Unequal Laws and the Disempowerment of Women in the Labor Market: Evidence from Firm-Level Data

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Abstract

Institutions are defined as the set of rules that govern human interactions. When these rules are discriminatory, they may disempower segments of a population in the economic spheres of activity. In this study, we explore whether laws that discriminate against women influence their engagement in the economy. We adopt a holistic approach where we explore an overall measure of unequal laws also known as legal gender disparities and relate it to several labor market outcomes for women. Using data for over 59,000 firms across 94 economies, we find that unequal laws not only discourage women's participation in the private sector workforce, but also their likelihood to become top managers and owners of firms. Suggestive evidence indicates that access to finance, property ownership, business registration, and labor market constraints are pathways by which legal gender disparities disempower women in the private sector.

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1. Introduction

Institutions are defined as the set of rules that govern interactions in society (North, 1990). However, these rules can be discriminatory against certain segments of the population. When gender discrimination is embodied into the legal system, it can play a substantial role in the exclusion of women from the labor market. A system of laws that discriminate against women has the capacity to affect their lives in a multitude of dimensions. Allocation of time is distorted towards certain tasks as opposed to others. This reverberates all through education decisions, fertility choices and career options. The awareness of a system that distorts labor market outcomes can also discourage women from engaging in economic activity, leading to a waste of talent in the economy. Furthermore, as these laws persists, the effects can echo through generations.

The effects of legal gender discrimination can be detrimental not only for women but for society as a whole. There is much consensus in economics on the costs of gender inequality to society. The exclusion of women from economic activity and the resulting gender gaps in labor force participation, education and entrepreneurship lead to low human capital, low productivity, and low economic growth (Abu-Ghaida and Klasen, 2004; Bandara, 2015; Baliamoune-Lutz and McGillivray, 2015; Dollar and Gatti, 1999; Gaddis and Klasen, 2014; Goldin, 1995; Klasen, 2002; Klasen and Lammana, 2009; Knowles et al., 2002; Lagerlof, 2003; World Bank, 2011). Through simulations it has been shown that many countries can gain at least a 15% increase in GDP if gender gaps were removed (Cuberes and Teignier, 2014).

The goal of this study is to establish the link between laws that discriminate against women and women's participation in the formal labor market in terms of employment, their ability to achieve top managerial positions, and become business owners. This study adopts a holistic approach in that our main concern is not one or two laws, but a system of laws that entangle different aspects of the lives of women. However, we do provide some evidence on what sorts of laws affect women's lives as a step towards understanding the channels through which legal gender disparity permeates in the system. We also do not want to restrict the analysis to simple labor market engagement, but expand it to include empowering outcomes such as top managerial positions. For this study we use two prominent World Bank data sets, the Women, Business and the Law database and the Enterprise Surveys. The Women, Business and the Law database explores the laws that serve as impediments for women in the economic sphere. The overall number of discriminatory laws by gender has been quantified as a measure of legal gender disparities (Iqbal et al., 2016). We use this indicator and combine it with rich firm level data from the World Bank Enterprise Surveys spanning over 59,000 firms across 94 economies. Information regarding employment, ownership, and managerial positions by gender are available by firm.

We find that legal gender disparities do hinder women engagement in the economic sector, both as workers and as top manager or business owners. As mentioned above, we also attempt to uncover pathways that explain the relationship between legal gender disparities and the likelihood of women to be business owners and managers, and some suggestive evidence points to discrimination in access to finance, property ownership, and labor market constraints. Specific laws that prohibit gender discrimination by creditors and allow equal ownership rights to property is associated with a greater likelihood of women being top managers. This is consistent with findings in the literature that women entrepreneurs face greater difficulty in obtaining finance (Muravyev et al., 2009). Next, we find that the legal systems that allow women to pursue a

profession the same way as a man, and also allow women to work during night hours are positively correlated with the likelihood of women being top managers of businesses. Similarly, freedom of independent travel and the ability to register a business the same way as a man is positively correlated with the ownership of business by women.

This is not the first study to explore the relationship between legal gender discrimination and gender outcomes. However, most of the existing studies focus on a particular country or a few countries, typically developed countries, and on specific laws. For example, studies look at the impact on gender outcomes of Equal Employment Opportunities Act (Eberts and Stone 1985) and the Equal Pay Act in the United States (Neumark and Stock 2001), childcare services in Canada (Powell 1988) and in twenty OECD countries (Bassanini and Duval, 2006), as well as the impact of parental leave laws (Ruhm 1998; Baum, 2003; Berger and Waldfogel, 2004). Also see, Leonard (1985) and Weichselbaumer and Winter-Ebmer (2007) and Morrison et al. (2007). Few studies have taken a global approach. A majority of the global studies utilize country-level analysis, focus on specific laws, or explore outcomes other than the labor market. Austen and Mavisakalyn (2016) find that constitutional protections increase the proportion of women in parliament – a measure of women empowerment- over 106 economies. Similarly, Gonzales et al (2015) utilize country-level analysis to show the effect of various laws on female labor force participation. Branisa et al., (2013) use country-level data to explore the effects of social institutional gender inequality on education, child mortality, fertility, and governance using the Social Institutions and Gender Index (SIGI), an aggregate measure that does not capture laws alone, but mixes in several variables that reflect income and social institutions.

Studies that are global in nature and also utilize micro-level date are fewer. Sekkat et al (2015) use firm-level data to show that the presence of women in the ownership in the firm increases the

likelihood of the top manager to be a woman as well. More closely related to this study, Amin et al., (2015) uses firm-level data across 58 economies and find that the presence of non-discrimination clauses in hiring increase women employment. Amin et al., (2016) also uses firm-level data to uncover the effects of mandated paternity leave on women employment. This study builds on this strand of research by combining micro firm-level data across a large cross-section of developing countries to explore the link between overall gender discrimination in laws and goes beyond women employment by exploring indicators of women empowerment - women's presence in top managerial positions and ownership of firms. The use of micro firm-level data allows the analysis to account for firm-level heterogeneities given that several firm-level characteristics such as sector, size, access to finance and so forth can influence the nature of employment, firm ownership, and firm management. Furthermore, the use of firm-level data alleviates simultaneity bias as it is unlikely that an individual firm can affect overall country-level institutions (Paunov, 2016).

In summary, this study makes the following contributions to the literature. First it utilizes an aggregate measure of legal gender discrimination and links it with a set of labor market outcomes for women including employment, managerial positions, and firm ownership. Second, the study conducts a global analysis of 94 developing economies using rich micro-level firm data that follow the same methodology and use the same survey instrument across all countries allow for comparisons across economies. Firm-level data allows the analysis to account for several firm-level heterogeneities including firm sector, and size. Finally, the study also attempts to uncover the pathways by which systematic legal gender discrimination that permeates through several laws can disempower women in the labor market.

The paper is organized as follows. Section 2 provides the conceptual underpinnings of the analysis, section 3 provides the data and empirical strategy, section 4 presents the results. Robustness checks are presented in section 5, while section 6 explores the pathways or mechanisms. Section 7 concludes.

2. Conceptual Framework

The theoretical basis of the relationship between discriminatory legal institutions and gender outcomes is based on the allocation of time. Choices of time allocation are rooted in models of intra-household decision making processes (Sen 1990, McElroy 1990). Initially much of the literature assumed that households were unitary, that is they maximized a joint utility function, obviating any conflict between members of the household (Becker 1981). The argument for these models was that the bargaining occurred during the mate selection phase, and thus once a household was formed, members had similar preferences. However, several models departed from this assumption and allowed for differences in preferences over resource allocation among household members. These models were classified as bargaining models and their allowance for conflicts within the household gained empirical support as little evidence was found for unitary household models (see for example, Thomas, 1997).

Under bargaining models, husband and wife have different utility functions that depend on the consumption of private goods. Both husband and wife bargain over resource allocation to maximize their respective utility functions. The bargaining outcome depends on the husband and wife's individual threat points. The threat point is the utility obtained if bargaining breaks down permanently. The higher the utility a member of the household if bargaining breaks down, the greater the influence of the member on the bargaining outcome. Threat points are influenced by

number of factors called "extra household environmental parameters" (McElroy, 1990). Discriminatory laws affect such parameters thereby altering the bargaining outcomes in the household (Branisa et al., 2013). Thus, the higher the number of legal gender disparities in an economy, the lower the threat point of women, and thus the lower the bargaining outcomes which may include a reallocation of time away from labor market activities. Thus, the engagement of women in the labor market would be limited.

A number of factors come into play as women decide to engage in the labor market. As one enters into a career, several decisions have to be made along the way. These series of decisions are typically based on a comparison of costs and benefits each step of the way (Keane and Wolpin 1997). Such calculations may be gender-specific, thereby distorting incentives between men and women. Most research on the determinants of women managers are based on such a comparison of costs and benefits as the career progresses (Mincer, 1962; Becker, 1965; Jaumotte, 2003; Morrison, et al., 2007). The existence of gender-specific discriminatory laws can alter this calculation substantially. Laws that discourage or hamper the ability of women to work would increase the opportunity costs for women, potentially discouraging them from attempts to attain managerial or ownership positions in a firm.

There are specific avenues by which legal gender disparities manifest as obstacles for women from participating in the labor market as employees, managers, and business owners. Accessing credit allows women to start businesses as well as develop skills to progress up the career ladder. Lack of protection from discrimination in access to credit may reduce the participation of women in the labor market. There is evidence that a gender gap exists in access to finance (Aterido et al, 2013; Muravyev et al., 2009; Demirguc-Kunt et al., 2013). Women's ability to control assets such as property is important access collateral to obtain finance for starting a business. If women are unable

to legally access the property the same way as men, this may be detrimental to women's ownership of business. Furthermore, restrictions to labor market access such as the ability for women to pursue a profession the same way as a man, or travel outside the house the same way as a man will affect her bargaining position in the household and thus consequently the economic opportunities available (Hallward-Driemeier et al., 2013; Hallward-Driemeier and Gajigo, 2015). Direct restrictions in registering a business or working night hours will discourage women ownership of businesses, and labor force participation respectively.

Apart from legal gender disparities, there are several other factors that have been identified to be related to women's labor market participation. Global integration, proxied by exports and foreign ownership of firms, and aggregate demand (proxied by GDP per capital growth) have been found to affect female employment (Elson, 1996; Seguino, 2000). Better educated women have been found to increase the likelihood of female top managers (Amin and Islam, 2016). Some business sectors are friendlier towards women while others are less so (Islam and Amin 2014; Juhn et al., 2014). Infrastructure improvements have also been found to be positively correlated with women's participation in the labor market given it reallocates their time away from household activities to the labor market (Wamboye and Seguino, 2015). Finally, culture has been found to be correlated with women's participation in the labor market (Fernandez et al. 2004; Fernandez, 2007; Farre' and Vella, 2013; Fernandez and Fogli, 2009).

Regarding firm specific characteristics, age of the firm and access to finance may matter. Older firms may be a resistance to change and thus a reluctance to hire women workers or top women managers (Blum et al., 1994). In some firms, informal networks tend to be dominated by males, and thus the presence of formal training may be crucial for women to move up the career ladder (Rowley 2013). Crime has also been found to be correlated with women employment in

management positions (Islam, 2013). In our empirical estimations, we try our best to account for all of these factors given the constraints of data limitations.

3. Data and Empirical Strategy

Our main data sources are the World Bank Group's Enterprise Surveys (ES) and the World Bank Group's Women, Business and Law (WBL) databases. The ES offer an expansive array of cross-country comparable firm-level data on firm's experience of the business environment and on firm's performance and characteristics, including gender composition of the workforce, gender composition of the ownership, and gender of the top manager. The sample of ES firms used in the paper consists over 59,000 firms across 94 mostly developing countries. ES were conducted in various countries between 2006 and 2016 using a common questionnaire and sampling methodology (stratified random sample), and are representative of the non-agricultural and non-mining formal (registered) private sector of the economies[1].

Legal Gender Disparities

The WBL database measures legal institutions that discriminate on the basis of gender across the world. WBL data are collected through several rounds of interactions with practitioners with expertise in the different areas covered by the database. Inputs collected from practitioners are verified against codified sources of national law and, then, coded by the WBL team. An overall measure of Legal Gender Disparities is obtained from Iqbal et al., (2016) and constructed as follows. Fifty one gender disparities in laws are considered. If a law treats men and women differently (a legal gender disparity) then a score is assigned. If the disparity applies to only

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[1] More information about the ES methodology and country coverage is available on the Enterprise Surveys website http://www.enterprisesurveys.org. Note that each firm has only one observation in the sample.

married women, a score of 1 is assigned. If it applies to both married and unmarried women, a score of 2 is assigned. If the law treats both men and women the same, then a score of 0 is assigned. The summation over all the scores provides the Legal Gender Disparities score. As noted by Iqbal et al., (2016), the choice of laws in the WBL measure of legal gender disparities is based on three main principles. Women face unequal treatment before the law if (i) laws exist with explicit gender-based differences, or (ii) there is an absence of laws that protect the status of women e.g. absence of a non-discrimination clause in the constitution, or (iii) general laws exist that may imply gender-based legal differences or undermine existing laws that protect the status of women e.g. personal or customary law. Laws that satisfy any of these principles are marked as legal disparities for married and unmarried women."

The Legal Gender Disparities are grouped into several sub-categories (Table A2). These include accessing institutions, using property, getting a job, going to courts, incentives to work, building credit, and violence protection. Accessing institutions covers women's legal ability to interact with public authorities and the private sector in the same ways as men. Most of the components reflect circumstances where a woman would need permission from a man to perform certain tasks or engage with institutions. Using property covers women's ability to own and manage property. Getting a job includes legal disparities for women at work. Going to Courts captures whether a woman's testimony carries the same weight in court as a man, while incentives to work explores whether tax deductions or credit are specific to men. Building credit encompasses where the law prohibits gender discrimination in access to credit, and finally violence protection includes laws on domestic violence against women and the existence and scope of laws on sexual harassment.

Table A2 provides a listing of the legal gender disparities, the corresponding score assignment, and summary statistics for each individual component.[2]

Estimation

Exploiting firm-level heterogeneity in female employment data and country-level law data, we estimate the following equation for firm *i* in country *j* and sector *r*:

$$
\begin{aligned}
WomEmp_{ijrc} = {} & \beta_1 Legal_j + \beta_2 Edu_j + \beta_3 Size_{ijrc} + \beta_4 Age_{ijrc} + \beta_5 train_{ijrc} + \beta_6 multi_{ijrc} \\
& + \beta_7 exper_{ijrc} + \beta_8 export_{ijrc} + \beta_9 foreign_{ijrc} + \beta_{10} crime_{ijrc} + \beta_{11} fempop_j \\
& + \beta_{12} GDPcap_j + \beta_{13} GDPgr_j + \beta_{14} Religion_j + \gamma sector_r + \alpha region_c \\
& + \tau year_j + \epsilon_{ijrc} \quad (1)
\end{aligned}
$$

We use four measures for women participation in the labor market ($WomEmp$) obtained from the Enterprise Surveys. These include: whether the firm has a female top manager, whether the firm has a female owner, whether majority of the firm's owner are female, and the percentage of female employees over total employees. The employee measure captures general female participation while the female management and ownership variables capture empowerment. The measure of if there is at least one woman present in the ownership structure of the firm may seem redundant given that we have a measure of whether majority of the owners are female, however the latter was recently included in the Enterprise Surveys and thus the former has a larger number of observations (almost 20,000 more firms). Summary statistics are presented in table 1 while variable descriptions can be found in table A1.

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[2] Further details can be found in Iqbal et al., (2016).

Our main explanatory variable ($Legal$) is the Legal Gender Disparities measure based on the WBL

database and constructed by Iqbal et al., (2016). There is substantial variation of the Legal Gender

Disparities measure in our sample. The mean value is 17.96, with a minimum of 2 and a maximum

of 41. Yemen has the highest number of legal gender disparities and Slovakia has the lowest in

our sample.

Since the dependent variables vary at the firm level and Legal Gender Disparity measure varies at

the country level, reverse causality problem is unlikely, although it cannot be ruled out completely

(Paunov, 2016). Our main concern is the omitted variable bias. To account for omitted variable

bias problem and consistent with the discussion in the conceptual framework section, we employ

many control variables as shown in equation (1). A formal definition of the control variables used

along with the data source is provided in Table A1. Education (Edu) is measured at the country-

level and is the female-to-male ratio of the mean number of years of education. Several firm-level

characteristics are accounted for including firm size ($Size$), firm age (Age), whether the firm is

part of a larger firm ($multi$), whether firm offers formal training ($train$), experience of the top

manager ($exper$), exporter status ($export$), foreign ownership ($foreign$), and crime ($crime$).

Two variables are used to capture access to finance – whether the firm has a checking or savings

account and whether the firm has a line of credit or loan. Demographic effects that may influence

supply of women labor are captured by the percentage of women in total adult population

($fempop$). Following Wamboye and Seguino (2015), we control for the current state of labor

markets by capturing aggregate demand through the growth rate of GDP per capita ($GDPgr$). We

also account for the level of development ($GDPcap$). Culture is captured through three religious

variables - percentage adherents to Catholicism, percentage adherents to Protestantism, percentage

adherents to Islam ($Religion$). We also worry about industry-specific factors, global economic

shocks, and region (continent) specific factors. We account for these using sector fixed effects at the 2-digit ISIC level, year (of the survey) fixed effects, and region fixed effects.[3] Summary statistics of the variables can be found in table 1, with data description and sources provided in table A1.

4. Base Regression Results

Table 2 presents the main results. For brevity, we present only the final results with all the control included in the specification. However, the qualitative nature of the results continues to hold even with no controls at all or adding the various controls sequentially.

As table 2 reveals, the estimated coefficient value of the legal gender disparity score is negative and statistically significant at the 1 percent level across all 4 labor market outcome measures for women. A unit increase in the legal gender disparity score is associated with a 0.3 percentage points decrease in the likelihood of having a female top manager, 0.5 percent decrease in the likelihood of the presence of a female owner, and a 0.2 percent decrease in the likelihood that majority of the owners for the firm are women. Alternatively, if a country such as Yemen which performs the poorest on legal gender disparities (has most disparities) were to emulate Slovakia, which is the best performer, the associated increase in the likelihood of a firm having a female top manager would be 11.7 percentage points, the increase in the likelihood of firm having a female owner would be 19.5 percentage points, and the increase in the likelihood of firm having women majority owners would be 7.8 percentage points. These are considerable results given that only

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[3] Table A1 lists the regions. Due to data limitations, we do not capture possible regional differences in the implementation of the gender laws as well as regional differences in some of our explanatory variables such as religious composition, income levels, etc. that may influence our results. We would like to thank an anonymous referee for pointing this out.

17.4% of firms in the sample have a female top manager, 33% of firms have at least one female owner, and only 12% of firms are majority female-owned. Similarly, a unit increase in the legal gender disparities score is associated with a 0.5 percentage point lower share of female employment - that is lower by 1.5 percent of its mean value.

Several of the covariates have coefficients with the expected signs and significance. Female-to-male education has a positive effect on the labor market outcomes for women across all four measures, statistically significant at the 10 % level for female majority ownership variable and significant at the 1% level for the other dependent variables. This is consistent with findings in the literature (Amin and Islam, 2016). Similarly, the proportion of women in total population has a positive and statistically significant coefficient at least at the 5% level for all four measures of labor market outcomes for women. By and large formal training has a positive effect on women's labor market outcomes at the 5% level or less, with only majority female ownership being statistically insignificant. Age of the firm is positively correlated with the presence of female managers and owners, significant at the 1% level. Size of the firm is significantly negatively correlated with three labor market outcomes for women, with presence of female ownership being the exception. Exporter status is positively correlated and statistically significant only for female ownership.

These initial findings indicate that laws that discriminate against women not only negatively affect women's employment, they also reduce the presence of women in empowering positions – management and ownership of firms. The consistency of the effects across a wide spectrum of labor market outcomes for women indicates these are powerful results, and legal gender disparities have a multifaceted effect on women's lives. In the next section we check the robustness of our findings to a number changes in the specifications and sample alterations.

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5. Robustness

We test if our findings are robust to the inclusion of additional variables. Many covariates can create a number of problems including multicollinearity and reduce sample size due to missing data. Thus, as a robustness check we consider adding sets of variables that have been highlighted in the literature as important correlates of labor market outcomes.

In table 3, we include five new variables in the specification - agriculture employment (% of total employment), industry employment (% of total employment), improved sanitation facilities (% of population with access), bribery depth (% of public transactions where a gift or informal payment was requested), and total fertility rate (births per woman). The burden of care provision on women can influence their labor supply and we account for this using the proportion of population that has access to sanitation. Structural factors affecting job availability for women vs. men are proxied by the share of agriculture and manufacturing in total value added. Furthermore, fertility rates could alter the time allocation of women away from formal labor markets. Woman also may face greater harassment from government officials (Ellis, et al., 2006). We capture this using bribery depth – the percentage of public transactions where a gift or informal payment was requested. As indicated in table 3, the sign and significance of the coefficient of the legal gender disparities score are largely retained as in the base specifications in table 2 after inclusion of these additional variables.

One can expect that unequal laws are more likely to hurt women in sole proprietorships as these firms are small and depend much more on the owner/manager for their success than the large firms that are buffered by the organizational structure. It is also an alternate way to capture small firms,

given the diversity in categorization of small and large firms. In table 4, we present the findings when we restrict the sample to sole proprietorships alone. We find that just as in base estimations in table 2, the sign and significance of the coefficient for the legal gender disparities score are retained, with a slight increase in magnitudes of the coefficient of legal gender disparities for some of the outcome variables.

Finally, following Sekkat et al., (2015), we investigate if we can uncover a significant relationship between female owners and managers, and if this relationship has any effect on the coefficient of the legal gender disparities score. Therefore, in table 5, we consider the specification in table 2 for female managers as the dependent variable but also controlling for the presence of a female owner (column 1, table 5) and whether or not the majority of the firm is female-owned (column 2, table 5). We do find a positive and highly statistically significant relationship between female ownership and management, confirming the findings of Sekkat et al., (2015). Regardless, the coefficients for the legal gender disparities score are unaffected – a negative coefficient is retained with a statistical significance of 5 percent or higher.

6. Pathways

Thus far the study has uncovered a robust relationship between legal gender disparities and a wide range of labor market outcomes for women. The leads to the question of what channels might convey these effects. We first use the disaggregated categories available in the Women, Business and the Law dataset to shed some light on the issue. Table A2 presents each specific legal disparity under each sub-category.

Table 6 provides the regression results. These results reveal that at the broad level, accessing institutions, using property, and building credit are negatively correlated with the likelihood a firm has a female top manager. The coefficients are statistically significant at the 5% level for accessing institutions and using property. The coefficient for building credit is statistically significant but only at close to the 10 percent level (p-value of .082) and hence should be treated with due caution. For female ownership, accessing institutions and building credit have negative coefficients, statistically significant at the 1% and close to the 1% levels respectively.

While the sub-categories discussed in the previous paragraph provide a useful starting point, they do not tell us which specific laws are important for women's empowerment and so should be targeted by the policy makers. Additionally, the grouping of the specific laws into the sub-categories is somewhat arbitrary and alternative groupings could be considered. Hence, we dig deeper into the issue by looking at the specific laws that comprise the overall legal disparities measure separately and their correlation with presence of female owners in firms and female top managers.

Significant findings from the analysis for female top managers are provided in table 7. As shown in the first column of the table, removing labor market restrictions such as allowing married women to pursue a trade or profession the same way as a man, allowing non-pregnant and non-nursing women to work during the night like men, and requiring employers to provide nursing breaks for mothers are positively correlated with the likelihood of having a female top manager, significant at the 5% or 1% level. Furthermore, laws that provide equal property ownership to married men and women and laws that prohibit discrimination in access to credit against women are also significantly positively correlated with the likelihood of a firm having a female top manager. As mentioned above, the result for access to finance is somewhat weak in that it is significant at only

close to the 10% level (p-value of .084) and hence should be treated with due caution. These findings continue to hold even when we control for the overall legal gender disparities measure (column 2), suggesting that the individual laws identified here are not a proxy for the broader legal environment confronting women vs. men.

We repeat the same exercise for the presence of female owners in table 8. As shown in column 1 of table 8, the probability of having a female owner is significantly higher the law ensures that a married woman can register a business in the same way as a married man (significant at the 1% level); it is also significantly higher when the law prohibits discrimination by creditors against women in access to credit (significant at the 5% level), when by law a married woman can travel outside her home in the same way as a man (significant at the 1% level), and when the law mandates equal ownership rights to property for married men and women (significant at 10% level). In column 2 of table 8, we include the overall legal gender disparities measure and the findings are unchanged.

The difference in the laws that tend to encourage female top managers vs. female firm owners above is revealing. As expected, our results show that laws that facilitate registration of businesses for females tend to encourage female business owners but it has no significant impact on females as top managers. Obtaining finance and the ownership rights to property are admittedly more important for firm ownership although their relevance for top managers cannot be ruled out completely. Our results are consistent with this expectation in that laws that provide for greater gender parity in obtaining finance and owning property have a much larger, quantitatively and statistically, on the probability of having a female owner vs. having a female top manager. For instance, law prohibiting discrimination by creditors against women in access to finance is associated with an increase of 4.4 percentage points (significant at close to the 1% level) in the

probability of having a female firm owner compared with an increase of only 2.4 percentage points (significant at the 10% level) for having a female top manager (column 2 of tables 7 and 8).

Summarizing, the suggestive evidence indicates that property ownership, labor market constraints, business registration, and access to finance are the main pathways by which legal gender disparities hinder women's empowerment. The finding is consistent with the literature. Studies have highlighted the gender gap in access to credit (Aterido et al, 2013; Muravyev et al., 2009; Demirguc-Kunt et al., 2013). Furthermore, these findings confirm the results of more micro-analysis of legal reforms. A study by Hallward-Driemeier and Gajigo (2015) using difference-in-difference estimations explored the effects of the reforms of Ethiopia's family law in 2000. The reforms expanded access to marital property and remove restrictions from working outside the home. The reforms led women to be significantly more likely to work in occupations outside the home in paid and full-time jobs, and employ more educated workers. It is also revealing how laws that affect

7. Conclusion

By exploiting two unique datasets, this study has uncovered a consistent and systematic negative relationship between gender-specific discriminatory laws, termed as legal gender disparities, and a wide range of labor market outcomes for women. More importantly, some of these outcomes such as top managerial positions and firm ownership are good proxies for women empowerment. The findings are robust to number of specification and sample alterations. The study also identified potential pathways by which legal gender disparities discourage the participation of women in economic spheres. Legal gender disparities end up restricting the access to finance, control of property, and impose labor market restrictions for women managers and women business owners. Several policy implications can be garnered from these findings, with some caution required as

further investigation may be merited. First and foremost, policymakers can abolish discriminatory laws to reduce the economic losses created by restrictions placed on women. Second, the policy makers can address the pathways by which discriminatory laws affect women. Increasing financial inclusion, and improving equal access and control of property are two important policy recommendations.

While this study adopted a holistic approach to capture the relationship between discriminatory laws and labor market outcomes for women, a huge research agenda is needed to uncover the effects of specific laws and the pathways by which they encumber women. The literature has focused largely on some laws such as those related to maternity leave, non-discrimination in hiring practices and obtaining finance while ignoring others. We hope this study will encourage further research in the area.

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Table 1: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Female Top Manager Y/N	59,403	0.17	0.38	0.00	1.00
Female Owner Present Y/N	58,641	0.33	0.47	0.00	1.00
Female Owner Majority Y/N	41,297	0.12	0.33	0.00	1.00
Percent of Female Workers, Full Time	54,560	33.05	27.85	0.00	100.00
Legal gender disparities	59,403	17.96	7.36	2.00	41.00
Years of education (mean), female over male ages 25 plus	59,403	0.79	0.22	0.18	1.07
Log of age of firm	59,403	2.54	0.76	0.00	5.37
Log of size	59,403	2.83	1.12	-0.41	12.05
Firm is part of a larger firm Y/N	59,403	0.18	0.38	0.00	1.00
Firm offers formal training Y/N	59,403	0.35	0.48	0.00	1.00
Top manager experience in sector (years)	59,403	17.58	10.80	0.00	60.00
Direct exports 10% or more of sales Y/N	59,403	0.11	0.32	0.00	1.00
Foreign ownership Y/N	59,403	0.10	0.29	0.00	1.00
Firm experienced losses due to crime Y/N	59,403	0.19	0.39	0.00	1.00
Population, female (% of total)	59,403	50.27	1.54	48.16	54.22
GDP per capita (constant 2010 US$)	59,403	8.14	1.05	5.40	10.89
GDP per capita growth (annual %)	59,403	3.64	2.65	-6.02	11.60
Agriculture employment (% of total employment)	59,260	30.47	19.53	1.30	91.10
Industry employment (% of total employment)	59,260	20.96	6.50	1.80	37.90
Improved sanitation facilities (% of population with access)	59,070	66.98	25.77	11.70	100.00
Fertility rate, total (births per woman)	54,358	2.76	1.24	1.26	6.42
Roman Catholics (%)	59,403	0.22	0.31	0.00	0.97
Protestants (%)	59,403	0.09	0.13	0.00	0.68
Islam (%)	59,403	0.28	0.35	0.00	1.00
Bribery depth	40,454	14.02	32.02	0.00	100.00
Legal disparities: Accessing Institutions	59,403	2.34	2.98	0.00	14.00
Legal disparities: Using Property	59,403	0.97	1.55	0.00	5.00
Legal disparities: Getting a Job	59,403	10.01	3.61	2.00	18.00
Legal disparities: Going to Courts	59,403	0.12	0.48	0.00	2.00
Legal disparities: Incentives to Work	59,403	0.14	0.50	0.00	2.00
Legal disparities: Building Credit	59,403	2.36	1.12	0.00	3.00
Legal disparities: Violence protection	59,403	1.27	1.39	0.00	5.00
Married women can pursue a trade or profession the same way as a man Y:1 N:0	59,403	0.95	0.23	0.00	1.00
Married men and married women have equal ownership rights to property Y:1 N:0	59,403	0.94	0.23	0.00	1.00
Law prohibits gender discrimination by creditors in access to credit Y:1 N:0	59,403	0.26	0.44	0.00	1.00
Employers required to provide break time for nursing mothers Y:1 N:0	59,403	0.80	0.40	0.00	1.00
Nonpregnant and non-nursing women can work the same night hours as men Y:1 N:0	59,403	0.83	0.38	0.00	1.00
Married woman can travel outside her home in the same way as a married man Y:1 N:0	59,403	0.93	0.25	0.00	1.00
Married woman can register a business in the same way as a married man Y:1 N:0	59,403	0.97	0.17	0.00	1.00

Table 2: Legal Gender Disparities and Women Labor Market Outcomes - Base Estimations

Marginal Effects for Probit Estimations	Female Top Manager Y/N	Female Owner Present Y/N	Female Owner Majority Y/N	Percent of Female Workers, Full Time
	Probit	Probit	Probit	OLS
	coef/se	coef/se	coef/se	coef/se
	(1)	(2)	(3)	(4)
Legal gender disparities	-0.003***	-0.005***	-0.002**	-0.528***
	(0.001)	(0.001)	(0.001)	(0.050)
Years of education (mean), female over male ages 25 plus	0.135***	0.336***	0.079*	14.561***
	(0.044)	(0.049)	(0.042)	(2.692)
Log of age of firm	0.015***	0.026***	-0.001	0.215
	(0.006)	(0.008)	(0.006)	(0.386)
Log of size	-0.029***	-0.002	-0.022***	-0.447*
	(0.004)	(0.005)	(0.004)	(0.247)
Firm is part of a larger firm Y/N	0.015	0.018	-0.008	2.239***
	(0.011)	(0.014)	(0.012)	(0.781)
Firm offers formal training Y/N	0.022**	0.052***	0.000	1.709***
	(0.009)	(0.011)	(0.008)	(0.565)
Top manager experience in sector (years)	-0.003***	0.001**	-0.001*	-0.079***
	(0.000)	(0.001)	(0.000)	(0.027)
Direct exports 10% or more of sales Y/N	-0.012	0.048***	0.003	-0.252
	(0.013)	(0.016)	(0.013)	(0.854)
Foreign ownership Y/N	-0.024*	-0.026	-0.072***	1.114
	(0.014)	(0.017)	(0.015)	(0.887)
Firm experienced losses due to crime Y/N	0.019*	0.037***	0.016	0.609
	(0.010)	(0.013)	(0.010)	(0.684)
Population, female (% of total)	0.020***	0.024***	0.010**	1.724***
	(0.005)	(0.006)	(0.004)	(0.317)
GDP per capita (constant 2010 US$)	-0.033***	-0.063***	-0.019***	-1.579***
	(0.007)	(0.008)	(0.007)	(0.450)
GDP per capita growth (annual %)	-0.005**	-0.004*	0.003	-0.637***
	(0.002)	(0.002)	(0.002)	(0.114)
Roman Catholics	-0.025	0.033	0.034*	-8.226***
	(0.019)	(0.024)	(0.018)	(1.301)
Protestants	0.070*	0.285***	0.029	-2.508
	(0.039)	(0.045)	(0.044)	(2.520)
Islam	-0.048**	-0.043*	-0.063***	-3.280**
	(0.021)	(0.026)	(0.017)	(1.310)
Sector (ISIC 2 digit) Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Region (Continent) Fixed Effects	YES	YES	YES	YES
Number of observations	59,403	58,639	41,284	54,560

note: *** p<0.01, ** p<0.05, * p<0.1. Constant included but not reported

Table 3: Robustness – Additional Controls

Marginal Effects for Probit Estimations	Female Top Manager Y/N	Female Owner Present Y/N	Female Owner Majority Y/N	Percent of Female Workers, Full Time
	Probit	Probit	Probit	OLS
	coef/se	coef/se	coef/se	coef/se
	(1)	(2)	(3)	(4)
Legal gender disparities	-0.004***	-0.004***	-0.002**	-0.587***
	(0.001)	(0.001)	(0.001)	(0.065)
Years of education (mean), female over male ages 25 plus	0.197***	0.388***	0.116*	23.508***
	(0.072)	(0.088)	(0.067)	(4.107)
Log of age of firm	0.011	0.028***	0.000	0.069
	(0.007)	(0.010)	(0.007)	(0.476)
Log of size	-0.034***	-0.006	-0.023***	-0.336
	(0.005)	(0.006)	(0.005)	(0.305)
Firm is part of a larger firm Y/N	0.014	-0.004	-0.015	1.838*
	(0.014)	(0.018)	(0.013)	(0.984)
Firm offers formal training Y/N	0.023**	0.060***	0.011	1.809***
	(0.011)	(0.014)	(0.010)	(0.701)
Top manager experience in sector (years)	-0.003***	0.001	-0.001*	-0.079**
	(0.001)	(0.001)	(0.001)	(0.036)
Direct exports 10% or more of sales Y/N	-0.012	0.043**	-0.003	-0.098
	(0.017)	(0.020)	(0.014)	(0.898)
Foreign ownership Y/N	-0.010	-0.031	-0.070***	0.721
	(0.018)	(0.021)	(0.017)	(1.097)
Firm experienced losses due to crime Y/N	0.019	0.033**	0.011	0.234
	(0.013)	(0.017)	(0.011)	(0.806)
Population, female (% of total)	0.026***	0.027***	0.018***	2.678***
	(0.007)	(0.008)	(0.006)	(0.416)
GDP per capita (constant 2010 US$)	-0.043***	-0.068***	-0.019*	-0.616
	(0.011)	(0.014)	(0.010)	(0.704)
GDP per capita growth (annual %)	-0.005**	0.002	0.004	-0.717***
	(0.002)	(0.003)	(0.003)	(0.152)
Roman Catholics	-0.004	0.036	0.004	-6.609***
	(0.027)	(0.034)	(0.026)	(1.626)
Protestants	0.116**	0.403***	0.053	-2.491
	(0.052)	(0.059)	(0.049)	(3.267)
Islam	-0.022	-0.004	-0.038*	0.277
	(0.027)	(0.032)	(0.021)	(1.548)
Employment in agriculture (% of total employment) (modeled ILO estimate)	-0.001	0.002	-0.000	0.003
	(0.001)	(0.001)	(0.001)	(0.049)
Employment in industry (% of total employment) (modeled ILO estimate)	0.000	0.008***	0.002	-0.039

	(0.002)	(0.002)	(0.001)	(0.094)
Bribery depth (% of public transactions where a gift or informal payment was requested)	-0.000	-0.000*	-0.000	0.003
	(0.000)	(0.000)	(0.000)	(0.011)
Improved sanitation facilities (% of population with access)	-0.001**	0.001	-0.000	-0.196***
	(0.001)	(0.001)	(0.001)	(0.030)
Fertility rate, total (births per woman)	0.011	-0.004	0.009	2.367***
	(0.010)	(0.012)	(0.008)	(0.619)
Sector (ISIC 2 digit) Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Region (Continent) Fixed Effects	YES	YES	YES	YES
Number of observations	37,059	36,594	24,487	34,870

note: *** p<0.01, ** p<0.05, * p<0.1. Constant included but not reported

Table 4: Robustness – Sole Proprietorship

Marginal Effects for Probit Estimations	Sole Proprietorships Only		
	Female Top Manager Y/N	Female Owner Present Y/N	Percent of Female Workers, Full Time
	Probit	Probit	OLS
	coef/se	coef/se	coef/se
	(1)	(2)	(3)
Legal gender disparities	-0.004***	-0.006***	-0.620***
	(0.001)	(0.001)	(0.073)
Years of education (mean), female over male ages 25 plus	0.122*	0.155**	10.491**
	(0.073)	(0.072)	(4.609)
Log of age of firm	0.031***	0.030***	1.308*
	(0.011)	(0.011)	(0.698)
Log of size	-0.024***	-0.015*	0.360
	(0.008)	(0.008)	(0.514)
Firm is part of a larger firm Y/N	0.016	0.035	2.224
	(0.022)	(0.026)	(1.542)
Firm offers formal training Y/N	0.023	0.029*	2.850**
	(0.016)	(0.018)	(1.120)
Top manager experience in sector (years)	-0.003***	-0.000	-0.149***
	(0.001)	(0.001)	(0.050)
Direct exports 10% or more of sales Y/N	-0.012	0.055*	2.550
	(0.030)	(0.031)	(1.942)
Foreign ownership Y/N	0.002	-0.064	-1.970
	(0.039)	(0.043)	(2.136)
Firm experienced losses due to crime Y/N	0.006	0.019	0.963
	(0.019)	(0.019)	(1.387)
Population, female (% of total)	0.034***	0.028**	1.895***
	(0.011)	(0.012)	(0.615)
GDP per capita (constant 2010 US$)	-0.035***	-0.039***	-0.666
	(0.012)	(0.013)	(0.865)
GDP per capita growth (annual %)	-0.007**	-0.008**	-0.687***
	(0.003)	(0.003)	(0.208)
Roman Catholics	0.014	0.040	-12.266***
	(0.034)	(0.040)	(2.489)
Protestants	0.174**	0.158**	-7.891*
	(0.069)	(0.080)	(4.581)
Islam	-0.013	-0.081*	-6.205***
	(0.036)	(0.042)	(2.040)
Sector (ISIC 2 digit) Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Region (Continent) Fixed Effects	YES	YES	YES
Number of observations	19,997	19,935	18,364

note: *** p<0.01, ** p<0.05, * p<0.1. Constant included but not reported

Table 5: Women Managers and Owners

Marginal Effects	Female Top Manager Y/N	
	Probit	
	coef/se	coef/se
	(1)	(2)
Legal gender disparities	-0.002**	-0.002***
	(0.001)	(0.001)
Firm has a Female Owner Y/N	0.261***	
	(0.006)	
Firms has majority female ownership Y/N		0.320***
		(0.007)
Years of education (mean), female over male ages 25 plus	0.038	0.053
	(0.039)	(0.038)
Log of age of firm	0.007	0.021***
	(0.006)	(0.006)
Log of size	-0.025***	-0.007**
	(0.003)	(0.003)
Firm is part of a larger firm Y/N	0.012	0.025**
	(0.011)	(0.010)
Firm offers formal training Y/N	0.007	0.022***
	(0.008)	(0.008)
Top manager experience in sector (years)	-0.004***	-0.002***
	(0.000)	(0.000)
Direct exports 10% or more of sales Y/N	-0.028**	-0.017
	(0.013)	(0.012)
Foreign ownership Y/N	-0.010	0.001
	(0.013)	(0.014)
Firm experienced losses due to crime Y/N	0.006	0.006
	(0.009)	(0.010)
Population, female (% of total)	0.013***	0.013***
	(0.004)	(0.004)
GDP per capita (constant 2010 US$)	-0.012**	-0.010
	(0.006)	(0.007)
GDP per capita growth (annual %)	-0.004**	-0.002
	(0.001)	(0.002)
Roman Catholics	-0.038**	-0.037*
	(0.017)	(0.019)
Protestants	-0.023	0.011
	(0.036)	(0.044)
Islam	-0.027	-0.015
	(0.018)	(0.017)
Sector (ISIC 2 digit) Fixed Effects	YES	YES
Year Fixed Effects	YES	YES
Region (Continent) Fixed Effects	YES	YES
Number of observations	58,641	41,296

note: *** p<0.01, ** p<0.05, * p<0.1. Constant included but not reported

Table 6: Legal Gender Disparities Sub-Categories and Women Managers and Owners

Marginal Effects for Probit Estimations	Female Top Manager Y/N	Female Owner Present Y/N
	Probit	Probit
	coef/se	coef/se
	(1)	(2)
Legal disparities: Accessing Institutions	-0.007**	-0.013***
	(0.003)	(0.004)
Legal disparities: Using Property	-0.014**	0.003
	(0.006)	(0.008)
Legal disparities: Getting a Job	-0.001	0.000
	(0.002)	(0.002)
Legal disparities: Going to Courts	0.008	0.001
	(0.017)	(0.020)
Legal disparities: Incentives to Work	-0.003	0.010
	(0.015)	(0.016)
Legal disparities: Building Credit	-0.009*	-0.015**
	(0.005)	(0.006)
Legal disparities: Violence protection	0.001	0.001
	(0.004)	(0.005)
Years of education (mean), female over male ages 25 plus	0.122***	0.360***
	(0.044)	(0.051)
Log of age of firm	0.016***	0.026***
	(0.006)	(0.008)
Log of size	-0.030***	-0.003
	(0.004)	(0.005)
Firm is part of a larger firm Y/N	0.013	0.017
	(0.011)	(0.014)
Firm offers formal training Y/N	0.023***	0.052***
	(0.009)	(0.011)
Top manager experience in sector (years)	-0.003***	0.001***
	(0.000)	(0.001)
Direct exports 10% or more of sales Y/N	-0.011	0.050***
	(0.013)	(0.016)
Foreign ownership Y/N	-0.022	-0.027
	(0.014)	(0.017)
Firm experienced losses due to crime Y/N	0.020*	0.039***
	(0.010)	(0.013)
Population, female (% of total)	0.023***	0.021***
	(0.005)	(0.006)
GDP per capita (constant 2010 US$)	-0.031***	-0.058***
	(0.007)	(0.009)
GDP per capita growth (annual %)	-0.005***	-0.003
	(0.002)	(0.002)

Roman Catholics	-0.029	0.027
	(0.022)	(0.026)
Protestants	0.044	0.279***
	(0.043)	(0.049)
Islam	-0.047*	-0.079***
	(0.024)	(0.029)
Sector (ISIC 2 digit) Fixed Effects	YES	YES
Year Fixed Effects	YES	YES
Region (Continent) Fixed Effects	YES	YES
Number of observations	59,403	58,639

note: *** p<0.01, ** p<0.05, * p<0.1. Constant included but not reported

Table 7: Legal Gender Disparities Pathways and Women Managers

Marginal Effects for Probit Estimations	Female Top Manager Y/N	
	Probit	
	coef/se	coef/se
	(1)	(2)
Married women can pursue a trade or profession the same way as a man Y:1 N:0	0.079***	0.090***
	(0.025)	(0.029)
Married men and married women have equal ownership rights to property Y:1 N:0	0.041*	0.044*
	(0.022)	(0.023)
Law prohibits gender discrimination by creditors in access to credit Y:1 N:0	0.021*	0.024*
	(0.012)	(0.013)
Employers required to provide break time for nursing mothers Y:1 N:0	0.030**	0.032**
	(0.014)	(0.014)
Nonpregnant and non-nursing women can work the same night hours as men Y:1 N:0	0.038***	0.041***
	(0.014)	(0.014)
Legal gender disparities		0.001
		(0.001)
Years of education (mean), female over male ages 25 plus	0.108**	0.105**
	(0.045)	(0.044)
Log of age of firm	0.015**	0.015**
	(0.006)	(0.006)
Log of size	-0.029***	-0.029***
	(0.004)	(0.004)
Firm is part of a larger firm Y/N	0.018	0.019*
	(0.011)	(0.011)
Firm offers formal training Y/N	0.022**	0.022**
	(0.009)	(0.009)
Top manager experience in sector (years)	-0.003***	-0.003***
	(0.000)	(0.000)
Direct exports 10% or more of sales Y/N	-0.012	-0.012
	(0.013)	(0.013)
Foreign ownership Y/N	-0.025*	-0.025*
	(0.014)	(0.014)
Firm experienced losses due to crime Y/N	0.019*	0.019*
	(0.010)	(0.010)
Population, female (% of total)	0.017***	0.017***
	(0.005)	(0.005)
GDP per capita (constant 2010 US$)	-0.032***	-0.031***
	(0.007)	(0.007)
GDP per capita growth (annual %)	-0.004**	-0.004**
	(0.002)	(0.002)

Roman Catholics	-0.035	-0.033
	(0.021)	(0.021)
Protestants	0.082**	0.085**
	(0.040)	(0.041)
Islam	-0.068***	-0.075***
	(0.021)	(0.022)
Sector (ISIC 2 digit) Fixed Effects	YES	YES
Year Fixed Effects	YES	YES
Region (Continent) Fixed Effects	YES	YES
Number of observations	59,403	59,403

note: *** p<0.01, ** p<0.05, * p<0.1

Table 8: Legal Gender Disparities Pathways and Women Owners

Marginal Effects for Probit Estimations	Female Owner Present Y/N	
	Probit	
	coef/se	coef/se
	(1)	(2)
Married woman can travel outside her home in the same way as a married man Y:1 N:0	0.207***	0.243***
	(0.027)	(0.033)
Law prohibits gender discrimination by creditors in access to credit Y:1 N:0	0.033**	0.041**
	(0.015)	(0.016)
Married woman can register a business in the same way as a married man Y:1 N:0	0.118***	0.133***
	(0.031)	(0.033)
Married men and married women have equal ownership rights to property Y:1 N:0	0.050*	0.069**
	(0.029)	(0.032)
Legal gender disparities		0.003*
		(0.002)
Years of education (mean), female over male ages 25 plus	0.278***	0.271***
	(0.050)	(0.050)
Log of age of firm	0.026***	0.026***
	(0.008)	(0.008)
Log of size	-0.002	-0.002
	(0.005)	(0.005)
Firm is part of a larger firm Y/N	0.010	0.010
	(0.014)	(0.014)
Firm offers formal training Y/N	0.049***	0.049***
	(0.011)	(0.011)
Top manager experience in sector (years)	0.001**	0.001**
	(0.001)	(0.001)
Direct exports 10% or more of sales Y/N	0.047***	0.046***
	(0.016)	(0.016)
Foreign ownership Y/N	-0.028*	-0.028
	(0.017)	(0.017)
Firm experienced losses due to crime Y/N	0.040***	0.041***
	(0.013)	(0.013)
Population, female (% of total)	0.014**	0.011*
	(0.006)	(0.006)
GDP per capita (constant 2010 US$)	-0.059***	-0.057***
	(0.008)	(0.008)
GDP per capita growth (annual %)	-0.002	-0.001
	(0.002)	(0.002)
Roman Catholics	0.036	0.045*
	(0.026)	(0.027)

Protestants	0.298***	0.309***
	(0.046)	(0.047)
Islam	-0.074***	-0.096***
	(0.025)	(0.027)
Sector (ISIC 2 digit) Fixed Effects	YES	YES
Year Fixed Effects	YES	YES
Region (Continent) Fixed Effects	YES	YES
Number of observations	58,639	58,639

note: *** p<0.01, ** p<0.05, * p<0.1

Table A1: Variable Descriptions

Variable	Description	Source
Female Top Manager Y/N	Dummy variable equal to 1 if the top manager of the firm is female, 0 if the top manager is male	World Bank Enterprise Surveys
Female Owner Present Y/N	Dummy variable equal to 1 if there is a female owner, 0 otherwise	World Bank Enterprise Surveys
Female Owner Majority Y/N	Dummy variable equal to 1 if majority or all owners are female	World Bank Enterprise Surveys
Percent of Female Workers, Full Time	Self-explanatory	World Bank Enterprise Surveys
Legal gender disparities	Measure of the legal gender disparities, that is laws that treat men and women differently. Full listing of the disparities of the laws in table A2	Iqbal et al., 2016, Women, Business and the Law
Years of education (mean), female over male ages 25 plus	Mean number of years of education by age and sex estimated from censuses and nationally representative surveys	Institute for Health Metrics and Evaluation (IHME), 2015
Log of age of firm	Self-explanatory	World Bank Enterprise Surveys
Log of size	Log of the size of the firm in terms of total full time employment	World Bank Enterprise Surveys
Firm is part of a larger firm Y/N	Dummy variable equal to 1 if the firm is part of a larger firm, 0 otherwise	World Bank Enterprise Surveys
Firm offers formal training Y/N	Dummy variable equal to 1 if the firm offers formal training, 0 otherwise	World Bank Enterprise Surveys
Top manager experience in sector (years)	Self-explanatory	World Bank Enterprise Surveys
Direct exports 10% or more of sales Y/N	Self-explanatory	World Bank Enterprise Surveys
Foreign ownership Y/N	Dummy variable equal to 1 if the firm has foreign owners, 0 otherwise	World Bank Enterprise Surveys
Establishment has checking or savings account Y/N	Self-explanatory	World Bank Enterprise Surveys
Establishment has a line of credit or loan Y/N	Self-explanatory	World Bank Enterprise Surveys
Firm experienced losses due to crime Y/N	Self-explanatory	World Bank Enterprise Surveys
Firm offers formal training Y/N	Self-explanatory	World Bank Enterprise Surveys
Population, female (% of total)	Self-explanatory	World Development Indicators, World Bank
GDP per capita (constant 2010 US$)	GDP per capita (constant 2005 US$). Data are in constant 2005 U.S. dollars. Dollar figures for GDP are converted from domestic currencies using 2005 official exchange rates. For a few countries where the official exchange rate does not reflect the rate effectively applied to actual foreign exchange transactions, an alternative conversion factor is used.	World Development Indicators, World Bank
GDP per capita growth (annual %)	Annual percentage growth rate of GDP per capita based on constant local currency.	World Development Indicators, World Bank
Agriculture, employment (% of total employment)	Self-explanatory	World Development Indicators, World Bank
Industry, employment (% of total employment)	Self-explanatory	World Development Indicators, World Bank
Improved sanitation facilities (% of population with access)	Self-explanatory	World Development Indicators, World Bank
Fertility rate, total (births per woman)	Self-explanatory	World Development Indicators, World Bank
Bribery depth	% of public transactions where a gift or informal payment was requested	World Bank Enterprise Surveys
Roman Catholics (%)	Percentage adherents to Catholicism	Maoz and Henderson, 2013. World Religion Data set
Protestants (%)	Percentage adherents to Protestantism	Maoz and Henderson, 2013. World Religion Data set,

| Islam (%) | Percentage adherents to Islam | Maoz and Henderson, 2013. World Religion Data set, |
| Region fixed effects | 6 dummy variables indicating the region to which the firm belongs. The regions include: East Asia and Pacific, Latin America and Caribbean, Europe and Central Asia, Middle East and North Africa, South Asia, and Sub-Saharan Africa. | World Development Indicators, World Bank. |

Table A2: Legal Gender Disparities

WBL Legal Gender Disparity Measure: A "no" response to questions below is considered a disparity and therefore assigned a score	Score Assignment	Mean	Std. Dev.	Min	Max
Accessing Institutions					
If there is a nondiscrimination clause in the constitution, does it mention gender?	2	0.64	0.93	0.00	2.00
If customary law is recognized as a valid source of law under the constitution, is it invalid if it violates constitutional provisions on nondiscrimination or equality?	2	0.10	0.44	0.00	2.00
If personal law is recognized as a valid source of law under the constitution, is it invalid if it violates constitutional provisions on nondiscrimination or equality?	2	0.54	0.89	0.00	2.00
Can an unmarried woman apply for a passport in the same way as an unmarried man?	1	0.03	0.16	0.00	1.00
Can a married woman apply for a passport in the same way as a married man?	1	0.15	0.36	0.00	1.00
Can an unmarried woman obtain a national ID card in the same way as an unmarried man?	1	0.01	0.08	0.00	1.00
Can a married woman obtain a national ID card in the same way as a married man?	1	0.06	0.24	0.00	1.00
Can an unmarried woman travel outside the country in the same way as an unmarried man?	1	0.01	0.10	0.00	1.00
Can a married woman travel outside the country in the same way as a married man?	1	0.02	0.15	0.00	1.00
Can an unmarried woman travel outside her home in the same way as an unmarried man?	1	0.00	0.00	0.00	0.00
Can a married woman travel outside her home in the same way as a married man?	1	0.08	0.28	0.00	1.00
Can an unmarried woman get a job or pursue a trade or profession in the same way as an unmarried man?	1	0.00	0.00	0.00	0.00
Can a married woman get a job or pursue a trade or profession in the same way as a married man?	1	0.03	0.18	0.00	1.00
Can an unmarried woman sign a contract in the same way as an unmarried man?	1	0.00	0.00	0.00	0.00
Can a married woman sign a contract in the same way as a married man?	1	0.01	0.09	0.00	1.00
Can an unmarried woman register a business in the same way as an unmarried man?	1	0.00	0.00	0.00	0.00
Can a married woman register a business in the same way as a married man?	1	0.03	0.16	0.00	1.00
Can an unmarried woman open a bank account in the same way as an unmarried man?	1	0.00	0.00	0.00	0.00
Can a married woman open a bank account in the same way as a married man?	1	0.01	0.09	0.00	1.00
Can an unmarried woman choose where to live in the same way as an unmarried man?	1	0.00	0.00	0.00	0.00
Can a married woman choose where to live in the same way as a married man?	1	0.08	0.27	0.00	1.00
Can an unmarried woman confer citizenship on her children in the same way as an unmarried man?	1	0.06	0.24	0.00	1.00
Can a married woman confer citizenship on her children in the same way as a married man?	1	0.07	0.26	0.00	1.00
Can an unmarried woman be head of household or head of family in the same way as an unmarried man?	1	0.01	0.10	0.00	1.00
Can a married woman be head of household or head of family in the same way as a married man?	1	0.14	0.35	0.00	1.00
Can a married woman confer citizenship to a non-national spouse in the same way as a man?	1	0.25	0.43	0.00	1.00
Are married women required by law to obey their husbands?	1	0.10	0.29	0.00	1.00
Using Property					
Husband legally administers marital property	1	0.03	0.16	0.00	1.00
Does the law provide for the valuation of nonmonetary contributions?	1	0.39	0.49	0.00	1.00
Do unmarried men and unmarried women have equal ownership rights to property?	1	0.00	0.00	0.00	0.00
Do married men and married women have equal ownership rights to property?	1	0.05	0.22	0.00	1.00
Do sons and daughters have equal rights to inherit assets from their parents?	2	0.43	0.82	0.00	2.00
Do female and male surviving spouses have equal rights to inherit assets?	1	0.23	0.42	0.00	1.00
Going to Court					
Does a woman's testimony carry the same evidentiary weight in court as a man's?	2	0.10	0.43	0.00	2.00
Providing Incentives to Work					
Are there tax deductions or credits specific to men?	2	0.17	0.55	0.00	2.00
Building Credit					
Does the law prohibit discrimination by creditors on the basis of gender in access to credit?	2	1.63	0.77	0.00	2.00
Does the law prohibit discrimination by creditors on the basis of marital status in access to credit?	1	0.91	0.29	0.00	1.00
Getting a Job					
Can non-pregnant and non-nursing women work the same night hours as men?	2	0.27	0.68	0.00	2.00
Does the law mandate equal remuneration for work of equal value?	2	1.40	0.92	0.00	2.00
Does the law mandate nondiscrimination based on gender in hiring?	2	1.19	0.98	0.00	2.00

Is it prohibited for prospective employers to ask about family status?	2	1.92	0.40	0.00	2.00
Is dismissal of pregnant workers prohibited?	2	0.19	0.59	0.00	2.00
Are employers required to provide break time for nursing mothers?	2	0.32	0.73	0.00	2.00
Is there a difference in the age at which a man and a woman can retire and receive full benefits?	2	0.68	0.95	0.00	2.00
Is there a difference in the age at which a man and a woman can retire and receive partial benefits?	2	0.69	0.95	0.00	2.00
Is there a difference in the mandatory retirement age for men and women?	2	0.12	0.47	0.00	2.00
Can non-pregnant and non-nursing women do the same jobs as men?	2	1.49	0.87	0.00	2.00
Is there a difference in the length of paid maternity and paternity leave?*	2*(M-P)/M	1.94	0.21	0.00	2.00
Protecting Women from Violence					
Is there domestic violence legislation?	2	0.41	0.81	0.00	2.00
Is there legislation that specifically addresses sexual harassment?	2	0.34	0.76	0.00	2.00
Does legislation explicitly criminalize marital rape?	1	0.62	0.49	0.00	1.00

*Where M is length of maternity leave and P is length of paternity leave

Source: Iqbal et al., 2016

Table A3: Country List and Scores

Country	Legal gender disparities
Slovak Republic	2.00
Mexico	5.88
Hungary	5.94
Latvia	6.82
Peru	6.91
Sweden	7.00
Czech Republic	8.00
Slovenia	8.43
Estonia	8.86
Bosnia and Herzegovina	8.96
Montenegro	9.00
Namibia	9.00
Serbia	9.00
Lithuania	9.52
Timor-Leste	9.88
Croatia	10.00
Guyana, Co-operative Republic of	10.00
Bulgaria	10.93
Dominican Republic	10.95
Ecuador	11.71
Uruguay	11.86
Paraguay	11.94
Armenia	12.00
Romania	12.76
Venezuela, RB	12.85
Nicaragua	12.88
Rwanda	12.90
Moldova	13.00
Trinidad and Tobago	13.00
Vietnam	13.00
Philippines	13.77
Poland	13.85
Burundi	13.90
Tanzania	13.93
Bolivia	13.93
Kazakhstan	14.00
Kyrgyz Republic	14.00
Colombia	14.80
Argentina	14.96
Albania	15.00
Grenada	15.00
India	15.00
Macedonia, FYR	15.00
Malawi	15.00
Mongolia	15.00
Nigeria	15.00
Azerbaijan	16.00
Bahamas, The	16.00
Ethiopia	16.00
Honduras	16.00
Israel	16.00
Ukraine	16.00
Zambia	16.00

Uganda	16.90
Brazil	16.92
Panama	17.00
Turkey	17.00
Botswana	18.00
Ghana	18.00
Jamaica	18.00
Suriname	18.00
Kenya	18.69
Burkina Faso	18.94
Morocco	18.94
Belize	19.00
Costa Rica	19.00
Georgia	19.00
Belarus	20.00
Tajikistan	20.00
Myanmar	20.69
Indonesia	20.96
Bangladesh	21.00
Madagascar	21.00
Chile	21.92
Angola	22.00
Nepal	22.00
Senegal	22.98
Barbados	23.00
Sri Lanka	23.00
Uzbekistan	23.00
Russian Federation	24.00
Tunisia	25.93
Djibouti	25.94
Egypt, Arab Rep.	27.00
Lebanon	29.00
Congo, Dem. Rep.	30.96
Malaysia	31.00
Pakistan	32.00
Sudan	36.00
Mauritania	38.00
Afghanistan	38.78
Iraq	40.00
Jordan	40.00
Yemen, Rep.	41.00