodology used in the paper and section 5 presents the results. Section 6 concludes.

2. Measuring Financial Inclusion

2.1 Global Findex Data

Our data on the use of financial services come from the 2011 Global Findex database.⁵ The Global Findex data was collected in conjunction with the annual Gallup World Poll Survey. The 2011 Gallup World Poll surveyed at least 1,000 individuals in 148 economies, using randomly selected, nationally representative samples.⁶ The target population is the entire civilian, non-institutionalized population, age 15 and older. In our descriptive analyses, we focus on 140 countries⁷ (see Appendix A for the list of countries in the sample).

The Global Findex dataset includes 41 indicators on the use of financial services around the world. In this paper, we focus on three main dimensions of financial inclusion: (1) ownership – individual or joint – of an account at a formal financial institution; (2) savings in the past 12 months; and (3) credit in the past 12 months. For savings and credit, we distinguish between cases when individuals save at or borrow from a formal financial institution (such as a bank) or if they use only informal means.

⁵ See Demirguc-Kunt and Klapper (2012) for a more description of the database.

⁶ The complete individual-level database, as well as detailed country-level information about the data collection dates, sample sizes, excluded populations and margins of error can be found at: www.worldbank.org/globalfindex.

⁷ We drop seven countries from our sample because more than 20% of the population is not sampled in these economies and we exclude Iran because of irregular surveying methods.

The Global Findex data is particularly well-suited to measure the gender gap in access to finance as the definition of account penetration includes only individual or joint accounts and not the use of someone else's account. The use of savings and credit refers to individual behavior as well. This is in contrast to other demand-side data on financial behavior that measure account penetration, savings behavior and credit use at the household level.⁸ In contrast, individual-level indicators allow us to directly measure women's control over their assets, an important component of economic empowerment.

2.2 *Descriptive Statistics*

We start our analysis by documenting ownership and use of financial services around the world by gender. In particular, we provide descriptive statistics on three key dimensions of financial services: account ownership (and barriers to account ownership), savings and credit. All reported country, regional, and income-group statistics are weighted using individual weights provided by Gallup⁹ and by country-level adult population.

2.2.1 Accounts

According to the Global Findex data approximately half of adults worldwide report having an account at a bank, credit union, cooperative, post office or microfinance institution (MFI). Not surprisingly, there is enormous variation in the use of financial services between high income and developing economies: account penetration is close to universal (90 percent) in high-

⁸ For instance, the European Bank for Reconstruction and Development (EBRD) *Life in Transition Survey (LITS)* includes the question: "Do you or anyone in your household own: A Bank Account."

⁹ All country-level averages use individual weights that are provided by Gallup to ensure a nationally representative sample. First, base sampling weights are constructed to account for oversamples and household size. Second, post-stratification population statistics are used to weight the data by gender, age, and, where reliable data are available, education or socioeconomic status.

income countries while only 43 percent of adults in developing countries report having an account at a formal financial institution. We also observe a significant gender gap: in both high income and developing countries a higher fraction of men, compared to women, report having an account. Although the gender gap is universal, it is more pronounced in developing countries. The gap is almost twice as wide (9 percentage points) in low and middle income economies as in high income countries (5 percentage points) (Figure 1). Regionally, the gender gap is largest in South Asia where 41 percent of men report having an account compared to only 25 percent of women. In Sub-Saharan Africa, the gap is relatively small: 27 percent of men and 22 percent of women report that they have an account.¹⁰ The gender gap is statistically significant in all regions except East Asia and the Pacific, even after controlling for education, age, income, and country-level characteristics.

The gender gap in account penetration persists across relative income groups within countries as well. In developing countries, there is a persistent 6-9 percentage point gap in account penetration across within-country income quintiles, including among the richest income quintile (Figure 2). In high-income countries, the gender gap exceeds 4 percentage points only for women in the poorest income quintile.

2.2.2. Barriers to Access

Why do fewer women than men have a formal account? By far the most frequently self-reported reason for not having an account is the lack of enough money to use one (Figure 3). Two-thirds of both men and women cite this as a reason for why they do not have an account. Multiple responses were permitted (men and women give on average 1.7 reasons each) but even

¹⁰ Aterido, Beck, and Iacovone (2011) find no evidence in Sub-Saharan Africa of discrimination or lower inherent demand for financial services by women when key individual characteristics are taken into account.

if we only consider those men and women that cite lack of enough money as the only reason, it remains the most commonly cited reason with 30 percent for both men and women. Indeed, except for one key barrier, men and women mostly cite similar reasons for why they do not have an account.¹¹

Women are more likely to cite not having an account “because someone else in the family already has an account.” Globally, 26 percent of women report this as the reason they do not own an account compared to only 20 percent of men. Among women it is the second most frequently cited reason women cite as a barrier to access. For men, on the other hand, this reason comes in fourth, after “too expensive” and “too far away.”

What does this mean for gender differences in financial inclusion? In terms of access, this might be somewhat good news: when we relax the definition of account ownership to include indirect access through a family member, the observed gender gap in account ownership actually closes by six percentage points, from 9 to 3 percentage points (Figure 4). Yet, the fact that relatively more women compared to men indicate that one of the reasons they do not have an account is because a family member already has one could also be interpreted as another manifestation of the gender gap in economic empowerment. For instance, a nascent literature suggests that, in order to realize the gains from financial inclusion, it is not merely enough for women to “access” to an account, but they also need to “own” their accounts. Field experiments find that providing access to personal savings instruments increases female empowerment (Ashraf et al., 2010) and consumption and productive investment of female entrepreneurs (Dupas and Robinson, 2009).

¹¹ Of those with no accounts, 11 percent of both men and women chose none of the responses for not having an account.

2.2.3. Savings

Adults universally save to cover future expenses – education, a wedding, or a big purchase – or to insure for possible emergencies or a time when they are not working. Globally, 36 percent of adults – 38 percent of men and 34 percent of women – report having saved or set aside money during the past 12 months. Interestingly, the gender gap in savings is larger in high income countries at 7 percentage points (62 percent of men save compared to 55 percent of women) than is the 4 percentage point that exists in developing countries (33 percent of men save as compared to 29 percent of women). Overall, however, adults in high-income countries are almost twice as likely to save compared to adults in developing countries.

Adults across the world save using different methods. Individuals may save using an account at a formal financial institution. Others, including those who have a formal account, may use alternative methods of saving such as community savings clubs or saving under the mattress. As for savings behavior in general, there are often gender differences in the modes of saving. A higher fraction of men, compared to women, saved or set aside money by using an account at a bank, credit union, or microfinance institution in the past 12 months in all regions of the world except for East Asia Pacific and Europe and Central Asia (Figure 5 Panel A). A similar pattern holds for savings using methods other than a formal account: except for East Asia and the Pacific and Europe and Central Asia, we observe a gender gap in all other regions. However, the gender gap is markedly smaller, ranging from 1 to 4 percentage points (Figure 5 Panel B).

2.2.4 Credit

Most people borrow money time to time, for a house, school fees, a health emergency, or to pay for a wedding. They may turn for credit to a formal financial institution, like a bank or MFI, or to a family member or informal lender. Globally, 34 percent of adults report having

borrowed money in the past 12 months. Globally, 36 percent of men and 32 percent of women borrowed in the past year – from sources including formal financial institutions (bank, credit union or microfinance institution), store credit, family or friends, an employer, or an informal lender. The gender gap of 4 percentage points in borrowing remains consistent across high income and developing countries. In developing countries, a slightly larger percentage of adults report having borrowed money in the past year (37 percent vs. 32 percent in developing countries). In high-income countries, 33 percent of men reported borrowing as compared to 29 percent of women. The relatively low share of adults with loans in high income countries might be explained by the widespread ownership of credit cards (40 percent vs. only 7 percent in developing countries) that give adults access to short-term loans as needed.

Not surprisingly, the highest fraction of adults (14 percent) with formal loans can be found in high income countries (Figure 6 Panel A). In East Asia Pacific, Europe and Central Asia, Latin America and Caribbean, and South Asia, between 8 and 9 percent of the population reports having loans from formal financial institutions. The gender gap in the use of formal credit is most pronounced in high income economies at 4 percentage points. In the developing world, the gender gap with respect to formal credit is only around 1 percentage point or insignificant. However, in developing countries, the overwhelming number of loans originates from informal sources and the gender gap for those loans ranges between 3 and 4 percentage points (Figure 6 Panel B).

3. Explanatory Variables

To shed light on the factors associated with gender differences in the access to and use of financial services, our empirical analysis combines individual-level data on the use of financial

services from the Global Findex database with individual-level demographic characteristics from the Gallup World Poll. We also utilize country-level indicators on laws and gender norms that may discourage or hinder women's use of financial services. Because the later country-level variables show no variation across high income economies, we focus our regression analysis on a sample of up to 98 developing countries.

3.1 Individual-level Characteristics

We control for several individual characteristics in our regressions, including dummy variables for gender, income quintiles, completed level of education, rural or urban residence, marital status, being head of household, and employment status. We also include a continuous variable for age and its squared term, and the household dependency ratio (children under age 15 as a fraction of total household size). Table 1 shows univariate summary statistics for all individual characteristics (disaggregated by gender) for the sample of developing countries used in our regression analysis. As in the descriptive statistics discussed above, we find that women are less likely to be financially included: they are less likely to have an account, exhibit lower rates of informal and formal savings and informal and formal credit. We also find that women are more likely to be poor, possess lower levels of education, head a single adult household, be divorced, separated, or widowed and out of the workforce. At the same time, women are less likely to be self-employed, formal business owners or employed by an employer. T-tests indicate that these differences between men and women are statistically significant at the 1 percent confidence level.

3.2 *Legal Discrimination and Gender Norms*

We use indicators on legal discrimination against women and manifestations of gender norms from two key sources. First, we use data from the World Bank's Women, Business and the Law (WBL) database that constructs a number of variables with regard to laws governing a women's ability to earn an income, either as an employee or entrepreneur.¹² WBL variables are based on codified law and regulations, not the implementation or practice of that law. Therefore, these indicators do not take into account customary law, unless that customary law has been codified. Exceptions to this rule are common law or religious codes where decisions of such common or religious courts or schools of jurisprudence have legal standing equivalent to that of codified law.

We consider those legal indicators that might affect women's demand for financial services, as compared to men's, such as women's access to institutions and ability to own, manage, control, and inherit property. In particular, we consider the ability of women: (i) to work, (ii) to head a household, (iii) to choose where to live, and (iv) to inherit property, as well as (v) requirement by law of wives to obey their husbands.¹³ While it is not a gender norm per se, we also include a dummy variable that indicates whether separation is the default marital property regime (as opposed to a variant of community) as it affects the assets that a women has control over if they are married. Variables are coded such that the dummy variables take the value of one if the answer is yes; a dummy variable in general equals one if there exists (legal) equality between the genders, except for the variable capturing whether women are required by

¹² For details on methodology of the World Bank's WBL database see <http://wbl.worldbank.org/methodology>

¹³ Many variables in the World Bank's WBL database are available for both unmarried women (compared to unmarried men) and married women (compared to married men). If both are available, we consider the situation of married women.

law to obey their husbands. The overlap between the Global Findex and Gallup data and the WBL database is for up to 90 developing countries.

Second, we use data from the OECD Gender, Institutions and Development (GID) database to test whether certain manifestations of gender norms affect the use of financial services. GID indicators attempt to measure the actual situation of women.¹⁴ We use the following two continuous variables measuring (i) the prevalence of early marriage and (ii) violence against women.¹⁵ These variables range from zero to one, with higher values indicating higher prevalence, that is, a more restrictive environment for women. OECD GID data are available for 104 mostly developing countries; the database does not cover high income countries or countries in Eastern Europe. The overlap between the Global Findex and Gallup data and the OECD GID database is up to 86 developing countries.

Table 2 presents summary statistics of these variables. In general, men and women are treated equally by the law in about 80 percent of the countries in our sample for any one of the questions we consider, with the exception that in 11 percent of countries, women are required by law to obey their husbands. The default marital property regime is separation in 35 percent of countries. On average, 21 percent of women enter into an early marriage, and the violence against women variable falls slightly to the right (56 percent) of the midpoint of the no violence to violence spectrum. Appendix B provides more detailed variable descriptions and sources.

4. Empirical Methodology

We next turn to multivariate regression analysis to explore whether gender differences in the use of financial services shown in summary statistics are robust after controlling for

¹⁴ For details on methodology of OECD GID-DB see http://genderindex.org/sites/default/files/GID_variables.pdf.

¹⁵ The OECD GID database contains a total of 12 indicators. However, the other variables show little if any variation across countries and are therefore not considered.

individual and country characteristics. We also include variables that capture countrywide legal discrimination against women to explore to what extent they may play an explanatory role. Our estimations focus on three dimensions of financial inclusion, whether an individual reports: (1) owning a bank account; (2) saving in the past 12 months; and (3) borrowing in the past 12 months.

We start by estimating the following model:

$$y_{ij} = \beta x'_i + \gamma z'_j + \varepsilon_{ij} \quad (1)$$

where y is defined as one of the three dimensions of financial inclusion – owning a bank account, savings, or borrowing – for individual i in country j . Next, x is defined as a vector of individual-level characteristics, z as a vector of country fixed effects, and ε as a normally distributed error term. Among the individual-level characteristics we include are dummy variables for gender, within country income quintiles, completed level of education, rural (versus urban) residence, marital status, being sole adult in the household, and employment status, and continuous variables for age, its squared term, and the household dependency ratio (children under age 15 as fraction of total household size).

We use a probit model to estimate regressions where the dependent variable is account ownership, a binary variable. However, savings and credit are not simply a binary choice—individuals can choose from an array of products, which we classify as formal (with a regulated financial institution, such as a bank, MFI, rural cooperative, etc.) versus informal (such as saving with a community savings group or under the mattress, or borrowing from family and friends). We classify a choice between three outcomes: (i) none; (ii) formal savings or credit; and (iii)

informal only savings or credit,¹⁶ which we estimate using a multinomial logit model. As a robustness check we also estimate ordered logit models for savings and credit with the (sequential) ordering: none, informal only, and formal savings or credit. All regressions account for stratification and clustering in the survey design.

Second, we estimate a model using aggregated country-level data separately for men and women:

$$y_j = \gamma \log \text{GDP Per Capita}_j + \zeta \text{Gender Norm}_j + \varepsilon_j \quad (2)$$

where y is defined as a measure of financial inclusion, aggregated on the country-level by gender. All models include log GDP per capita to control for economic development. In addition, we include one measure of legal discrimination against women or manifestation of a gender norm,¹⁷ and ε as a normally distributed error term. We use ordinary least squares (OLS) to estimate separately account ownership, formal savings, informal savings, formal credit, and informal credit.

Third, we estimate the following model using individual-level data:

$$y_{ij} = \beta x'_i + \gamma z'_j + \zeta \text{Gender Norm}_j \times \text{Female}_i + \varepsilon_{ij} \quad (3)$$

where y is defined as one of the three dimensions of financial inclusion – owning a bank account, savings, or credit – for individual i in country j , x is defined as a vector of individual-level characteristics, z as a vector of country fixed effects, and ε as a normally distributed error term. We also include the interaction term between the (dummy) variable female and one variable identifying legal discrimination against women or a manifestation of gender norms.

¹⁶ We identify individuals that use both informal and formal credit (or savings) as using formal credit (or savings).

¹⁷ Complete definitions are provided in Appendix B.

To estimate these individual level regressions with just country fixed effects, we use a probit model where the dependent variable is account ownership, a binary variable, and a multinomial logit model to estimate the choice between formal and informal savings and credit. As a robustness check we also estimate ordered logit models for savings and credit with the (sequential) ordering: none, informal only, and formal savings or credit. All regressions account for stratification and clustering in the survey design.

5. Regression Results

5.1 Financial Inclusion and Individual Characteristics

Table 3 reports the results of regressing individual characteristics on our three financial inclusion indicators – account ownership, savings and credit – while controlling for country fixed effects. All models use our sample of up to 98 developing countries listed in Appendix 1. With regard to account ownership, the results confirm our earlier univariate analysis and show that women in developing countries are less likely to have an account than men, even after controlling for a host of individual characteristics. Gender affects account ownership also indirectly through gender differences in income, education, and employment status which we documented earlier in Table 1.¹⁸

Next we consider the impact of individual characteristics on savings and credit. Because we estimate a multinomial logit model for these dependent variables, the interpretation of the coefficients differs from the ones reported in the account column where we used a probit model. Here, the coefficients represent log-odds ratios; that is, they show how the log of the odds of a certain outcome (informal or formal) compared to the omitted base category outcome (none)

¹⁸ See Allen et al. (2013) for a detailed discussion on how individual characteristics influence measures of financial inclusion.

changes in response to individual characteristics. In the ordered logit regressions we also estimate savings and credit behavior, but here the coefficient estimates indicate the expected change in the ordered log-odds scale. The coefficients therefore indicate the significance and direction of the effects with positive coefficient estimates corresponding to an increased probability of higher valued responses; exponentiating the coefficients yields the proportional odds-ratios.

In the multinomial estimates we observe that the log-odds ratios of saving formally, compared to not saving at all, is significantly decreased for women, whereas saving only informally, compared to not saving at all, is not affected by gender. This is despite the fact that we also observe significant differences in informal savings by gender in the univariate setting. The absence of a significant relationship may be explained by gender differences in income, education and employment status which we documented earlier in Table 1. Our results suggest, first, that log-odds of saving using an account at a bank or other financial institution, as compared to not saving, are lower for women. This may be driven, in part, by the lower percentage of woman that have a bank account (a precondition to using an account to save), as well as the possibilities that women might have less ownership of assets, less money left over at the end of the month, less access to formal institutions (or greater difficulty traveling to access a financial institution), or less interest in formally saving (that could also be linked to lower financial capability).¹⁹ Second, our results show that the log-odds of saving informally, compared to not saving at all, are not affected by gender, suggesting that the gender gap in formal savings may be related to issues other than women's lower savings rates overall. Importantly, the Findex database does not collect the amount of personal savings. For instance, if

¹⁹ Previous literature studying adults in the United States have documented lower financial literacy among women (see Lusardi and Mitchell, 2008).

women save a smaller amount than men, the fixed costs of opening and maintain an account would be relatively more costly, which might discourage formal savings.

In respect to credit, we observe in the multinomial regressions that gender has no statistically significant impact on the log-odds ratio of using formal credit, as compared to not using any credit. This is again despite the fact that we observe significant differences in both formal and informal only credit by gender in the univariate setting. However, individual-level regression results may reflect the low rates of formal savings in developing countries and the fact that access to formal credit is generally restricted to wealthier individuals (Allen, et al., 2013). However, gender does have a significantly negative impact on the log-odds ratio of using only informal credit, compared to using no credit. In other words, women are relatively less likely to use informal credit in developing countries, where informal sources of credit, such as family and friends, are the most common sources of credit.

The results from the ordered logit models for savings and credit are largely consistent with the results from the multinomial regressions. However, by imposing a uniform relationship between the independent variables and each of the three categories of savings and credit (none, informal only and formal) some of the nuanced findings from the multinomial logit regressions necessarily disappear. For example, the gender variable is not significant in the ordered logit results for savings. However, even after restricting the relationship, we find that women are less likely to use credit.

5.2 *Financial Inclusion and Legal Discrimination and Gender Norms*

In this section we examine the relationship between specific laws and norms related to gender equality and financial inclusion. We begin by testing on the country-level whether laws

discriminating against women and gender norms can explain differences in account ownership and savings and credit behavior. Next, we examine on the individual-level whether these laws matter more for women, relative to men.

5.2.1 Country-Level Regressions

To examine whether laws and gender norms can explain some of the variation in financial inclusion across countries, we calculate for each country gender disaggregated country-level averages of account penetration, as well as formal and informal savings and credit rates. Next, we estimate financial inclusion using log GDP per capita (to control for variation in economic development) plus a measure of legal discrimination against women or a manifestation of a gender norm. The results are presented in Table 4. In the interest of space we only report the coefficient estimates for the gender norm variables, i.e. each cell represents a separate regression.

In countries where married women are prohibited from working (row 1), women are less likely to have formal accounts, savings, or credit. Part of the explanation for this finding might be mechanical—since employees (both private and government) often open accounts for employees to receive electronic payments. In addition, working women may have more money left over to put aside for savings, as well as the ability to use their wages for payday and other formal lending. We find similar results for countries where married women can be the head of their household (row 2), i.e. in countries where women can hold household assets, women are more likely to use formal financial products. Similar results are also found in countries where married women can choose where to live (row 3) and where women are not required by law to obey their husbands (row 4)—both measures of women’s economic independence. Equal

inheritance (rows 5 and 6) is related to a higher likelihood of having an account and formal credit—but not formal savings.²⁰

The default marital property regime (row 7) is only significantly related to a smaller fraction of women using formal credit. Since formal credit typically requires collateral and to the degree that women may have relatively fewer assets under their own name that qualify as collateral such as land or real estate, lower formal credit rates for women under this marital property regime are in line with our expectations.

Next we examine the relationship with gender norms. We find no relationship between the fraction of women who are married between ages 15-19 and rates of financial access (row 8). In countries with higher incidence of violence against women (row 9) a smaller fraction of women have an account, formal savings and formal credit. Overall, these regressions portray that women are more likely to be excluded from the formal financial sector in countries with laws and norms that discriminate against women.

It is important to note that some of our gender norm variables enter significantly in the regressions comparing financial inclusion rates for men, although the coefficient estimates are generally smaller than those for women. While it is not obvious that men would be directly affected by legal discriminating against women, those gender norms may be symptomatic for more general weaknesses in the business environment that we are unable to control for in our regressions. It might also be the case, as discussed in previous literature, that restrictions regarding work and asset ownership on half the population can repress economic and financial development for all citizens. In the next section we use individual-level data to control for income and demographic information to test more directly the heterogeneous effects of gender norms between men and women.

²⁰ Female spouses having equal rights to property is related to significantly lower use of informal credit.

5.2.2 Individual-Level Regressions

Table 5 reports our results of including, one at a time, the interaction term between the variable female and each measure of legal discrimination and gender norm variables. These models test whether these country-level indicators are significantly related to financial inclusion measures for women, after controlling for individual characteristics and country fixed effects. In the interest of space we once again only report the coefficient estimates on the gender norm variables; the coefficient estimates of the unreported variables are comparable to the ones reported in Table 3.

The results for all measures of legal discrimination and manifestations of gender norms suggest that women are more likely to have an account in countries with supportive legal frameworks and attitudes towards women. All interaction terms are significant, even after controlling for individual characteristics and country fixed effects. For example, in countries where women can work or pursue a profession in the same way as men, account ownership is higher. Similarly, countries that do not discriminate against daughters and wives in regard to inheritance have higher account penetration. In countries where the default marital property regime is separation, women are less likely to have accounts, perhaps because asset separation is used as a way to prevent women access to the husband's account. And account penetration is lower in countries where more women marry between ages 15 and 19 and violence against women is higher.

As in the country-level results reported in Table 4, the evidence of the impact of legal discrimination against women on savings and the use of credit by women is more limited. However, the log-odds ratio of formal savings (compared to no savings) increases when women enjoy the same rights as men in regard to working, being head of household and choosing where

to live. With regard to credit we find that in countries where married women are prohibited from acting as head of household and are required by law to obey their husbands, the log-odds ratio of using informal credit is higher. A surprising result is that while separation of marital property decreases the likelihood of a woman having an account, it increases the log-odds ratio that a woman has formal credit. (This result is contrary to the negative coefficient estimate in the country-level regressions for women.) We speculate that, on average, women have fewer assets than men in a separate marital property regime, which puts women at a relative disadvantage in securing collateral for a formal loan. However, once we control for income and other individual characteristics, women in countries with separation of marital property as default regime may be in a stronger position to pledge assets they own as collateral. The ordered logit results find a significantly positive relationship between countries that require married women to obey their husbands and the use of credit, though this finding is likely dominated by the higher use of informal credit (i.e. the use of formal credit is very low in countries with this law). In addition, the ordered logit results show that credit is higher in countries that separate marital property, consistent with earlier results.

Our results in Table 5 also indicate that in countries where a larger percentage of women marry between 15 and 19 years of age, women are less likely to have an account and a smaller log-odds ratio of formal savings or informal credit. In countries with more violence against women, women are less likely to have an account, and a lower log-odds ratio of having formal or informal savings, or formal credit. The ordered logit estimations support the finding that more teenage marriages and greater violence against women reduces the likelihood of savings.

6. Conclusion

This paper documents the degree to which women in developing countries are excluded from the formal financial system and gender difference in the use of formal and informal financial services. We use individual-level data from the Global Financial Inclusion Indicators (Global Findex) database to show that there exists a persistent gender gap, and that even after controlling for a host of individual characteristics including income, education, employment status and age, gender remains significantly related to the use of financial services. Moreover, the results show that gender is related to measures of financial inclusion not only directly but also indirectly, through gender differences in income, education, and employment status.

We also explore the degree to which economy-wide legal discrimination against women and gender norms can help explain this gender gap. As a result of differential treatment under the law or by custom, women may have less ability than men to own, manage, control, or inherit assets and property, which in turn might affect women's access to and demand for financial services. Using data from the World Bank's Women, Business and the Law database, our analysis shows that in countries where women face legal discrimination in the ability to work, head a household, choose where to live, or inherit property or are required by law to obey their husband, women are less likely than men to own an account and to save and borrow. We also consider gender norms as quantified by the Organisation for Economic Co-operation and Development's Gender, Institutions and Development Database, such as the level of violence against women and the incidence of early marriage for women. The results confirm that gender norms are also significantly related to women's use of financial services.

The relatively low use of financial products by women may increase their vulnerability to income shocks and reduce their ability to invest, save, and plan for the future. Improving

women's access to finance may require more equitable treatment under the law, as well as changes to product designs and easier access to financial service providers. More research is needed to better understand the channels that reduce women's access to financial services and identify new products, processes, and technology that can expand financial inclusion of women.

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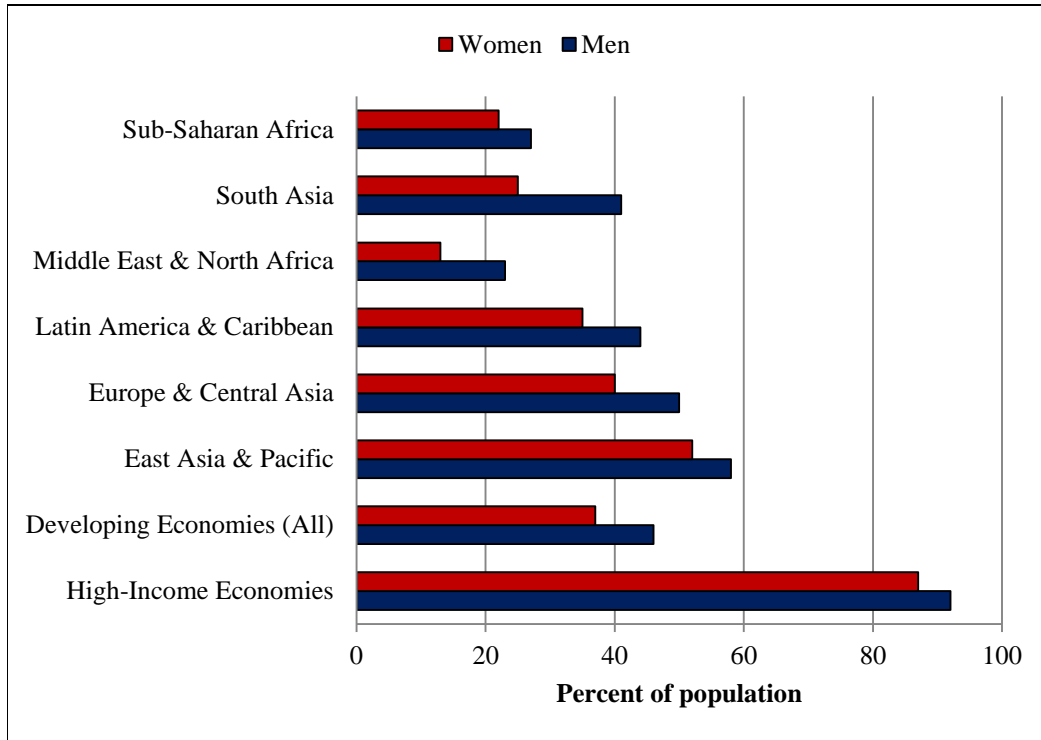
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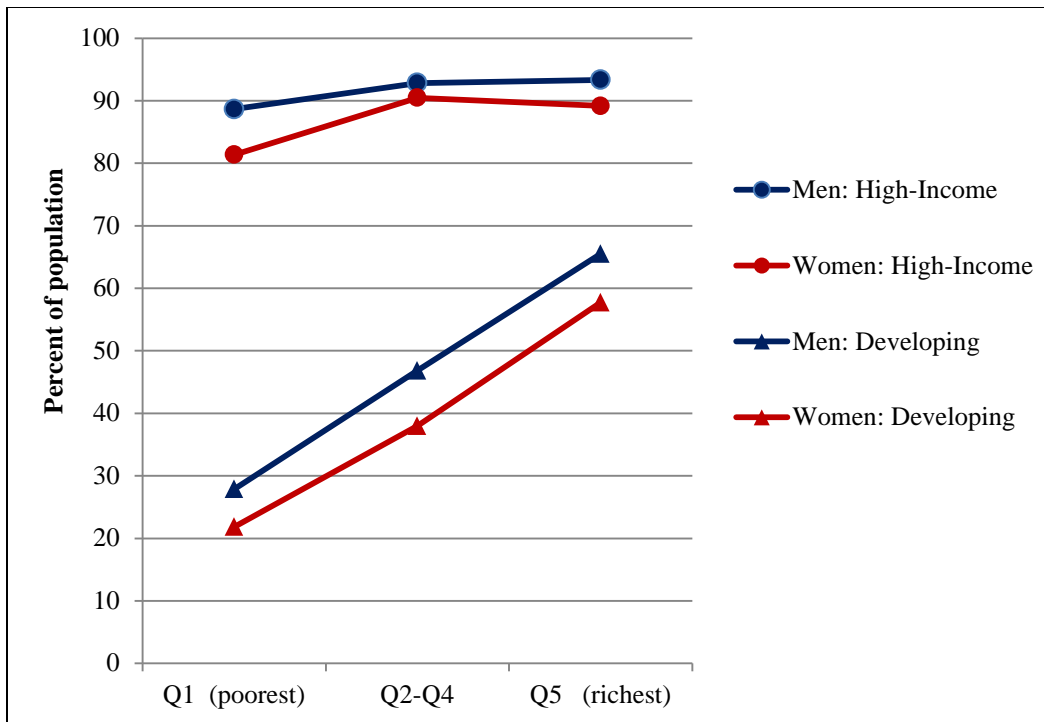
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Figure 1: Account ownership, by gender



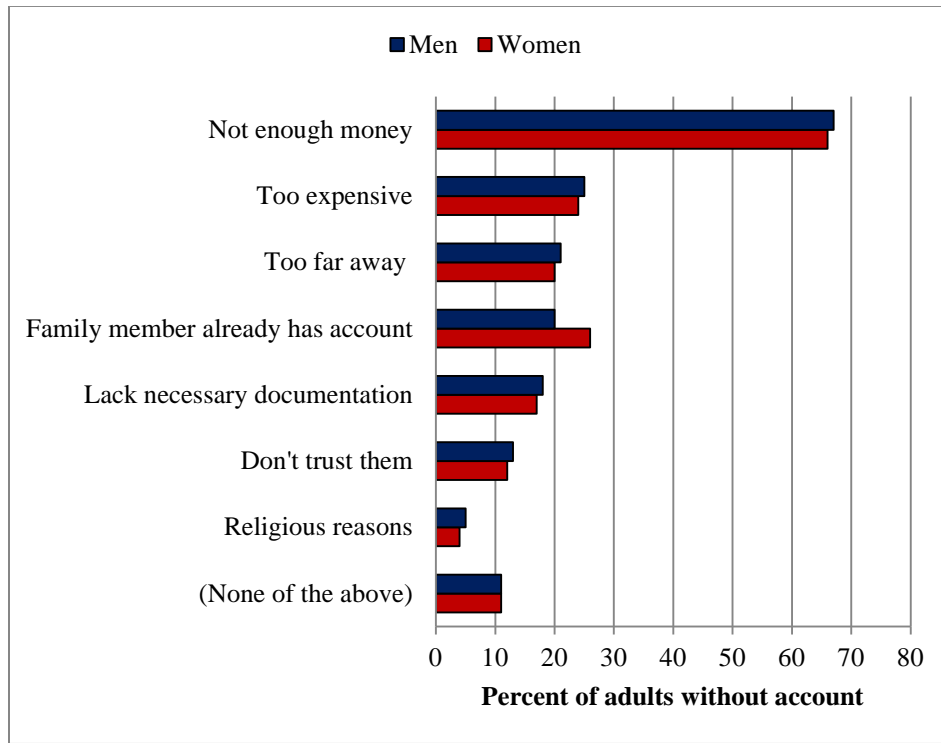
Source: Demirguc-Kunt and Klapper, 2013.

Figure 2: Account ownership, by gender and income



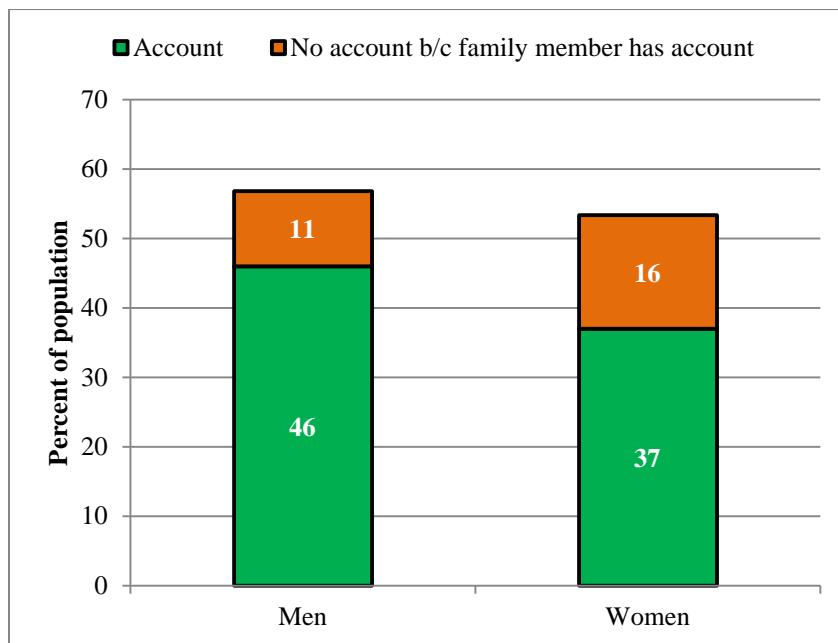
Source: Demirguc-Kunt and Klapper, 2013.

Figure 3: Barriers to account ownership in developing countries, by gender
Multiple responses allowed



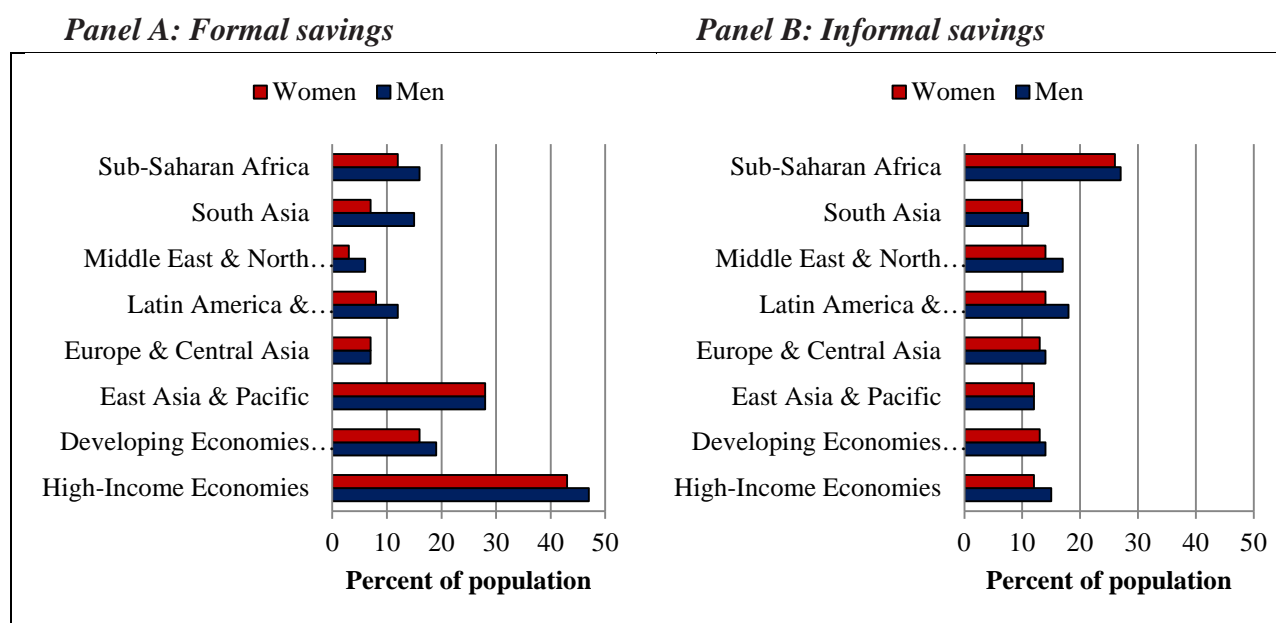
Source: Demirguc-Kunt and Klapper, 2013.

Figure 4: Indirect account usage in developing countries, by gender



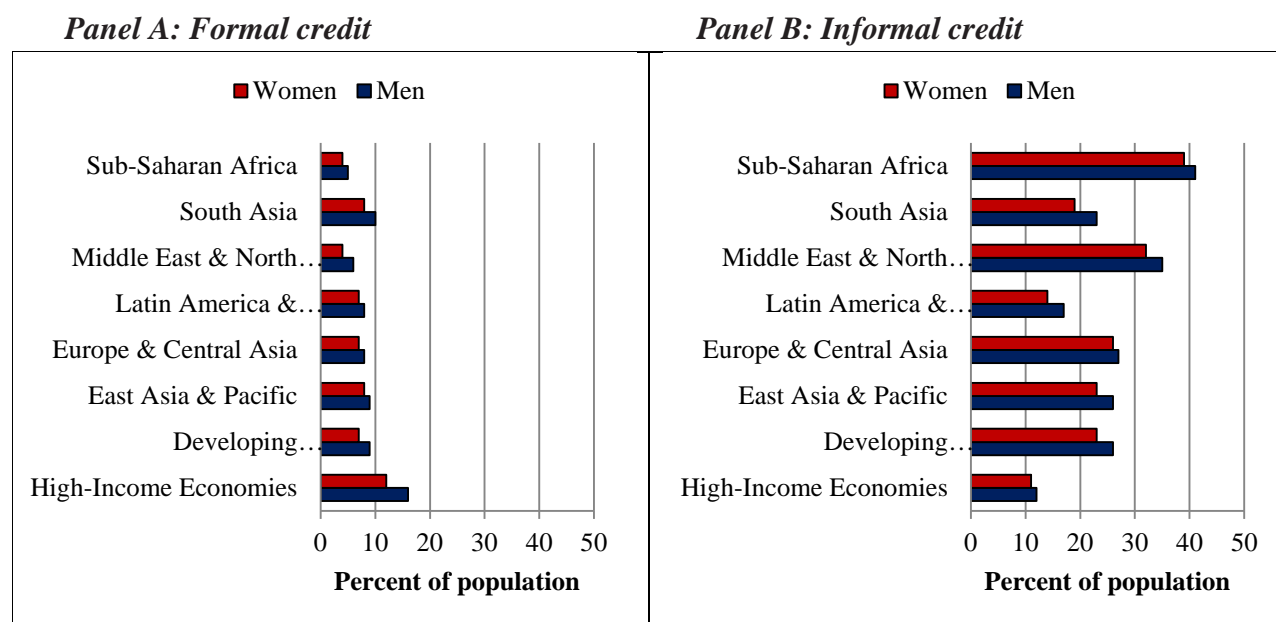
Source: Demirguc-Kunt and Klapper, 2013.

Figure 5: Put aside money in the past year, by gender



Source: Demirguc-Kunt and Klapper, 2013.

Figure 6: Borrowed in the past year, by gender



Source: Demirguc-Kunt and Klapper, 2013.

Table 1: Summary Statistics of Individual Characteristics by Gender

Variable	Developing Countries			
	Total Obs	Male	Female	T-Test
Account (0/1)	99826	0.3447	0.2893	***
Savings - None (0/1)	99826	0.6922	0.7348	***
Savings - Formal (0/1)	99826	0.1251	0.0986	***
Savings - Informal only (0/1)	99826	0.1827	0.1666	***
Credit - None (0/1)	99826	0.6031	0.6429	***
Credit - Formal (0/1)	99826	0.0909	0.0804	***
Credit - Informal only (0/1)	99826	0.3060	0.2767	***
Income: poorest 20% (0/1)	99826	0.2034	0.2313	***
Income: second 20% (0/1)	99826	0.2033	0.2145	***
Income: middle 20% (0/1)	99826	0.1978	0.1940	
Income: fourth 20% (0/1)	99826	0.2029	0.1926	***
Income: richest 20% (0/1)	99826	0.1926	0.1677	***
Age	99826	37.1362	36.9962	
Rural (0/1)	99826	0.6586	0.6433	***
Education: 0 - 8 years (0/1)	99826	0.4756	0.5308	***
Education: 9 - 15 years (0/1)	99826	0.4452	0.3962	***
Education: > 15 years (0/1)	99826	0.0792	0.0730	***
One adult in HH (0/1)	99826	0.0400	0.0502	***
% HH under age of 15	99826	0.2228	0.2470	***
Marital Status: Married (0/1)	99826	0.5210	0.5287	**
Marital Status: Divorced/Separated (0/1)	99826	0.0295	0.0505	***
Marital Status: Widowed (0/1)	99826	0.0258	0.0912	***
Employment: Formal business owner (0/1)	99826	0.0615	0.0366	***
Employment: Entrepreneur, excl. formal business owner (0/1)	99826	0.3039	0.2257	***
Employment: Unemployed (0/1)	99826	0.0855	0.0806	**
Employment: Out of workforce (0/1)	99826	0.2706	0.4895	***
Employment: Employed for employer (0/1)	99826	0.2785	0.1677	***

Table 2: Summary Statistics of Legal Discrimination and Gender Norm Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Panel A: WBL Variables</i>					
Can a married woman get a job or pursue a trade or profession in the same way as a married man? (Dummy = 1 if yes)	90	0.8667	0.3418	0	1
Can a married woman be “head of household” or “head of family” in the same way as a married man? (Dummy = 1 if yes)	87	0.7586	0.4304	0	1
Can a married woman choose where to live in the same way as a married man? (Dummy = 1 if yes)	90	0.8000	0.4022	0	1
Are married women required by law to obey their husbands? (Dummy = 1 if yes)	90	0.1111	0.3160	0	1
Do sons and daughters have equal inheritance rights to immovable property from their parents? (Dummy = 1 if yes)	89	0.7978	0.4040	0	1
Do female and male surviving spouses have equal inheritance rights to immovable property? (Dummy = 1 if yes)	88	0.7955	0.4057	0	1
Separation is default marital property regime (Dummy = 1 if yes)	89	0.3483	0.4791	0	1
<i>Panel B: GID Variables</i>					
% of women married between 15-19	83	0.2127	0.1493	0.01	0.74
Violence against women (Fraction in 0.08 steps, the higher the value the more violence)	86	0.5573	0.2376	0.08	1

Table 3: Individual-level regressions with Country FE, Developing Countries

	Probit	Mlogit						Ologit	
	Account	Savings (Base Category: None)			Credit (Base Category: None)			Savings	Credit
		Formal	Informal only	P-value diff	Formal	Informal only	P-value diff	0 none, 1 informal only, 2 formal	0 none, 1 informal only, 2 formal
Female (0/1)	-0.066*** (0.000)	-0.057* (0.052)	-0.001 (0.973)	*	-0.016 (0.625)	-0.115*** (0.000)	***	-0.025 (0.204)	-0.072*** (0.000)
Income: poorest 20% (0/1)	-0.681*** (0.000)	-1.473*** (0.000)	-0.789*** (0.000)	***	-0.400*** (0.000)	0.123*** (0.001)	***	-1.078*** (0.000)	-0.067** (0.034)
Income: second 20% (0/1)	-0.506*** (0.000)	-1.086*** (0.000)	-0.532*** (0.000)	***	-0.367*** (0.000)	0.092*** (0.008)	***	-0.792*** (0.000)	-0.087*** (0.004)
Income: middle 20% (0/1)	-0.375*** (0.000)	-0.789*** (0.000)	-0.382*** (0.000)	***	-0.272*** (0.000)	0.026 (0.435)	***	-0.588*** (0.000)	-0.099*** (0.001)
Income: fourth 20% (0/1)	-0.233*** (0.000)	-0.464*** (0.000)	-0.187*** (0.000)	***	-0.165*** (0.000)	0.019 (0.554)	***	-0.339*** (0.000)	-0.063** (0.026)
Age	0.032*** (0.000)	0.035*** (0.000)	-0.006 (0.116)	***	0.099*** (0.000)	0.037*** (0.000)	***	0.010*** (0.004)	0.052*** (0.000)
Age squared	-0.000*** (0.000)	-0.000*** (0.000)	0.000 (0.321)	***	-0.001*** (0.000)	-0.001*** (0.000)	***	-0.000*** (0.004)	-0.001*** (0.000)
Rural (0/1)	-0.170*** (0.000)	-0.205*** (0.000)	-0.017 (0.580)	***	0.067 (0.138)	-0.076*** (0.009)	***	-0.114*** (0.000)	-0.022 (0.416)
Education: 0 - 8 years (0/1)	-1.010*** (0.000)	-1.428*** (0.000)	-0.404*** (0.000)	***	-0.530*** (0.000)	0.144*** (0.000)	***	-0.941*** (0.000)	-0.169*** (0.000)
Education: 9 - 15 years (0/1)	-0.517*** (0.000)	-0.718*** (0.000)	-0.206*** (0.000)	***	-0.242*** (0.000)	0.115*** (0.002)	***	-0.515*** (0.000)	-0.086*** (0.009)
One adult in HH (0/1)	0.131*** (0.000)	0.327*** (0.000)	0.157*** (0.000)	***	-0.190*** (0.001)	-0.083** (0.023)	*	0.227*** (0.000)	-0.123*** (0.000)

% HH under age of 15	-0.021 (0.472)	-0.078 (0.260)	-0.041 (0.452)		0.458*** (0.000)	0.396*** (0.000)		-0.054 (0.236)	0.376*** (0.000)
Marital Status: Married (0/1)	0.140*** (0.000)	0.294*** (0.000)	0.181*** (0.000)	**	0.327*** (0.000)	0.067** (0.019)	***	0.227*** (0.000)	0.145*** (0.000)
Marital Status: Divorced/Separated (0/1)	0.076** (0.020)	0.037 (0.607)	-0.087 (0.150)		0.301*** (0.000)	0.223*** (0.000)		-0.026 (0.593)	0.222*** (0.000)
Marital Status: Widowed (0/1)	0.181*** (0.000)	0.127* (0.099)	0.171*** (0.003)		0.250*** (0.002)	0.193*** (0.000)		0.167*** (0.001)	0.183*** (0.000)
Employment: Formal business owner (0/1)	0.272*** (0.000)	0.848*** (0.000)	0.614*** (0.000)	***	0.613*** (0.000)	-0.297*** (0.000)	***	0.713*** (0.000)	0.271*** (0.000)
Employment: Self-employed, excl. formal business owner (0/1)	-0.352*** (0.000)	-0.089** (0.047)	0.239*** (0.000)	***	-0.032 (0.440)	-0.059* (0.056)		0.028 (0.356)	-0.063** (0.015)
Employment: Unemployed (0/1)	-0.667*** (0.000)	-1.142*** (0.000)	-0.645*** (0.000)	***	-0.739*** (0.000)	-0.129*** (0.001)	***	-0.893*** (0.000)	-0.291*** (0.000)
Employment: Out of workforce (0/1)	-0.668*** (0.000)	-0.946*** (0.000)	-0.526*** (0.000)	***	-0.877*** (0.000)	-0.524*** (0.000)	***	-0.731*** (0.000)	-0.598*** (0.000)
Constant	-0.340*** (0.007)	-1.772*** (0.000)	-1.007*** (0.000)		-3.250*** (0.000)	-0.985*** (0.000)			
Country-FE	YES	YES	YES		YES	YES		YES	YES
N	99,826	99,826			99,826			99,826	99,826
# Countries	98	98			98			98	98

Note: Asterisks *, **, and *** indicate significance at 1%, 5%, and 10% respectively.

Table 4: Country-level Regressions, Developing Countries

		OLS									
		Account		Formal Savings		Informal Savings only		Formal Credit		Informal Credit only	
		Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
(1)	Married woman work	0.084 (0.137)	0.104* (0.059)	0.074 (0.237)	0.107* (0.056)	-0.003 (0.922)	0.005 (0.844)	0.051*** (0.003)	0.051*** (0.003)	-0.038 (0.376)	-0.033 (0.403)
(2)	Married woman can be head of household	0.101** (0.022)	0.130*** (0.002)	0.054 (0.267)	0.094** (0.031)	-0.003 (0.895)	-0.000 (0.989)	0.036*** (0.009)	0.049*** (0.000)	-0.019 (0.567)	-0.027 (0.384)
(3)	Married woman can choose where to live	0.118** (0.013)	0.138*** (0.003)	0.096* (0.072)	0.148*** (0.001)	-0.002 (0.926)	-0.008 (0.739)	0.053*** (0.000)	0.057*** (0.000)	-0.054 (0.147)	-0.049 (0.150)
(4)	Are married women required by law to obey their husbands?	-0.105* (0.070)	-0.160*** (0.004)	-0.095 (0.136)	-0.149*** (0.009)	-0.021 (0.464)	-0.019 (0.485)	-0.035* (0.058)	-0.047*** (0.008)	0.068 (0.125)	0.068* (0.095)
(5)	Daughters have equal inheritance rights to property from their parents?	0.051 (0.272)	0.097** (0.032)	0.006 (0.914)	0.045 (0.342)	0.029 (0.192)	0.025 (0.261)	0.014 (0.342)	0.026* (0.074)	-0.065* (0.066)	-0.053 (0.105)
(6)	Female surviving spouses have equal inheritance rights to property?	0.052 (0.274)	0.096** (0.036)	0.010 (0.843)	0.042 (0.377)	0.035 (0.117)	0.032 (0.150)	0.016 (0.297)	0.025* (0.090)	-0.080** (0.024)	-0.064* (0.051)
(7)	Separation is default marital property regime	-0.009 (0.834)	-0.039 (0.331)	0.070 (0.118)	0.031 (0.456)	-0.024 (0.228)	-0.016 (0.411)	-0.025* (0.054)	-0.026** (0.035)	0.047 (0.132)	0.041 (0.154)
(8)	% of women married between 15-19	-0.157 (0.338)	-0.219 (0.163)	-0.066 (0.733)	-0.190 (0.281)	0.064 (0.459)	0.035 (0.672)	-0.028 (0.587)	-0.068 (0.180)	-0.106 (0.386)	-0.165 (0.166)
(9)	Violence against women (Fraction in 0.08 steps)	-0.110 (0.184)	-0.133* (0.091)	-0.173* (0.072)	-0.214** (0.013)	0.038 (0.375)	0.020 (0.640)	-0.047* (0.070)	-0.058** (0.021)	0.097 (0.111)	0.094 (0.117)

Note: Each box represents an independent regression. All regressions control for log GDP per capita. P-values are reported in parentheses. Asterisks *, **, and *** indicate significance at 1%, 5%, and 10% respectively.

Table 5: Individual-level Regressions with Gender Norms, Developing Countries

		Probit	Mlogit						Ologit		
		Account	Savings (Base Category: None)			Credit (Base Category: None)			Savings	Credit	
			Formal	Informal only	P-value diff	Formal	Informal only	P-value diff	0 none, 1 informal only, 2 formal	0 none, 1 informal only, 2 formal	
(1)	Married woman work x female	0.162*** (0.000)	0.254** (0.016)	0.039 (0.563)	*	-0.014 (0.913)	0.003 (0.959)			0.039 (0.486)	-0.030 (0.527)
(2)	Married woman can be head of household x female	0.096*** (0.002)	0.238*** (0.002)	-0.021 (0.701)	***	0.072 (0.380)	-0.078** (0.072)	*		0.052 (0.264)	-0.046 (0.223)
(3)	Married woman can choose where to live x female	0.136*** (0.000)	0.269*** (0.003)	-0.077 (0.189)	***	0.104 (0.298)	-0.025 (0.600)			-0.039 (0.418)	-0.047 (0.245)
(4)	Are married women required by law to obey their husbands? x female	-0.209*** (0.000)	-0.185 (0.132)	0.111 (0.146)	**	-0.119 (0.337)	0.104** (0.092)	*		0.069 (0.291)	0.118** (0.021)
(5)	Daughters have equal inheritance rights to property from their parents? x female	0.089*** (0.007)	-0.035 (0.673)	-0.089 (0.143)		-0.000 (0.999)	-0.008 (0.862)			-0.070 (0.181)	-0.031 (0.435)
(6)	Female surviving spouses have equal inheritance rights to property? x female	0.087*** (0.009)	-0.061 (0.464)	-0.084 (0.167)		-0.022 (0.789)	0.004 (0.926)			-0.081 (0.123)	-0.031 (0.436)
(7)	Separation is default marital property regime x female	-0.052*** (0.051)	-0.045 (0.466)	0.071 (0.147)	*	0.148** (0.029)	0.017 (0.679)	*		0.009 (0.833)	0.063** (0.074)
(8)	% of women married between 15-19	-0.220** (0.022)	-0.697*** (0.002)	-0.140 (0.369)	**	0.192 (0.423)	-0.266** (0.046)	*		-0.261* (0.052)	-0.133 (0.253)
(9)	Violence against women (Fraction in 0.08 steps)	-0.190*** (0.001)	-0.645*** (0.000)	-0.209** (0.035)	***	-0.378*** (0.006)	-0.067 (0.446)	**		-0.294*** (0.000)	-0.068 (0.382)

Note: Each box represents an independent regression. All regressions control for individual-level variables listed in Table 3 and country fixed-effects. P-values are reported in parentheses. Asterisks *, **, and *** indicate significance at 1%, 5%, and 10% respectively.

Appendix A: List of Countries
Countries in bold are included in the regression analysis

Afghanistan	Dominican Republic	Lebanon	Saudi Arabia
Albania	Ecuador	Lesotho	Senegal
Angola	Egypt, Arab Rep.	Liberia	Serbia
Argentina	El Salvador	Lithuania	Sierra Leone
Armenia	Estonia	Luxembourg	Singapore
Australia	Finland	Macedonia, FYR	Slovak Republic
Austria	France	Malawi	Slovenia
Azerbaijan	Gabon	Malaysia	South Africa
Bangladesh	Georgia	Mali	Spain
Belarus	Germany	Malta	Sri Lanka
Belgium	Ghana	Mauritania	Sudan
Benin	Greece	Mauritius	Swaziland
Bolivia	Guatemala	Mexico	Sweden
Bosnia and Herzegovina	Guinea	Moldova	Syrian Arab Republic
Botswana	Haiti	Mongolia	Taiwan
Brazil	Honduras	Montenegro	Tajikistan
Bulgaria	Hong Kong SAR, China	Morocco	Tanzania
Burkina Faso	Hungary	Mozambique	Thailand
Burundi	India	Nepal	Togo
Cambodia	Indonesia	Netherlands	Trinidad and Tobago
Cameroon	Iraq	New Zealand	Tunisia
Canada	Ireland	Nicaragua	Turkey
Chad	Israel	Niger	Turkmenistan
Chile	Italy	Nigeria	Uganda
China	Jamaica	Oman	Ukraine
Colombia	Japan	Pakistan	United Kingdom
Comoros	Jordan	Panama	United States
Congo, Dem. Rep.	Kazakhstan	Paraguay	Uruguay
Congo, Rep.	Kenya	Peru	Uzbekistan
Costa Rica	Korea, Rep.	Philippines	Venezuela, RB
Croatia	Kosovo	Poland	Vietnam
Cyprus	Kuwait	Portugal	West Bank and Gaza
Czech Republic	Kyrgyz Republic	Romania	Yemen, Rep.
Denmark	Lao PDR	Russian Federation	Zambia
Djibouti	Latvia	Rwanda	Zimbabwe

Appendix B: Variable Definitions and Sources

Variable Name	Definition	Source
A. Individual-Level Financial Inclusion		
Account	Dummy==1 if account with financial institution (bank, credit union, cooperative, post office or microfinance institution)	Global Index
Savings	Categorical variable taking the value of 1 if no savings in the past 12 months; 1 if formal savings in the past 12 months; and 2 if informal savings only in the past 12 months.	Global Index
Credit	Categorical variable taking the value of 1 if no credit in the past 12 months; 1 if formal credit in the past 12 months; and 2 if informal credit only in the past 12 months.	Global Index
B. Individual-Level Characteristics		
Female (0/1)	Dummy that takes the value 1 if the respondent is female and 0 otherwise.	Gallup
Income: poorest 20% (0/1)	Dummy that takes the value 1 if the respondent falls in the lowest income quintile and 0 otherwise. Income quintiles are based on the incomes of the respondents in a country.	Gallup
Income: second 20% (0/1)	Dummy that takes the value 1 if the respondent falls in the second lowest income quintile and 0 otherwise. Income quintiles are based on the incomes of the respondents in a country.	Gallup
Income: middle 20% (0/1)	Dummy that takes the value 1 if the respondent falls in the middle income quintile and 0 otherwise. Income quintiles are based on the incomes of the respondents in a country.	Gallup
Income: fourth 20% (0/1)	Dummy that takes the value 1 if the respondent falls in the second highest income quintile and 0 otherwise. Income quintiles are based on the incomes of the respondents in a country.	Gallup
Income: richest 20% (0/1)	Dummy that takes the value 1 if the respondent falls in the highest income quintile and 0 otherwise. Income quintiles are based on the incomes of the respondents in a country.	Gallup
Age	Age in years	Gallup
Age squared	Age in years, squared	Gallup
Rural (0/1)	Dummy that takes the value 1 if the respondent lives in a rural area and 0 otherwise. A rural area is defined as a town or rural village with less than 50,000 inhabitants. If this information is unavailable, a rural area is based on the interviewer's perception of whether a respondent lives in a rural area, on a farm, in a small town, or in a village.	Gallup
Education: 0 - 8 years (0/1)	Dummy that takes the value 1 if the respondent completed elementary education or less (up to 8 years of education) and 0 otherwise.	Gallup
Education: 9 - 15 years of education (0/1)	Dummy that takes the value 1 if the respondent completed secondary education and some education beyond secondary education (9-15 years of education) and 0 otherwise.	Gallup
Education: > 15 years (0/1)	Dummy that takes the value 1 if the respondent completed four years of education beyond high school and/or received a 4-year college degree and 0 otherwise.	Gallup
One adult in HH (0/1)	Dummy that takes the value 1 if the respondent completed is the only adult (age 15 or older) household member.	Gallup

% HH under age of 15	Fraction of household members that are under the age of 15.	Gallup
Marital Status: Married (0/1)	Dummy that takes the value 1 if the respondent is married and 0 otherwise.	Gallup
Marital Status: Divorced/Separated (0/1)	Dummy that takes the value 1 if the respondent is divorced or separated and 0 otherwise.	Gallup
Marital Status: Widowed (0/1)	Dummy that takes the value of 1 if the respondent is widowed (and hasn't re-married) and 0 otherwise.	Gallup
Employment: Employed for employer (0/1)	Dummy that takes the value 1 if the respondent is employed for an employer, either full or part time, and 0 otherwise.	Gallup
Employment: Formal business owner (0/1)	Dummy that takes the value 1 if the respondent is a formal business owner and 0 otherwise.	Gallup
Employment: Self-employed, excl. formal business owner (0/1)	Dummy that takes the value 1 if the respondent is self-employed (but not a formal business owner) and 0 otherwise.	Gallup
Employment: Unemployed (0/1)	Dummy that takes the value 1 if the respondent is unemployed and 0 otherwise.	Gallup
Employment: Out of workforce (0/1)	Dummy that takes the value 1 if the respondent is out of the workforce and 0 otherwise.	Gallup
C. Country-Level Measures of Legal Discrimination and Gender Norms		
C.1 WBL Variables		
<p>Note on WBL variables: WBL variables are based on codified law and regulations, and not the implementation or practice of that law. Therefore, customary law is not taken into account, unless that customary law has been codified. Exceptions to this rule are common law or religious codes where decisions of such common or religious courts or schools of jurisprudence have legal standing equivalent to that of codified law. For more information on the WBL methodology see http://wbl.worldbank.org/methodology.</p>		
Can married woman work?	Dummy that takes the value 1 if a married woman can get a job or pursue a trade or profession in the same way as a man, 0 otherwise. In particular, the dummy takes the value of 1 if no permission is needed for a married woman to get a job or practice a trade or profession; if there is a nondiscrimination or equality provision in the constitution or gender equality act and no restriction in family or civil law regarding a married woman's ability to work; or if married women and married men have the same rights in marriage and there is no restriction in the family or civil law regarding a married woman's ability to work. The dummy takes the value of 0 if husbands can prevent their wives from getting or keeping jobs or from pursuing a trade or profession; if permission or additional documentation is required for married women to get a job or if a married man can go to court to get his wife's employer to fire her from her job or profession.	World Bank WBL

Can married woman be head of household?	Dummy that takes the value 1 if a married woman can be “head of household” or “head of family” in the same way as a man, 0 otherwise. In particular, the dummy takes the value of 1 if there are no explicit restrictions on married women becoming “head of household” or “head of family” and the Constitution recognizes gender equality or nondiscrimination; or if there is no indication that “head of household” or “head of family” is a legal designation in the economy, where the constitution recognizes gender equality or nondiscrimination, or where family law recognizes equality among spouses within marriage. The dummy takes the value of 0 if there is an explicit restriction on married women becoming “head of household” or “head of family;” e.g., a provision stating that only husbands can be “head of household” or “head of family,” or that husbands “lead the family.”	World Bank WBL
Can married woman choose where to live?	Dummy that takes the value 1 if a married woman can choose where to live in the same way as a man, 0 otherwise. In particular, the dummy takes the value of 1 if no explicit restrictions exist on a married woman choosing where her family may live; or if there is a general constitutional provision stating that every person has the right to determine his or her own place of residence, or if the family law states that spouses jointly chose the marital residence. The dummy takes the value of 0 if an explicit legal provision grants the husband the authority to choose the family residence, or grants the husband’s preference additional weight in determining where the family shall live.	World Bank WBL
Are married women required by law to obey their husbands?	Dummy that takes the value 1 if married women are required by law to obey their husbands, 0 otherwise. In particular, the dummy takes the value of 1 if an explicit provision exists, stating that married women must obey their husbands. The dummy takes the value of 0 in the absence of a provision stating that married women must obey their husbands.	World Bank WBL
Do daughters have equal inheritance rights to property from their parents?	Dummy that takes the value 1 if sons and daughters have equal inheritance rights to moveable and immoveable property from their parents, 0 otherwise. This variable examines whether there are gender based differences in the rules of intestate succession (that is, in the absence of a written will) for property from parents to children. Note that for our country sample the two separate indicator variables for moveable and immoveable property found in the database are identical and have thus been collapsed into a joint indicator.	World Bank WBL
Do female surviving spouses have equal inheritance rights to moveable property?	Dummy that takes the value 1 if female and male surviving spouses have equal inheritance rights to moveable property, 0 otherwise. This variable examines whether both spouses have equal rank and the same rights when it comes to inheriting moveable assets in the absence of a will. Note that for our country sample the two separate indicator variables for moveable and immoveable property found in the database are identical and have thus been collapsed into a joint indicator.	World Bank WBL

Separation is the default marital property regime	Dummy that takes the value 1 if the default marital property regime is separation when no prenuptial agreement exists, 0 otherwise. Under separation all property acquired by the spouses before they marry, as well as all property acquired during the marriage, remain the separate property of the acquiring spouse. The other identified categories are a version of community of property (partial, full, deferred full or partial) or "other" in case the default regime fits neither separation nor one of the three community of property regimes. In countries where there is no default property regime, the most common marital property regime is used instead.	World Bank WBL
C.2 GID Variables		
<p>Note on GID variables: OECD GID variables are based both on the existence of a special social institution that impacts gender equality and the proportion of the population that is affected by this social institution. The dummy variables only take the value of 1 if a majority of women are affected. While OECD GID refrains from giving a precise percentage that constitutes a "majority", it means that "majority" is representative of the country "e.g. above 85%". OECD GID indicators try to measure the actual situation of women; in some countries that means considering the legal situation while in others traditions or customary practices as they over-ride existing laws. For more information on the OECD GID methodology see http://www.oecd.org/dev/povertyreductionandsocialdevelopment/42141808.pdf</p>		
% of women married between 15-19	% of women married between ages 15-19. This variable is predominantly based on UN World Fertility Report 2003.	OECD GID
Violence against women	Violence against women (0 no, 1 yes with 0.08 steps in between). The variable is base on two indicators (1) the UNIFEM (United Nations Fund for Women) indicator that ranges from specific legislation in place; legislation in place but of general nature; specific legislation being planned; drafted or reviewed; planned legislation is of general nature; to there is no legislation concerning violence against women; and (2) percentage of women being beaten by their partners.	OECD GID