Rule of Law and Female Entrepreneurship

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Abstract

Commerce requires trust, but trust is difficult when one group consistently fears expropriation by another. If men have a comparative advantage at violence and there is little rule-of-law, then unequal bargaining power can lead women to segregate into low-return industries and avoid entrepreneurship altogether. In this paper, we present a model of female entrepreneurship and rule of law that predicts that women will only start businesses when they have both formal legal protection and informal bargaining power. The model's predictions are supported both in cross-national data and with a new census of Zambian manufacturers. In Zambia, female entrepreneurs collaborate less, learn less from fellow entrepreneurs, earn less and segregate into industries with more women, but gender differences are ameliorated when women have access to adjudicating institutions, such as Lusaka's "Market Chiefs" who are empowered to adjudicate small commercial disputes. We experimentally induce variation in local institutional quality in an adapted trust game, and find that this also reduces the gender gap in trust and economic activity.

1   Introduction

When rule of law is weak, asymmetries of social power and physical strength stymie the trust and trade that make cities productive. The shadow of violence looms behind aggressive bargaining in many negotiations, and violence is disproportionately male (Wilson and Herrnstein, 1985). Consequently, women may avoid transacting with men unless they have the protection of courts and civil society. Around the world, women report trusting others significantly less than men do, particularly in developing countries with weaker legal institutions.[1]

In this paper, we ask whether limitations on the rule of law can explain why entrepreneurship remains a male-dominated activity in many countries and why female entrepreneurs often cluster in industries filled with other women (OECD, 2012; Fairlie et al., 2017; Singer et al., 2018; Campos et al., 2019).[2] Clustering in industries, such as apparel and food production, that contain female collaborators and customers, allows female entrepreneurs to avoid interactions with men who may have a power advantage in both legal and illegal conflict. This segregation may explain why women appear to receive lower benefits from loans (de Mel et al., 2008, 2009) and business training (de Mel et al, 2014; Bergeet al., 2015).

In Section 2 of this paper, we present a model that extends Behrer, Glaeser, Ponzetto and Shleifer's (2019) result that when courts can be subverted, the strong trade only with the strong and the weak trade only with the weak. In our model, women choose whether to become entrepreneurs and whether to partner with men. The model embeds two aspects of inter-gender trading relationships. When courts are weak and facts are unclear, then adjudicators favor the powerful and men are more likely to have power. Even when courts are strong, if social norms favor male aggression, then men can extract a greater share of the rents from bilateral commercial transactions.

For some parameter values, men actually prefer weak institutions that reduce overall social surplus, because those institutions increase the male share of profits. For other parameter values, male bargaining power and legal strength becomes a liability for men as well as women, because women refuse to partner with men. Rule of law increases the returns to female entrepreneurship, because anarchy privileges male aggression and violence. The model predicts that female entrepreneurs will earn less and segregate into predominantly female industries, unless there are both strong institutions and social norms that favor gender equity.

We test the implications of this model both with cross-national data and by focusing on female entrepreneurs in Zambia. In Section 3, we used the World Bank Enterprise Survey, the World Justice Project, and the World Values Survey to test the predictions

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[1]A large literature documents a strong association between trust and economic growth (Knack and Keefer 1997; Guiso et al., 2006; Algan and Cahuc, 2010). Trust is lower in developing countries, where rule of law is weak. Trust is particularly low among women in weak rule-of-law countries, including Zambia. For example, in Africa and South America, typically between ten and fifteen percent of responds say that most people can be trusted, but that number falls on average by 6 percent among women (WVS).

[2]Worldwide the proportion of female ownership is below 50 percent and in half of the countries the female proportion is below 20 percent (see Section 3).

of our model. We document that female entrepreneurship is rare in most countries, and especially in those places where rule of law is weak. The World Justice Project data indicates that courts particularly discriminate against women in many countries and that rule of law is more strongly correlated with female entrepreneurship when courts are deemed, by the World Justice Project, to be less discriminatory towards women.

We measure gender norms against women with long-standing discriminatory practices within families and limited protection of female physical integrity. Female entrepreneurship is rarer when these measures are high. As the model predicts, there appears to be a strong complementarity between rule of law and gender norms that favor women.

In countries with weak rule of law and non-equitable gender norms, only sixteen percent of entrepreneurs are women according to the World Bank Enterprise Survey. The share of female entrepreneurs only increases to eighteen percent in countries that have strong rule of law and non-equitable gender norms. The share rises to twenty-four percent when rule of law is weak and gender norms are equitable, but in countries that combine strong rule of law and equitable gender norms, thirty-six percent of entrepreneurs are women. Neither rule of law nor equitable gender norms on their own have the same impact on female entrepreneurship as the combination of the two.

We also document that female entrepreneurs segregate into industries, such as hospitality, food and apparel, where they cooperate primarily with other women. The self-selection of female entrepreneurs into less profitable activities is pervasive in developing world cities (Klapper and Parker, 2011; Campos et al., 2019). Again, as the model predicts, we find that there is more female entry into male dominated industries in countries with better rule of law, less discrimination against women and especially in countries that have both.

In Section 4, we turn to our Census of Entrepreneurs in Lusaka, Zambia. Zambia is a country with both weak rule of law and discriminatory gender norms.[3]

We collect geocoded data on more than 2000 firms, which represents sixty percent of all the manufacturers in Lusaka. Interviews and focus groups suggest that economies of scale can generate large returns to collaboration for these entrepreneurs. In our sample, twenty-seven percent of the entrepreneurs in manufacturing are women, and women earn slightly more than one-half of male earnings. In Lusaka, three-fourths of female entrepreneurs make apparel and eighteen percent make food. Between one-half and three-fourths of the gender earnings gap for Lusaka entrepreneurs can be explained, in an accounting sense, by the massing of female entrepreneurs into two industries that are neither capital nor trust intensive. While many factors contribute to the segregation of women in these industries, in our qualitative work, Lusaka's female entrepreneurs themselves emphasized the difficulties of trusting men.[4]

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[3]According to the World Justice Project (http://data.worldjusticeproject.org/), Zambian rule of law lies is neither particularly good nor particularly bad for sub-Saharan Africa. The country's score on the World Justice Project's Rule of Law Index in below Ghana and South Africa, but above Zimbabwe and Nigeria, and is about the same as Russia and Mexico.

[4]Zambia's female entrepreneurs both say that they trust others less, and indeed are less trusting in standard laboratory measures.

In Section 5, we present our survey measures of trusting behavior, such as working collaboratively to fill an order or jointly buying inputs or even giving advice. As the model predicts, women are less likely to take actions that require trust. Perhaps most strikingly, we find that women are much less likely to learn their trade from incumbent workers. Instead, they turn more often to formal educational institutions. Alfred Marshall (1890) emphasized that in dense clusters, "the mysteries of the trade become no mystery but are, as it were, in the air," but it seems as if female entrepreneurs cannot access these human capital spillovers in Lusaka, partially because they cannot trust the men that surround them.

We then test whether Lusaka's female entrepreneurs trust more when rule of law is stronger. We focus on the two major local institutions that adjudicate commercial disputes: Market Chiefs and Small Claims Courts (SCC). The Small Claims Court is a new institution that enables individuals with small lawsuits to bypass Zambia's overloaded and cumbersome court system. We measure institutional strength by proximity to the Small Claims Court and location within a market that is adjudicated by a chief.

Female-led businesses located inside a formal market or closer to the Small Claims Court (SCC) cooperate more, even controlling for business density, industry and other area and business characteristics. Locating within a market is also correlated with higher sales for female-led businesses. While locating within a market is an endogenous decision, the Small Claims Court was established more recently and proximity to a court is less salient than membership in a market.

To address this endogeneity issue, in Section 6 we present our population of entrepreneurs with an adapted version of the trust game (Berg et al, 1995), framed as an opportunity to invest in another person's business. We randomize pairs of players into three groups: a control group that received no access to institutions, a treatment group that had access to the Small Claims Court, and a second treatment group that had access to the market chief. As the overwhelming majority of our respondent had either not heard of the small claims court or thought that it was not useful for people like them, we focus on the results with the market chiefs.

In the control group, the game replicates our survey results and echoes the model. We find a significant gender gap in both trust and trustworthiness: women send fewer tokens and return fewer token than men in our game. Sending money in the trust game is significantly positively correlated with our actual measures of cooperation by the participants in their real lives.

In the game, we test whether rule of law has a disproportionate impact on women by introducing a form of adjudication modelled on actual Zambian institutions. We allow some subjects to access a market chief, ensuring an anonymous, and therefore unbiased judgement. Randomizing access to this unbiased known institution significantly increases women's trusting behavior, increasing the surplus for both parties and earnings for both women and men.

Section 2 presents our model. Section 3 uses international data to test the implications of our model and particularly the complementarity between rule of law and female bargaining power. Section 4 describes our Zambian empirical setting and data. Section 5

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presents correlational evidence on the relationship between institutions, trusting behavior and the gender gap in entrepreneurship among small- scale entrepreneurs. Section 6 presents the lab-in-the- field evidence on the impact of rule of law on trust and business outcomes. Section 7 concludes.

2 Gender Bias, Contract Enforcement and Female Entrepreneurship

We now present a model where female entrepreneurs first choose whether or not to enter into an industry, and then potentially to partner with men and produce. As in Behrer et al. (2019), weak legal institutions intrinsically favor the socially powerful who are able to pressure courts and judges when facts are unclear. The weak anticipate the courts behavior and consequently avoid dealing with the strong. If men have a comparative advantage in coercing weak institutions, then women will not contract with men in weak institutional environments, and they may avoid male-dominated industries altogether. Stronger rule of law does enable women to better enforce contracts against men, but even when rule of law is perfect, male bargaining power may still limit the returns to female entrepreneurship.

In stage 0, a potential female entrepreneur "E" has the option to pay a fixed cost and enter industry i, where the share of male incumbents equals m_i. This fixed cost is paid at time 0 and is immaterial to subsequent bargaining.

In stage 1, E is offered a business opportunity to make and sell a product of value π. E is also matched with a randomly chosen potential partner "P". Neither E nor P can make the product on their own at a cost less than π. If the parties do not partner, the opportunity disappears and there are no further payoffs to either player. If the parties do partner, they create a contract that specifies a share of π, denoted "s" that will be given to P if the contract is not breached. By assumption, courts will only enforce contracts in which s lies between zero and one, because the court's power is limited to splitting the profits.

In stage 2, P chooses to work or shirk. P can fulfill the contract and pay a cost of $q < .5\pi$ for effort and materials. He can breach the contract and pay only $q - b$, and we assume that $.5\pi > b - q$. This breach might take the form of P doing shoddy work that must be fixed by E, or not working at all (in which case $b = q$), or of P stealing E's inputs (in which case b may be greater than q). E also pays a cost of q and works during this period.[5]

In stage 3, E learns whether P breached or fulfilled the contract. If P fulfilled the contract then no further work is needed. If P breached the contract, then E must pay a remediation cost of $b + \Delta$. The value of b and Δ are both known at the time of the contract and $\Delta > 0$. If E remediates the harm, then she receives a payment of π, and chooses how much to pay P out of that sum. We assume that $2q + \Delta > \pi > b + \Delta$, so that E will remediate if work has begun, but that a partnership will not generate a positive social surplus if shirking always occurs.

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[5]It is never optimal for E to shirk as she is the residual claimant of the product.

In stage 4, either P or E can sue the other in a court. As in Behrer et al. (2019), the rule of law depends on the relative power of the litigants and the obviousness of the facts. Courts always enforce indisputable facts, but when facts are disputable courts favor the more powerful. We assume that courts pay a penalty for ignoring indisputable facts, such as external embarrassment or judicial review, but ignoring disputable facts is costless. The share of profits specified by the contract is always indisputable, but P's shirking is disputable with probability δ. We interpret the variable δ as capturing both elements of this particular transaction and the institutional quality of the courts and society. When institutions are stronger, a wider range of facts will be indisputable. We assume that P learns whether his shirking will be disputable at the beginning of stage 2, and that E learns whether the shirking is disputable at the beginning of stage 3. We do not allow renegotiation at any point after stage 1.

If both litigants are women, then they are equally powerful and the contract will be enforced fairly even if the facts are disputable. The court will force E to pay P the stipulated share, but will subtract damages of $b + \Delta$ from the payment to cover the damages if shirking has occurred. The court cannot force a payment from P to E, as we assume that the court's power is limited to reallocating the surplus. If P is male, then the contract will be enforced fairly if the shirking is an indisputable fact. If shirking is disputable, then court will assign no damages and force E to pay P the contractually stipulated payment.

This legal bias is one source of inequality between men and women. The second bias occurs at the point of bargaining in stage 1. If P is female, then the two agents split the total expected surplus equally. If the partner is male, then he receives a share β of the surplus, where β is determined by social norms about gender and male violence. Male bargaining power can be micro-founded by assuming that men and women alternate making offers, and when a male offer is rebuffed, the man may harm the women in some way.

When P is female, then a partnership occurs, there is no shirking and both agents receive $.5\pi - q$. Since courts will enforce contracts fairly when both parties have equal power even when facts are disputable, P knows that she will receive no payment if she shirks. Not shirking is incentive compatible as long as $s\pi > b$. If this constraint is satisfied, then the total surplus is $\pi - 2q$. The assumption of equal bargaining power implies that both partners receive one half of this amount, which implies that $s = .5$, and since $.5\pi > b - q$, the incentive compatibility constraint holds.

When P is male, then he will always shirk when there is an opportunity for disputable shirking. Men will not shirk when shirking is indisputable as long as $s\pi > b$, and that generates an incentive compatibility constraint. Proposition 1 describes the returns to partnering with men (all propositions are proven in the Appendix):

Proposition 1 *Proposition 1: If $\frac{(\pi-2q)}{\Delta} < \frac{q}{b} - 1$, then there is no contract if $\frac{(\pi-2q)}{\Delta} < \delta$. If $\frac{(\pi-2q)}{\Delta} > \delta$, the contract specifies $s = \beta - \frac{(2\beta-1)q+\beta\delta\Delta+\delta b}{\pi}$ and provides expected welfare of $\beta(\pi - 2q - \delta\Delta)$ to P and $(1 - \beta)(\pi - 2q - \delta\Delta)$ to E. If $\frac{(\pi-2q)}{\Delta} > \frac{q}{b} - 1$, then there is no contract if $\frac{(\pi-q-b)}{\Delta+b} < \delta$. If $\frac{(\pi-q-b)}{\Delta+b} > \delta > \frac{\beta(\pi-2q)+q-b)}{\beta\Delta+b}$, then the contract specifies*

$s = \frac{\beta}{\pi}$, *providing expected welfare of* $(1 + \delta)b - q$ *to P and* $\pi - q - (1 + \delta)b - \delta\Delta$ *to* E. *If* $\delta < \frac{\beta(\pi - 2q) + q - b)}{\beta\Delta + b}$, *the contract specifies* $s = \beta - \frac{(2\beta - 1)q + \beta\delta\Delta + \delta b}{\pi}$, *providing expected welfare of* $\beta(\pi - 2q - \delta\Delta)$ *to P and* $(1 - \beta)(\pi - 2q - \delta\Delta)$ *to* E.

The proposition describes two cases that depend on whether $\frac{(\pi - 2q)}{\Delta}$ is greater or less than $\frac{q}{b} - 1$. In both cases, when δ is sufficiently high, either because courts are sufficiently weak or because shirking is intrinsically disputable, then no contract will occur. In both cases, when δ is sufficiently low, then a contract splits the surplus based on the bargaining power of men. In this region, female returns to the partnership are rising with overall profits (π), and falling with costs of production (q), costs of remediation (Δ), male bargaining power (β) and the weakness of the court system (δ). Female entrepreneurship may need both a relatively egalitarian society and strong legal institutions to thrive in male dominated industries.

When $\frac{(\pi - 2q)}{\Delta} > \frac{q}{b} - 1$, and either the returns to partnership or the benefits of cheating are high, then there is also a third possibility. The female entrepreneur may effectively pay her male partner an efficiency wage to stop him from shirking when facts are indisputable. This possibility occurs for intermediate values of δ, and in that case, the returns to female partnership with a male equal $\pi - q - (1 + \delta)b - \delta\Delta$, which is rising with overall profits (π), and falling with costs of production (q), costs of remediation (Δ), and the weakness of the court system (δ).

In this region, male returns are increasing with the weakness of the courts (δ) even though that weakness decreases the overall surplus from the partnership. This perverse comparative static suggests that dominant groups, like men, may actually sometimes prefer weak institutions because that weakness ensures that they will receive a larger share of the surplus, despite the fact that institutional weakness diminishes the overall surplus.

The male returns drop discontinuously from $(1 + \delta)b - q$ to zero at the point where δ exceeds $\frac{(\pi - q - b)}{\Delta + b}$. At that point, female returns hit zero, and women decide not to partner with men at all. Male strength becomes a disadvantage because women shun them. This result may help explain why African-American men struggle more than women in the labor market, if a legacy of prejudice means that customers and co-workers are more afraid of African-American men than women.

Male strength may also hurt men if women do not enter the industry at all, and we turn to that margin now. We assume that the fixed cost of entry equals θ times $.5\pi - q$, the highest returns from entrepreneurship, where $\theta < 1$. This value of $1 - \theta$ captures the effective "profit" margin associated with entrepreneurship.

Proposition 2 *If* $\delta > Max[\frac{\pi - 2q}{\Delta}, \frac{\pi - q - b}{\Delta + b}]$ *then women do not partner with men, and enter if and only if* $1 - \theta > m_i$. *If* $\delta < Min[\frac{\pi - 2q}{\Delta}, \frac{\beta(\pi - 2q) + q - b}{\beta\Delta + b}]$, *then women always enter if* $1 - \frac{\theta}{2(1 - \beta)} > \frac{\delta\Delta}{\pi - 2q}$, *but if* $1 - \frac{\theta}{2(1 - \beta)} < \frac{\delta\Delta}{\pi - 2q}$, *women enter if and only if* $m_i < m^* = \frac{(\pi - 2q)(1 - \theta)}{(\pi - 2q)(2\beta - 1) + 2(1 - \beta)\delta\Delta}$, *where* m^* *is rising with* π, *falling with* $q, \theta, \delta, \Delta$ *and* β.

Proposition 2 highlights that male bargaining power or weak institutions can both lead women to avoid any male-dominated fields. If $\delta > Max[\frac{\pi - 2q}{\Delta}, \frac{\pi - q - b}{\Delta + b}]$, then if women

enter they will not trade with men. Consequently, their effective profit margin $1 - \theta$ must be high enough to cover the probability that they may earn nothing. If $1 - \theta$ is small and institutions are weak, then women will only enter fields that are almost exclusively female.

When institutions are strong enough so that women will trade with men, then female entry can still be limited by male bargaining power. If $\delta < Min[\frac{\pi - 2q}{\Delta}, \frac{\beta(\pi - 2q) + q - b}{\beta\Delta + b}]$, then women and men split the surplus. Even in this case, if β is high, women will not enter fields with significant numbers of men, even if rule of law is perfect. If there is either a lack of female bargaining power or weak rule of law, then women will only enter fields where potential female partners are abundant.

Figure 1 illustrates the proposition's implication that female entrepreneurship can be limited by either weak rule or law or by biased gender norms. The two lines both capture the maximum share of men in an industry that women will enter. The bottom line shows the case where rule of law is weak and δ is high enough so that women will not partner with men. In that case, the maximum share is $1 - \theta$ which we assume to be .1. The top line is decreasing with β and it shows the case where δ is low enough so that women will partner with men, and $\frac{\delta\Delta}{\pi - 2q}$ is assumed to be .2. The threshold for entry is reasonably high when δ and β is low, but if either δ or β are high, then women will not enter into male-dominated fields.

The Appendix also details the entry condition when $\frac{\pi - 2q}{\Delta} > \frac{q}{b} - 1$ and $\frac{\pi - q - b}{\Delta + b} > \delta > \frac{\beta(\pi - 2q) + q - b}{\beta\Delta + b}$, so that women must effectively pay men efficiency wages to stop them from breaching the contract even when breach is indisputable. The results are quite similar, except that the threshold for female entry falls with the benefit from breach (b) since that determines the efficiency wage, and is independent of male bargaining power.

In the empirical work that follows, we test whether the existence and success of female entrepreneurship depends on rule of law, less biased social norms or both.

3 Cross-National Evidence of Female Entrepreneurship and Rule of Law

In this section, we first document three stylized facts about female entrepreneurs globally: the rate of female entrepreneurship is often shockingly low, female entrepreneurs appear to earn less than male entrepreneurs and are strongly segregated into a small number of industries. Second, we introduce our measures of legal weakness and social bias against women. Third, we test our model's prediction that female entrepreneurship, and female entrepreneurship in male dominated fields, depends on both rule of law and limited social bias, and particularly on the co-existence of both.

3.1 Three Stylized Facts about Female Entrepreneurship Worldwide

The relative paucity of female entrepreneurs is a well-known fact in the developed world. In the U.K., France, Germany and U.S., more than two men select into entrepreneurship for every nascent female entrepreneur according to the Global Entrepreneurship Monitor

(GEM) and the Kauffman Foundation (Singer et al., 2018; Fairlie et al., 2017).[6] Gender gaps in entrepreneurship as large are also found in the developing world, but things are more heterogeneous and depend on the sector as well as geographical region. In 2016 the female-to-male ratio in entrepreneurial activity was around 0.7 in South Africa, 0.8 in Botswana and Burkina Faso and only around 0.4 in Tunisia or Egypt according to the Global Entrepreneurship Monitor (Kelley et al., 2017). The gender gap persists over the life-cycle of the firm and is as large for long-established firms, if not larger (Kelley et al., 2017).[7]

We replicate these results using the 2006 to 2016 waves of the World Bank Enterprise Survey. We limit our sample to businesses which are sole proprietorships or partnerships, and define female entrepreneurship as the share of firms that have a (weak) majority of female owners.[8] Figure 2 shows that Romania and Moldova are the only two countries in the sample with a clear majority of firms in the sample led by women (with a sample size of only 14 and 42 firms respectively). In the more than one-half of the countries, fewer than one-in-five enterprises have a majority female ownership.[9] Not only is the global level of female entrepreneurship low, the rates of female entrepreneurship appear to differ significantly across countries.

The gender gap in entrepreneurship can be associated with either decreased returns to female entrepreneurship or higher opportunity costs of women's time, perhaps because of productivity in home production. If the gender gap reflected opportunity cost of time, then the returns to entrepreneurship should be higher for women, but that does not appear to be the case. The World Bank Enterprise Survey provides more reliable measures of revenues than profits, so we focus on the revenue differences between female and male led firms. Across the entire sample, male firms average 0.6 log points higher sales than female led firms (a reduction in the geometric mean of sales by 55 percent).

Female entrepreneurs may earn less because they specialize in industries with lower

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[6]The GEM survey is collected across countries and, for each country, at least 2000 adult entrepreneurs/business managers are surveyed. The total number of surveyed people depends on "the population and the economic diversity of each country" and is supposed to be conducted on a representative national sample of adults. It interviews nascent and established entrepreneurs in urban/rural areas and excludes people who are considered to be out of the labor market (e.g., retirees). The method by which they identify participants is dictated by the percentage coverage of the landline telephone network. Where landline coverage is greater than 85 percent of all households, then the National Teams use a landline-based survey outreach to generate a suitable list of participants to contact. For those countries where landline telephone coverage is not as wide-spread, face-to-face interview techniques and/or mobile phones are used. Specific information can be found here https://www.gemconsortium.org/wiki/1157.

[7]The Global Entrepreneurship Monitor classifies entrepreneurs in two broad categories: nascent entrepreneurs and owner-managers. A nascent entrepreneurs is someone who is involved in setting up a business. This means that the entrepreneur has been active in the past 12 months and has not paid wages in the last three month. Owner-managers are those entrepreneurs who have been working for longer and are also divided into two subcategories: owner-manager of a new firm, and owner-manager of an established firm. The former has started paying wages at most 3.5 years ago, whereas the latter has been paying wages for more than 3.5 years.

[8]We exclude 5 percent of countries with less than 10 observations in this sample.

[9]The distribution looks very similar considering female-led businesses as firms with at least a female owner.

returns or because there are more female entrepreneurs in poorer countries. In Figure 3, we show the distribution of earnings controlling for both industry (ISIC 3.1 code) and country.[10] The overall sales gender gap is 0.3 log points controlling for industry and nation (a reduction in the geometric mean of sales by 36 percent). A Kolmogorov-Smirnov test rejects the equality of these two distributions at the 99 percent level, and as the figure shows, the distributions differ especially in their right-tail. Women seem to hit a cash ceiling to their earnings.

Perhaps the most surprising fact about female entrepreneurship is that it is so concentrated in a small number of industries. The three industries with the greatest proportion of female managers across countries are retail trade (ISIC 3.1 code 52), manufacturers of food products and beverages (ISIC code 3.1 code 15) and hotels and restaurants (ISIC code 3.1 code 55). While female owners only own thirteen percent of all manufacturing firms in our global sample, they own twenty percent of enterprises in food and apparel production. The cross-country average of the Herfindahl industrial concentration index is 0.19 for female-led businesses, which is significantly greater than the 0.11 average HH for male-led businesses (p=0).[11]

The industries chosen by women not only have a greater proportion of peers of the same gender, but they also have more female customers and employees. For instance, female-led firms employ more women in both production and non-production roles than male-led firms. On average, forty-eight percent of the fulltime workforce in female-led firms is made of women. This percentage is halved in male-led firms. Similarly, sixty percent of female-owned firms have a female top-manager, as opposed to only six percent of firms with a majority of male owners.

3.2 Measuring Rule of Law and Gender Norms

We now turn to our measures of gender norms and rule of law. We use two measures of biased gender norms: the Social Institutions and Gender Index (SIGI) and the Global Gender Gap Index (GGGI). The SIGI Index is created by the OECD Development Centre and covers 180 countries. The World Economic Forum is responsible for the 144 country Global Gender Gap Index.

The SIGI index constructs variables on four gender-related topics (discrimination in the family, restricted physical integrity, restricted access to productive and financial resources, and restricted civil liberties) based on qualitative and quantitative data on discriminatory social institutions. SIGI relies on legal experts, government representatives, and SIGI National focal points, but not individual-level surveys. We focus on the SIGI index of discrimination in the family, which is based on laws on child marriage, household responsibilities, inheritance, and divorce. We also look at the SIGI Physical Integrity Index, which includes laws on violence against women and reproductive auton-

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[10]The industry fixed effects are based on the ISIC Code 3.1. This is based on the question "In the last complete fiscal year, what were this establishment's two main products (represented by the largest proportion of annual sales)?".

[11]For each country, the HHI is computed as the sum over industries of squared shares of women (or men) entrepreneurs.

omy, attitudes towards and prevalence of female genital mutilation (FGM) and domestic violence, missing women, and access to family planning.[12]

These measures should not directly relate to commercial contracts signed by women, but they should capture social norms towards women and the social acceptability of male violence against women, which are conceptually closest to our male bargaining power variable: β. These measures are particularly removed from the commercial and public spheres, and strongly correlated with long-standing cultural practices. We supplement these measures with the proportion of respondents in a country in the World Values Survey who agree with the statement "it is justifiable for a man to beat his wife" as an added measure of gender norms about violence.

The GGGI index measures the progress of countries towards gender parity across four themes: Economic Participation and Opportunity, Educational Attainment, Health and Survival, and Political Empowerment. We focus on the Educational Attainment index, which is the weighted average of four variables (all in ratios): female/male literary, female/male net primary enrolment, female/male net secondary enrolment, and female/male gross tertiary enrolment. Again, our hope is that these variables capture gender norms, but do not directly relate to the enforcement of contracts signed female entrepreneurs. The four variables come from the UNESCO Institute for Statistics.[13]

For rule of law, we use data from the World Justice Project (WJP) and the World Bank's Governance Indicators.[14] We use the World Bank's rule of law index, which captures "perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence" (Kaufmann et al., 2010). We use the rank decile for each country. This measure should capture the extent to which courts will enforce binding contracts signed by men and women, which is captured by our variable δ.

To measure legal bias against women, we use the World Justice Project's survey of qualified respondents. This survey asks legal experts throughout the world to assess the quality of the judicial system. One question asks "In your opinion, how likely are the following criteria to put a person at a disadvantage before a civil or commercial trial court?" where one of the "criteria" is being female. The World Justice Project produces this measure as a score on a zero to one scale, where one represents less bias in the judicial system. We also use the overall score of the World Justice Project's survey of qualified respondents on equal treatment of the genders by all legal institutions.[15] The

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[12]More information on the SIGI can be found here: https://www.genderindex.org/.

[13]The weights are calculated by dividing 0.01 by the standard deviation for each indicator. More information on the GGGI can be found here: https://www.weforum.org/reports/the-global-gender-gap-report-2017.

[14]The Worldwide Governance Indicators report on six measures of governance (voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption) for over 200 countries since 1996. The six indicators are created by summarizing data from 30 different sources, that report views of citizens, experts, and private and NGO sectors. The questions from each data source used to construct the rule of law index can be found here: http://info.worldbank.org/governance/wgi/index.aspx#doc.

[15]This overall score is an average of the scores on equality of genders in courts, hospitals, government

correlation between this measure of bias against women and the World Bank's measure of contract enforcement is .73, suggesting that when overall rule of law is weaker, courts show more bias against women, just as the model suggests.

3.3 Female Entrepreneurship, Gender Norms and Rule of Law

We now turn to the relationship between gender norms, rule of law and female entrepreneurship. Figure 4 shows the cross-country relationship between female ownership, on the vertical axis, and the SIGI family discrimination measure. The correlation coefficient is -0.62, which is significant at the one-percent level. The fitted line suggests that as a country improves from the 90th percentile in this variable (0.81) to the 10th percentile (0.22), the predicted level of female entrepreneurship increases from 7 to 25 percent. Social attitudes towards women are at least strongly correlated with low levels of female entrepreneurship.

Female entrepreneurship is also correlated with variables that measure modern, commercial institutions. The World Bank's Worldwide Governance Indicators measure the quality of contract enforcement at the national level for most of the countries in the World Bank Enterprise Survey. This measure should capture the extent to which men and women are able to sign binding agreements that enable them to work together.

Figure 5 shows the correlation between the World Bank index of quality of contract enforcement and the rate of female entrepreneurship across countries. The correlation coefficient is 0.32, and the relationship is statistically significant at the 1 percent level. The fitted values suggest that as a country moves from the 10th percentile rank in the quality of contract enforcement to the 90th percentile, the share of female entrepreneurship increases from 13 to 30 percent.

Appendix Table C.1 shows that the univariate relationships between female entrepreneurship and our other measures of gender norms and rule of law. The violence related SIGI Index (termed the "physical integrity index") has a -.5 correlation with female entrepreneurship and a t-statistic of 3.8 in a bivariate regression with country level income.

The World Bank Global Indicators measure has a correlation of .32 and a t-statistic of 1.94 in a bivariate regression. The World Justice Project measure of court bias against women in a commercial or civil court has a correlation coefficient of .35 with the entrepreneurship measure and a t-statistic of 1.9 in the bivariate regression.

We now look at the complementarity between female bargaining power and fair and effective political institutions that was predicted by our model. Our hypothesis is that women will only enter into economic interactions with men, and most entrepreneurship requires such interactions, when they are safe both from expropriation through male bargaining power and from expropriation through the courts.

We continue to use the SIGI index of discrimination in the household, based on laws on child marriage, household responsibilities and divorce. We also use the proportion of

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hiring and police.

respondents in a country in the World Values Survey who agree with the statement "it is justifiable for a man to beat his wife".

For our measures of overall legal quality (δ), we return to the World Bank's Governance Indicators measure of the quality of the rule of law at the national level years of the World Bank Enterprise Survey. We also use the World Bank's Doing Business Report measure of the ease of contract enforcement, as an alternative measure of the accessibility of the court system for contract disputes.

The first interaction that we examine is between rule of law and discrimination against women in the family. Table 1a and 1b show the basic interaction. Table 1a shows that there is plenty of variation across countries in the patterns of rule of law and family discrimination. There are 47 countries in our sample with high rule of law and low discrimination in the family, and 54 countries in our sample with low rule of law and high discrimination. There are also 58 countries which are off the diagonal, with either high rule of law and high discrimination or low rule of law and low discrimination. Table 1b shows the female entrepreneurship patterns across the table. The entrepreneurship rate is 16 percent in the box with low rule of law and high discrimination, but moving to either off-diagonal square increases the female entrepreneurship rate only modestly to 18 or 24 percent. Moving to the high rule of law, low discrimination panel effectively more than doubles the female entrepreneurship rate to 36 percentage points.

Table 2 confirms this interaction in a regression setting. In regressions (1) and (2), we look at the SIGI family discrimination figure. In regression (4) and (5), we use the measure of violence against women. Regressions (2) and (5) add controls for per capita income.

Regression (1)-(2) and (4)-(5) all show that Rule of law has little impact on female entrepreneurship in countries where families discriminate against girls or where male violence is acceptable. Regressions (1) and (2) show that where family discrimination is low, female entrepreneurship is more common even when rule of law is low. We do not find a similar independent effect of violence against women.

Our primary focus is on the interaction effects, which are positive in all four specification, and significant in three of those specifications. When rule of law is combined with low levels of family discrimination or violence against women, then the impact on female entrepreneurship is extremely large. Good legal institutions seem to increase female entrepreneurship only when they are merged with a culture that allows women to extract rents from relationships with men.

Regressions (7) and (8) examine our second interaction that looks at the link between rule of law and gender bias in the courts. In regression (7) of Table 2, we show the impact of gender equality before the law in the World Justice Project, the World Bank Rule of Law figure and the interaction. Once again, the interaction is more powerful than either variable on its own. Rule of law is actually negatively correlated with female entrepreneurship, unless commercial courts are seen as being unbiased against women. Regression (8) duplicates this result controlling for GDP.

Our model focused on the entry of women into male-dominated industries, and predicted that women would be willing to join female-dominated industries even when

gender norms are discriminatory or rule of law is weak. While we believe that this prediction is supported by the segregation of women into a small number of industries, even these industries are typically predominantly male. Consequently, our results on overall female entrepreneurship can be interpreted as examining whether women enter into male dominated fields.

Nonetheless, we now also ask whether these rule-of-law and gender bias variables also predict whether women enter into the industries that are much less likely to include women worldwide. To do this, we recalculate female entrepreneurship rates only in manufacturing, whose female proportion in the World Bank dataset is 13% against 17% across industries. Regressions (3), (6) and (9) of Table 2 use the female entrepreneurship rates in manufacturing as dependent variable. In regression (3), we look at the SIGI family discrimination figure, the World Bank Rule of Law Figure and the interaction. In regression (6), we use the measure of violence against women, the World Bank Rule of Law Figure and the interaction. Regressions (9), we show the impact of gender equality before the law in the World Justice Project, the World Bank Rule of Law Figure and the interaction. Results are very similar between the aggregate and the manufacturing sample, a fact consistent with our main hypothesis.

4 The Zambian Context and the Census of Manufacturers

In this section, we discuss the Zambian context and the Census of Manufacturers that is the starting point for our work on female entrepreneurship in Lusaka. Zambia is a natural setting to study weak institutions, gender discrimination and female entrepreneurship. Zambia ranks 80th out of 136 countries in the SIGI index of discrimination within the family and of 85th out of 109 countries in the SIGI index of physical integrity restrictions. Sixty-eight percent World Values Survey respondents in Zambia say that it is justifiable for men to beat their wives in some circumstances, which is the highest share in sub-Saharan Africa.[16] Just as in many Sub-Saharan African countries, entrepreneurship is a particularly important activity for many households in urban Zambia. Despite weak rule of law and gender discrimination, our Census still documents a sizable number of female entrepreneurs.[17]

4.1 The Lusaka Census of Manufacturers

Between May and September 2016, we collected the Lusaka Census of Urban Entrepreneurs ("Census" from now on), which is a spatial mapping of all the firms in Lusaka. For each establishment operating from a fixed location, across all industrial sectors, the Census includes geocoded location, industrial classification at the North-American Industry Classification System (NAICS) 4-digit level, number of employees

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[16]South Africa, Nigeria and Zimbabwe follow with 63, 54 and 51 percent respectively.

[17]In 2012, 40 percent of adults in Zambia were starting a new business according to the Global Entrepreneurship Monitor (Xavier et al., 2012). Zambia has 1.02 million informal Micro, Small, and Medium Enterprises (MSMEs)-one for every five members of Zambia's total labor force (Shah, 2012).

and structural description (e.g., standalone building, inside markets).[18]

These data describe the distribution, size and characteristics of economic activities in a fast-urbanizing environment and supplements the Central Statistical Office's 2012 Economic Census of the whole country. Our Lusaka Census includes a total of 48,163 establishments. As there were 16,063 businesses listed in Lusaka District in the 2012 Economic Census, our data suggests either 200 percent growth rate over 4 years or differences in methodology or comprehensiveness. Our data includes far more small firms than the 2012 Economic Census. Ninety percent of the firms in our Census have fewer than 5 employees, six percent have been between 5 and 10 employees, and fewer than one percent having 50 or more employees.[19]

Figure 6 shows the spatial distribution of businesses in the Census, which enables us to construct measures of business density at a granular level.

Table 3 presents the distribution of businesses across industries at the NAICS 2-digit level and the main characteristics associated with the businesses. The largest sectors (by number of businesses) are retailing, accommodation and food industry, and other services (the vast majority being hair dressers). Retailing firms also typically have fewer employees.

We complemented the Census with a short survey of business owners with less than 20 employees belonging to manufacturing, mining, and construction, which we refer to as the "Manufacturers Survey". This survey had a total of 2,216 respondents, which accounts for 58.3 percent of the total population in these sectors. The survey includes questions on business practices, sales and history, levels of trust, collaborative behavior with other businesses, and demographics.[20]We focus on manufacturing because it is traditionally male, offers the possibility of exploiting economies of scale through partnerships and has been a priority for the Zambian industrial and development strategy for decades.[21]

The manufacturers survey shows that Zambian manufacturing enterprises are smaller than those in both neighboring and developed countries (Hsieh and Klenow, 2010). Women-led businesses represent twenty-six percent of the businesses in manufacturing, construction and mining (N=3,723), which is unsurprising given that manufacturing is

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[18]A business was considered to operate from a fixed location if 1) the business operated from a permanent structure with concrete foundations, 2) the business maintained either stock or machinery on site overnight, and 3) the permanent structure in question was not exclusively used for storage. Our analysis split Lusaka into sub-regions called Census Supervisory Areas (CSAs), and our census covered all the businesses in 90 percent of all CSAs in Lusaka district. For security reasons, we excluded the 8 census statistical areas (CSA) in the region surrounding Chibolya compound (Harry Mwaanga Nkumbula ward). We also excluded areas of low population density in the following wards: Kabulonga, Lubwa, Lilayi, Munkolo, Mwebeshi, Kamulanga, Munali, Roma and Mpulungu.

[19]Data on the number of employees is not available for 17 percent of the firms, so these percentages are about the 40,517 respondents to this question. In the 2012 Economic Census, the percentages were respectively 71, 11 and 3 percent. Some larger businesses were unwilling to share their employee numbers with our census takers. In total 84 percent of businesses disclosed their employment figures.

[20]If the owner was not available, the interview was conducted with the main manager.

[21]Recent research in Uganda and Ethiopia (Campos et al., 2014; Alibhai et al., 2016) show that women could potentially have high returns in manufacturing, but both social norms and fixed set-up costs might be barriers to female entry. We focus on a different source of gender gaps in our paper, in interaction with these traditional explanations.

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often a male-dominated activity (GPFI and IFC, 2011; Campos et al., 2014).[22] Women's firms have 0.38 fewer full time employees and 0.7 fewer part time employees than male-led firms.

Women earn less than men. On average, women's sales value in good weeks is 2,356 Kwacha (KW), as compared to 4,085KW for men, or 180 and 311 dollars in the current exchange rates for women and men respectively (1 KW = 0.076 USD). In bad weeks, women earn on average 599.9KW as compared to 1,313KW for men, or 45 and 100 dollars respectively. Figure 7 shows the kernel densities of logged-sales in good and bad weeks by gender.[23] The distributions are significantly different between men and women and women earn less most of the times (p=0.00, Kolmogorov-Smirnov equality-of-distributions test). Moreover, men have a higher variance in sales in good weeks than women's (p=0.00, variance ratio test), which is driven primarily by a thicker right-tail. While the variance in sales during bad weeks is not different between genders (p=0.40, variance ratio test), both the minimum and maximum value of sales are lower for women than for men.

4.2 Gender, Segregation and the Earnings Gap

Figure 8 shows that Lusakan women make different sectoral choices than men. Ninety-three percent of women operate in apparel and food manufacturing, while women represent a minority in wood, metal manufacturing and printing. Women appear to select into non-complex industries, despite having on average the same qualifications as men.[24]

In our survey of manufacturers, industry choice, not observable human capital, explains much of the gender gap in earnings. Male and female entrepreneurs have similar levels of education, as shown in table 4. Women are more likely to have participated in management or entrepreneurship training than men, as we discuss later, and the two groups do not differ in terms of record keeping. The first two regressions in Table 5 show the raw gender gap and Columns (3) and (4) show that controlling for education does not reduce the gender gap in sales. These results are unchanged when using or including alternative proxies for skills, such as literacy, numeracy, social skills.[25]

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[22]But all in all, gender segregation is also apparent in highly developed economies, as shown in the introduction. According to the Kauffman Index of Start-up Activity 59.4 percent of new entrepreneurs in the U.S. were male in 2015 (Morelix et al., 2016).

[23]During piloting, we found that recalling exact sales digits or for periods longer than a week was challenging for most of the respondents. We thus asked the sales in the previous working day, the sales in a good week and the sales in a bad week. If the person could not provide an exact number, we also asked for an upper and lower bound. We then imputed the average of the bounds to the sales variables.

[24]We define non-complex industries as industries that have less than the mean number of skilled occupations associated with the corresponding NAICS 3 code, whereby the mean of number of skilled occupations by NAICS code is computed using the Census data (following Minondo and Requena-Silvente, 2013). Our index of complexity is correlated with owner's education in the data.

[25]The definitions of these alternative proxies are as follows. For literacy, subjects were asked whether the sentences "The light balloon floated in the bright sky" and "A comfortable pillow is soft and rocky" make logical sense. For numeracy, subjects were presented with the following question: "Suppose you have K1,000 in a bank account with no bank fees. The bank pays interest of 10 percent each year. How much money will you have after 2 years?" Subjects were then presented with a choice of either "Less

Regressions (5) and (6) of Table 5 add controls for industry and regressions (7) and (8) add household constraints, including marital status and work time. Selection into different industries explains between one-half and three-fourths of the gender gap in sales and employment. The average level of sales and employees is the lowest in apparel manufacturing - where most women operate - and the highest in food manufacturing. The other sectors lie between these two. Controlling for sector, education, working time and marital status makes the coefficient on the female dummy insignificant for the sales gap in good weeks. This evidence is compatible with previous studies also finding that women enjoy less profitability and lower sales growth even controlling for extensive observable characteristics (Klapper and Parker, 2011; Campos et al., 2014; Hardy and Kagy, 2018). Recent evidence by the World Bank similarly finds that one-quarter of the gender gap in profits in the Democratic Republic of Congo can be explained by industry (Campos et al., 2019). As we have emphasized throughout this paper, one explanation for female industrial segregation is when gender bias is large and institutions are weak, women cannot trust men.

4.3 Rule of Law and Legal Institutions in Lusaka

Zambian rule of law is neither particularly good nor particularly bad for sub-Saharan Africa, but it is in the bottom half of countries worldwide. The country's score on the World Justice Project's Rule of Law Index is below Ghana and South Africa, but above Zimbabwe and Nigeria, and about the same as Russia and Mexico. Zambia's overall index of gender equality and gender equality in courts from the World Justice Project are among the lowest in Africa.

Few entrepreneurs in our sample made any use of Zambia's formal court system, which are notoriously slow and cumbersome. Instead, many of them rely on local adjudicators, known as "Market Chiefs," who exercise authority over transactions that occur within their own local market areas. There are approximately 80 formal markets in Lusaka. These fall under two broad categories: council and cooperative.

Cooperation appears to be easier within the market, and somewhat surprisingly, rents also appear to be lower, at least relative to space in well-travelled commercial thoroughfares. The offsetting downside of markets is that they are sometimes harder for customers to access and have shorter opening times.

The 30 council markets are regulated by Lusaka City Council and are led by a market officer (henceforth referred to as a chief) who is appointed by the Council. The appointed chief's functions are guided by legislation and market unit guidelines. Many markets also have a democratically elected chief, whose involvement in market affairs varies. The cooperative markets usually have a market committee of 6-10 members, including a democratically elected chair.

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than K1,200", "K1,200 exactly", or "More than K1,200". For social skills, subjects stated how much they agreed, on a scale of 1-5, with the statement "I know what other people are feeling just by looking at them", as well as "Gaining happiness requires taking it away from others" and questions on how often the subject talks with others about social topics (e.g., sports) or personal topics (e.g., health).

Figure 9 shows the spatial location of markets with squares. Markets generally have their own system of rules. They set fines for prohibited behavior, such as drinking or insulting other marketeers on site, and rules of suspension for behavior such as theft or disobedience of the market committee. Most importantly, the market chiefs resolve disputes among marketeers and market customers.

One typical dispute was that a marketeer sold his plot within the market to two different people, taking money from both. The marketeer did not have assets to seize, beyond the plot, but the chief knew a lender had agreed to loan the marketeer some money. To solve the dispute, the chief ensured this loan money was given to one of the buyers.

In another dispute, a customer complained that a marketeer had failed to fulfill his promise to fix a television. The chief gave the marketeer a deadline of two days to meet the customer's request or pay a fine. As one chief said, "we want to handle disputes internally and peacefully first," and "only if this does not work do we go to the police."

Markets are an essential part of Lusaka's business environment: 30 percent of firms across all industries in our Census and 59 percent (1324) of manufacturers are located in formal markets.

To address the weaknesses of the formal court system, a Small Claims Court was founded in 2008 by an act of Parliament and opened in 2009. No legal representation is required, as the court is intended to hear minor cases, for example, relating to employment, borrowing and lending, insurance and fraud. The court only permits cases involving amounts up to 20,000KW (around 1,962 USD), which represents 150 percent of average sales in a good month.

To file a case with the Small Claims Court, a plaintiff must first produce a letter of demand which opens the case and serves notice to the defendant. This letter of demand brings with it a seal of the court and often by itself can be sufficient to recoup any contested amount (at a cost of 5Kw, around 50 cents in USD). Many cases get settled between the two parties at this initial stage. However, if the defendant refuses to pay the amount stated in the letter of demand, a court hearing is scheduled where the defendant has an opportunity to submit a written defense. Within a month of being served, the case is heard and, depending on the outcome, the losing party has to pay according to a certain schedule. If the plaintiff wins, the defendant has to pay back the money and also cover the legal costs.

If the Small Claims Court makes a decision on a case and the defendant does not settle the claim, a writ of execution is issued by the courts and bailiffs are engaged. The writ of execution is put on the file together with a report from the bailiffs about the property they seized, how much they realized at auction and whether the amount recovered covered the full claim. The bailiffs are not allowed to seize personal items such as clothing and the tools of trade of the individual. In practice, the plaintiff has to know the residence of the defendant in order to give detailed directions to the bailiffs (a sketch map is usually on file for these cases).[26]

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[26]In cases where the amount realized from the seized property is not enough to cover the claim the court will tell the plaintiff to keep a look out if the defendant buys new property and contact the bailiffs

The time frame to settle the claim is usually outlined in the judgement by the commissioner. Defendants can be asked to pay in installments over a period of time or to pay in 14 days; if they fail, bailiffs are engaged. In extreme cases where an individual is not able to pay, the person can be imprisoned. This outcome is rare because the amounts the court deals with are small and the defendant's relatives usually pitch in to help prevent the person being incarcerated.

The Small Claims Court currently has excess capacity, due to lack of awareness. In our data, only 21% of respondents had heard of it, and of those, 56% did not believe they had access. Market Chiefs are a far more common mechanism for resolving disputes. Anecdotally, Senior Clerks at the Small Claims Court note that women sue mostly men, especially their (former) employers. Figure 9 shows where the Small Claims Court is located in our zoom-in of the Census Map.

5 Trust, Gender and Institutions in Zambia: Observational Evidence

Partnerships in Lusaka resemble the world of incomplete contracts described by our theory. Written contracts are used only in one out of five partnerships. Collaborations are mostly triggered by time constraints (e.g., in fulfilling big orders), which limits entrepreneurs' ability to search for partners. In seventy-five percent of cases, partnerships form between entrepreneurs that are located close to each other. In this section, we first examine whether female entrepreneurs are less trusting and form fewer partnerships than their male counterparts. We then look at whether this gender gap is ameliorated by physical proximity to the two local institutions: Market Chiefs and the Small Claims Court.

5.1 Gender and Trust

To examine whether women have a disadvantage in bargaining, we look at their trust levels and interactions with other businesses. Throughout the paper, we use the following survey measures of trust asked in the Manufacturers Survey and taken from the World Values Survey (WVS) and General Social Survey (GSS):[27]

- Trust GSS: Do you think that most people can be trusted or you cannot be too careful? (one-zero indicator variable)

- Trust Strangers: How much do you trust people you meet for the first time? (from 1 (not at all) to 4 (completely))

- Trust Neighbors: How much do you trust your neighbors? (from 1 (not at all) to 4 (completely))

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so that they can seize the new property.

[27]See tables D.1 and D.2 for validity checks of the survey measures of trust and trustworthiness using our experimental data.

- Trust in business: I am comfortable leaving my shop unattended during the day if I need to do something for 30 minutes (5-points Likert scale) [28]

These measures of trust can be interpreted in different, but related, ways. They can be seen as the internal psychic cost of betrayal, or as the individual belief in others' trustworthiness. That belief might reflect the reality that some people have a greater ability to enforce trustworthy behavior relaying on either low-cost tools such as social sanctions, or high-cost tools, such as violence or courts. In the model, trustworthy behavior reflects the existence of a high-cost enforcement tool (the court), but in reality, many forces may shape individual's answers to these questions. [29]

We couple these general trust questions with questions about business behavior that involves trust, including the formation of business partnerships. We conducted extensive piloting to identify the most common cooperative activities that small-scale manufacturers engage in, across all industries. We then adapted the language used by our piloting participants to create the following four questions:

- Sometimes two or more businesses participate in a common order from a client, or one business subcontracts to other businesses part of an order. Have you ever done this with another business like yours? (share order)

- Sometimes businesses make joint orders of materials from suppliers. Have you ever done this with another business like yours? (joint buy)

- Sometimes businesses ask for advice (or give advice) to other firms doing their same activity, for instance on topics like: the production process, the market conditions, new technologies, business practices, suppliers. Have you ever done this with another business like yours? (advice)

- Sometimes businesses borrow (or lend) machines, materials or other assets from firms doing their same activity. Sometimes they hire (subcontract) employees who come from other firms doing their same activity for a short period of time. Have you ever done this with another business like yours? (lending)

In our analyses, we use both indicator variables that take on a value of one if an individual ever engaged in a particular activity and also an index of cooperative behavior from their responses (averages of the four indicator variables).[30]We end this section by also discussing our limited information on the transfer of knowledge across Lusakan entrepreneurs.

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[28]The Trust Neighbors and Trust Strangers variables were converted into dummy variables by combining low scores (1 and 2) and high scores (3 and 4). Low scores were given a value of 0, and high scores a value of 1.

[29]This flexibility allows us to interpret individual trust as a proxy of individual investment in social capital. As for any other form of capital, investing in social capital requires forming expectations on its returns, which can be affected by several determinants such as other's trustworthiness, risk aversion and the ability to punish cheating (Glaeser et al, 2000; Ashraf et al, 2009; Butler et al, 2010).

[30]Results are robust to alternative aggregations of these variables, such as a z-score.

Panel A of Table 6 shows the mean differences in trust between men and women. Women are less trusting across all three direct survey measures. Women are more likely to disagree with the statement that they would be comfortable leaving their shop unattended. Panel B of Table 6 shows that women are also less likely to engage in any of the four cooperative behaviors that we measure.

Table C.2 shows that low levels of trust are associated with lower frequency of cooperation among entrepreneurs. These results support the view that the trust questions are capturing something real about the trustworthiness of the environment. Table C.3 shows that cooperative behavior is also correlated with our three measures of sales. While these correlations do not imply any causal relationship, they are compatible with the view that entrepreneurial activity benefits from the ability to form partnerships with others.

In the previous section, we documented that female entrepreneurs selected into less profitable industries. Our model suggests that this self-selection occurs because women choose industries with other women, because they are able to trust and partner with those women, either as customers or collaborators.[31] Figure 12 shows that women generally have fewer social interactions with other entrepreneurs in their industry, but that tendency disappears in industries that are not male dominated. Women who work in the disproportionately female industries have social interactions that are as frequent as men in those industries.

Perhaps the most important form of cooperation occurs when one urbanite shares knowledge with another. In these informal industries, many skills are often passed along from one worker to another. Yet chains of knowledge also can require trust. In many cases, a skilled worker who teaches a newcomer expects that student to serve as an apprentice. For centuries, the relationship between mentor and apprentice has been open to abuse. Apprentices, including Benjamin Franklin, run away to avoid promised service. Mentors typically gain the power to punish their students either physically or by harming their reputations, and that power also creates the potential for misuse, especially between a man and a woman.

Figure 11 shows that male entrepreneurs are far more likely to have been taught their trade by another entrepreneur or a family member. Female entrepreneurs are usually formally trained. Female entrepreneurs are also less likely to have taught others their trade, but this result is not robust to other controls.

Table 7 shows these results using a linear probability model with controls for business density and owner characteristics. Regression (1) shows that women are 19.1 percent less likely to learn their trade from another owner. Regression (2) shows that they are 13.9 percent less likely to learn from another owner in the same industry. Regression (3) shows that they are 15 percent less likely to learn from family and friends, which seems more plausibly related to gender discrimination within the household than trust.

The last three regressions in the table show the relationship between the source of the owner's knowledge, sales and earnings. Regression (4) shows that in a good week,

women have sales that are .6 log points lower than men, but this difference is largely reduced if women have learned from another owner or family member. Regression (5) repeats this regression for sales in a bad week and finds quite similar results. Regression (6) repeats the regression using employment as the dependent variable. The pattern for employment is similar but the interaction between owner gender and source of skill is not significant. If human capital externalities rely on trust, then women may be unable to access those externalities and benefit fully from working in a dense urban environment.

5.2 Institutions and Female Trust

In this section, we ask whether institutions can mitigate the gender gap in collaboration and earnings among Lusaka manufacturers. The model predicted that female entrepreneurship requires both female bargaining power and rule of law, and gender norms appear to be quite biased in Zambia. Yet conditional upon entry, the model predicts that women will be unequivocally more likely to partner with men when rule of law is higher, independent of gender discrimination.

The two conditions for partnership in Proposition 1 are $\frac{\pi - q - b}{\Delta + b} > \delta$ and $\frac{\pi - 2q}{\Delta} > \delta$, depending on parameter values. Both conditions depend on the returns to partnership and the returns and costs of cheating, but as long as these parameters are held constant, the model strongly predicts that improvements in the quality of legal institutions will make partnership between men and women more likely.

We use two measures of institutional strength: physical proximity to the Small Claims Court and access to the justice offered by the chief of a formal market. We then compare the outcomes of female and male entrepreneurs who are located within a market, or close to the Small Claims Court, with their counterparts who are located either outside a market or further away from the Small Claims Court.

A primary question is whether these measures of access actually capture δ. If market chiefs or the Small Claims Court are thoroughly biased, then physical proximity to them will not engender cooperation by women. The closest mapping between these measures and our model occurs when women have no ability to enforce contracts against men without these institutions ($\delta = 1$), but that with these institutions δ rises to some higher number.

Tables 8 and 9 show the following regression where cooperative behavior is regressed on access to legal institutions and the interaction between these institutions and gender. We run regressions of the form:

$$coop_{is} = \beta_1 Female_i + \beta_2 instProximity_i + \beta_3 Female_i * instProximity_i + X_i' \delta_i + \epsilon_{is}$$

where $coop_{is}$ is the outcome variable for business i in sector s.

The dependent variables in columns 1-4 are the indicator variables that capture cooperative behavior: whether the respondent said that they had lent/borrowed capital, given/received advice, participated in a common order from a client, or placed a joint order of materials with another business like their own. The dependent variable in column 5 is their mean. The set of controls X_i includes the following characteristics

about the area around the business: the logarithm of the total number of businesses within 100 meters of business i, the logarithm of the total number of businesses in the same industry (NAICS3) within 100 meters around business i, and a dummy for whether the business is within 100 meters of a market ("business density controls"). Our empirical strategy compares the effect of institutional proximity for businesses of different genders that are exposed to similar demand conditions and agglomeration effects.

Table 8 shows that being in a market disproportionately increases the probability of sharing an order or giving advice for women. It also increases women's average cooperation.[32] This is consistent with the hypothesis that strong market leaders might provide support to women's interactions with other businesses, overcoming their disadvantage in bargaining power. Figure 10 shows that the increase in women's average cooperation in markets is not driven by markets where women's manufacturers are the majority, but also happens in markets where men's manufacturers are the majoritarian group.

Table 9 shows the relationship between cooperation and the distance to the Small Claims Court. Distance from the Small Claims Court disproportionately reduces cooperation for women.[33] Figure 13 shows the proportion of people of each gender cooperating with other businesses based on distance from the Small Claims Court. Cooperation is stable for men, with the exception of the more distant areas. If women's business location is farther from the Small Claims Court, then cooperation diminishes. Both tables tell a consistent story in which access to legal institutions disproportionately enables cooperation by female entrepreneurs.

Tables 10 and 11 turn to sales, which is our primary measure of economic success. Table 10 regresses three measures of sales on a dummy indicating the business-owner's gender, a dummy on whether the business is located within a market, and their interaction. All regressions include industry fixed-effects, business density controls and business owner controls.[34] Women sell less than men in all three specifications and in two of the specifications the difference is significant.

The interaction term is significant, suggesting that female businesses particularly benefit from locating within a market and having access to a market chief. Given the central role of the Chief in dispute resolution, this result may reflect women's increased ability to trust when there is a strong enforcing institution such as the markets chief.

In Table 11, we perform exactly the same analysis as in Table 10, but now focusing

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[32]This relationship remains the same even when including business owner controls (such as whether the owner keeps written records of purchases made, age of the business owner, owner's marital status, among others). It is also qualitatively the same when controlling for industry fixed effects, but the direct effect of gender is attenuated. See table C.4 of the appendix.

[33]This relationship remains the same even when including business owner controls (such as whether the owner keeps written records of purchases made, age of the business owner, owner's marital status, among others). It is also qualitatively the same when controlling for industry fixed effects, but the direct effect of gender is attenuated. See table C.5 of the appendix.

[34]Owner controls include whether the business owner keeps written business records of every purchase and sale made, whether her/his business is registered individually, whether the business owners trust their neighbors, how old the business is, how many days the business owner spends working in the business, age of business owner and whether business owner is married or not.

on the Small Claims Court.[35] There seems to be no strong evidence on the Small Claims Court significantly affecting businesses' sales, neither for the female nor for the male-owned businesses. Indicator variables for the distance to the Small Claims Court, and their interaction with the gender indicator, are largely insignificant. One natural interpretation of these results is that the Market Chief is a far better known and more effective remediation mechanism than the Small Claims Court, which is largely unknown in our sample.

Despite the robustness of these trends to different controls, unobservable characteristics of entrepreneurs located into markets might be driving our results. A particular worry is that the higher density of businesses in markets might mechanically increase the opportunities - and thus the incentives - for cooperation. We address this issue in the next section, where we present results from a lab-in-the-field experiment that shows the causal effect of institutions on trust and business cooperation.

6 Trust, Gender and Institutions in Zambia: Experimental Evidence

To provide causal evidence of the impact of institutions on trust and business cooperation, we perform an embedded experiment with a sample of Lusaka entrepreneurs. These experiments, an adapted version of the trust/investment game pioneered by Berg et al. (1995), examine whether institutional support particularly impacts female players. We run the games with actual entrepreneurs located inside or around formal markets and involve actual local institutions: Market Chiefs and the Small Claims Court judges.

6.1 Experimental design

Using data from the Census, we randomly selected participants for the experiment, stratifying by gender and whether the business is located within a market. In order to avoid imposing on marketeers' time and to increase control, we conducted the game within people's shops. Surveyors communicated with each other electronically to convey to a player the choice of their partner in real time.

Using the Lusaka Census of Urban Entrepreneurs, we constructed lists of all entrepreneurs within each market as well as all entrepreneurs within 500 meters of the market border. The sample selection procedure for the 2017 survey was designed to oversample manufacturers and women in a selection of Lusaka's 80 dense urban marketplaces. We chose sixteen markets for study that contained the largest numbers of manufacturers. For each market, we used the 2016 Census data to assemble a list of entrepreneurs located inside the market and a list of entrepreneurs outside the market, but within 500 meters of its borders.

We oversampled the manufacturing sector by placing all of the manufacturers at the top of the list in random order and all other businesses at the bottom of the list in random order. If a marketeer could not be located or refused to participate, we

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[35]This relationship remains nearly the same when including industry fixed-effects and business owner controls. See Table 11 of the appendix.

replaced the marketeer with the next female on the list. As soon as all women had been exhausted, the recruiters simply moved to the next marketeer on the list. The survey team visited businesses on the lists in this way until they had valid responses for 24 businesses inside each market and 6 businesses outside each market. We recruited a total of 480 participants across the 16 marketplaces.[36]

The experiment consists of a modified version of the trust game (Berg et al, 1995), framed as an opportunity to invest in another person's business opportunity. Player A (the Investor) was given 10 tokens that could either be kept or invested in the business of Player B (the Trustee). The Trustee received three times the number of invested tokens and must decide how many to return to the Investor. The Trustee used the strategy method: before receiving the Investor's tokens, he or she completed a matrix indicating how many tokens they would like to return for a given amount sent. The decision in their matrix was followed even if they wanted to change it after the Investor's offer.

Participants played the game for two rounds in total, but they switched roles between the first and the second round. Players who started playing as an Investor (Trustee) would play as a Trustee (Investor) in the second round. After the game was complete, players could exchange tokens for real money. The sessions were on average 90 minutes long. Investors earned on average 11.4KW (1 dollar at the time) and Trustees earned 6.6KW (0.60 dollars) per round. These amount to 3.6 percent and 2.1 percent of average daily earnings.[37] In addition, all players received a participation fee of 35KW (3.5 dollars) as a token of appreciation for their time.

We cross-randomized two experimental conditions (Table 12). The first condition tests the effect of institutions on trust. We randomly assigned pairs of players to three groups: a control group that receives no access to institutions, a first treatment group that has access to the Small Claims Court and a second treatment group that has access to the market chief. If the Investor is dissatisfied with the number of tokens received, then the Investor may ask the experimenters to go on their behalf to the court or chief to adjudicate. The invitation follows:

> If you think that the number of tokens sent back by Player B is not fair, you can ask us to call the chief (senior clerk at the Small Claims Court) on your behalf, to decide how many tokens each of you should get. The chief (senior clerk) will then decide how many tokens each of you should get. The chief's (senior clerk's) ruling is based only on your choices and the choices of player B, and we will tell you their decision accordingly. The chief (senior clerk) does not know anything about you and the other player, only your choices. Player B will know that you can complain to the chief (senior clerk). In the case that you complain, the final division of tokens will be determined by the ruling of the chief (Small Claims Court).

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[36]475 of the games responses were usable in the data analysis.

[37]In 7 percent of chief-treated games and 9 percent of court-treated games, the Investor asked for arbitration. Average earnings for all games before arbitration were 11.3 tokens for the Investor and 6.7 for the Trustee.

Player A can ask us to consult the chief (senior legal clerk at the Small Claims Court) on his/her behalf, to decide how many tokens each of you should get. The chief's (senior clerk's) ruling is based only on your choices and the choices of player A, and we will tell you their decision accordingly. The chief (senior clerk) does not know anything about you and the other player, only your choices. In the case that player A complains, the final division of tokens will be determined by the ruling of the chief (Small Claims Court).

The implementation of the complaint required us to ensure that participants trusted that the experimenters would call the institution to complain, and that the Chief and the Small Claims Court Senior Clerk would understand the game and act as if it were a real-life dispute. We provide details on our solutions to these challenges in Appendix B.

In previous sections, we showed that cooperation levels are higher for businesses located inside formal markets than outside formal markets. The second experimental condition allows us to explore whether this result is driven by in-group vs out-group dynamics which could increase cooperation within markets independently of contract enforcement (Kranton et al., 2018). Pairs of players were randomly assigned to two groups. For the first treatment group, both players were drawn from within the same market. For the second treatment group, one participant was drawn from the market, while the other from outside the market. For all groups, the players are told whether they are playing with a person from the same market or an outsider. The two experimental conditions were cross-randomized, yielding five distinct experimental groups.

In order to assure understanding of the game, everyone had to correctly answer understanding checks about the rules of the games with the surveyors before proceeding.

We also implemented a Pre-Games Survey with questions about access to institutions and exposure to crime. We asked entrepreneurs whether they had had disputes with other business owners, how disputes had been resolved, and whether respondents had heard of the Small Claims Court. We also presented business owners with a hypothetical scenario in which one marketeer failed to pay back a loan to another. Business owners were asked whether they thought that the market chief, Small Claims Court, and police would be fair and/or slow in arbitrating the dispute.[38]

Table C.6 shows mean differences by gender of these variables. Even though men and women are equally likely to have had work-related disputes and to know about institutions such as the Small Claims Court, men are significantly more likely to seek out another person, group or institution for help in resolving the dispute. This suggests women believe that institutions will not be effective for them. The fact that both women and men are similarly prone to be victims of theft, but the thief is rarely caught when the case involves female entrepreneurs, suggests why women may hold such a belief. Men and women are equally pessimistic about the fairness of police or the chief on average, but women are more likely than men to think that either the market chief or the police

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[38]The pre-game survey might have primed participants to think about their past experiences with institutions before the play. This should not be an issue for the interpretation of the results as long as this effect is the same across experimental conditions.

are slow in dispute resolution. Women reported being in general less trusting, feeling less comfortable when leaving their shops unattended. Overall, Table C.6 indicates that institutions may be more effective for men, which leads women to rely less on these institutions and to have lower trust levels. Yet even biased institutions may be better for women than a complete absence of rule of law.

The pre-games survey showed a significant difference between market chiefs and the Small Claims Court. Market chiefs are a well-known institution to both men and women. For instance, one participant said that, in his market, the marketeers "have resolved to take all disputes to the market chairman". Half of the games participants think that the chief is "usually or always" fair in solving disputes.

The participants also note the flaws of Market Chiefs. One-fifth of men and one-quarter of women think that the chief is "usually or always" slow in solving disputes. Moreover, across markets, the chief's perceived fairness decreases as the proportion of female manufacturers increases. In the games, we improve upon this well-known institution by ensuring anonymity, which should eliminate any possibility of gender bias, and by bringing claims to the Chief on the participants behalf.

The subjects' awareness of the Small Claims Court's existence was far more limited. Eighty percent of our sample had not heard of the Small Claims Court before. Among the 20 percent who had heard of the Small Claims Court, half gave a negative answer to the question "whether they thought that business owners like them had access to the SCC". Five women out of 25 (and 7 men out of 76) mention that the SCC has high costs and "terribly" long procedures.[39] This limited and faulty knowledge, which we discovered only after setting the experiment in motion, led us to conclude that the Small Claims Court was not understood as an institution and we therefore present our results on the Small Claims Court only in Appendix tables.

We will interpret having access to the market chief - as compared to the control - as an improvement to the local institutional quality.

6.2 Results on Trust and Trustworthiness

Table 13 shows our primary results. Regression (1) uses the amount sent in the trust game as our experimental measure of trust. In this regression, we find that women without access to the Market Chief trust much less than men. This trust gap is compatible with all of the previous results in this paper showing the female entrepreneurs collaborate less then man.

This trust difference is almost completely eliminated when we introduce the market. As Figure 14 shows, men and women have a sizable gap in trust without the Market Chief. With the market chief, this gap disappears. This result suggests that experimentally generated differences in access to rule of law appears to encourage cooperation disproportionately for women in a developing world setting.

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[39]For instance, one female participant felt like the SCC "is a waste of time due to complicated procedures and costs. Also most people are illiterate and don't understand the services provided as well as what it's for".

Regression (2) examines trustworthiness using the average return ratio, as in Glaeser et al., (2000). We divide the number of tokens the Trustee would return by the number of tokens available (return ratio) for each possible amount of tokens received, and then average over all return ratios. Somewhat surprisingly, women actually return less than men. The mean level of trustworthiness does not increase when we introduce the Market Chief, although Figure 14 shows that there is a mild reduction in the share of very low return ratios with the Market Chief.

Why did the Market Chief increase trust, especially for women, but not trustworthiness? This apparent puzzle reflects one major difference between our experiment and reality. The Market Chief in the experiment has no ability to punish, just to change the return ratio. Consequently, there was no real reason for Trustees to alter their behavior, since it was unclear what the Market Chief would do. However, the Investors could still feel more protected, because even if the Trustee behaved badly, the Market Chief could still protect their investment. Regressions (3) and (4) shows the final earnings. Regression (3) shows that female and male Investors in the control group tend to receive the same number of tokens at the end of the game. The chief raises the Investors' total earnings, with the effect being statistically the same for entrepreneurs of both genders. Regression (4) shows that the chief has little impact on the earnings of the Trustees.[40]

7   Conclusion

The developing world's rapid urbanization generates economic opportunities because urban density allows for collaboration and trade that is just not possible on far-flung farms. Yet the ability to interact positively is limited if one partner consistently fears expropriation by the other. Consequently, rule of law complements urbanization, not just because effective public order reduces activities that generate negative externalities, like water pollution, but also because rule of law enables a wider range of positive interactions.

The advantages of rule of law are particularly high when one set of actors has more power in a state of anarchy than the other. If men are more prone to use violence than women, then this will reduce women's bargaining power without legal support, and may cause inter-gender partnerships to break down or fail to form. In Lusaka, we believe that that industrial segregation of female entrepreneurs partially reflects the advantages of being able to trade within genders.

A central theme of this paper, and an implication of our cross-sectional and experimental work, is that even gender-neutral applications of rule of law can have benefits that accrue disproportionately to women. When rule of law is absent, the threat of violence looms over even seemingly innocuous market transactions. Men have displayed a disproportionate propensity towards violence across almost every known human society (Wilson and Herrnstein, 1985).Consequently, enforcing basic rule of law can make it easier for women to transact with men.

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[40]See the Appendix for results of the game splitting the sample by all the different institutional treatments.

A second theme is that female entrepreneurship can be blocked both by weak legal institutions and by social norms that favor men and male bargaining power. Women can either lose in ex ante bargaining or ex post expropriation. Women will only enter entrepreneurial fields where much of the benefits require dealing with men, when they are protected from both types of loss.

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Tables

Table 1: Countries by Rule of Law and Discrimination in the Family

(a) Number of Countries by Rule of Law and Discrimination against Women

Number of countries			
		Discrimination in family	
		Low	*High*
	High	47	26
Rule of law		29.56%	16.35%
	Low	32	54
		20.13%	33.96%

This table shows the categorization of countries in our data using "discrimination of the family" from the SIGI above or below median (on the columns) and the WB rule of law rank decile (on the rows) above or below median.

(b) Female Entrepreneurship by Rule of Law and Discrimination against Women

Female ownership			
		Discrimination in family	
		Low	*High*
	High	36%	18%
	sd	[0.13]	[0.12]
Rule of Law	*N*	13	11
	Low	24%	16%
	sd	[0.13]	[0.10]
	N	13	36

This table shows the proportion of firms with female ownership in each combination of countries, categorized using "discrimination of the family" from the SIGI above or below median (on the columns) and the WB rule of law rank decile (on the rows) above or below median.

Table 2: Interaction between Rule of Law and Female Bargaining Power across Countries

	Female ownership								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Rule of law > med	0.017	0.033	0.027	0.020	0.017	-0.002	-0.146***	-0.152***	-0.183***
	(0.039)	(0.042)	(0.042)	(0.066)	(0.067)	(0.065)	(0.025)	(0.030)	(0.033)
Discr in family < med	0.071*	0.086**	0.114**						
	(0.039)	(0.040)	(0.045)						
Discr in family < med x Rule of law > med	0.113*	0.117*	0.115*						
	(0.063)	(0.063)	(0.064)						
Violence on Wives < med				-0.050	-0.051	-0.047			
				(0.053)	(0.057)	(0.073)			
Violence on Wives < med x Rule of law > med				0.176*	0.165	0.161			
				(0.100)	(0.109)	(0.115)			
WJP Gender Equality > med							0.115**	0.106**	0.115**
							(0.051)	(0.053)	(0.050)
WJP Gender Equality > med x Rule of law > med							0.122*	0.110*	0.125**
							(0.062)	(0.060)	(0.055)
Log gdp pp (2011)		-0.015	-0.017		0.011	0.015		0.017	0.020
		(0.013)	(0.014)		(0.019)	(0.022)		(0.017)	(0.019)
Observations	73	73	73	36	36	36	52	52	52
R-squared	0.313	0.323	0.345	0.160	0.165	0.149	0.203	0.218	0.221
Sector	All	All	Manuf	All	All	Manuf	All	All	Manuf

Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

The regressions in this table test the theoretical prediction of complementarity between female bargaining power and fair and effective political institutions. Columns (1), (2) and (3) test the interaction between family discrimination (proxied by the SIGI index) and the World Bank rule of law rank percentile. In regression (4), (5) and (6), we use the measure of violence against women from the WVS. Regressions (2), (3) and (5), (6) and (8), (9) add controls for log of per capita income in 2011. Columns (7), (8) and (9) test whether rule of law is more important when combined with less bias against women, which we proxy using the overall WJP score on equal treatment of the genders by legal institutions. Columns (3), (6) and (9) limit the sample of entrepreneurs in the WBES to manufacturing.

Table 3: Descriptive Statistics for Entire Census

	Mean	Observations
Number of Employees	2.27	40,517
Industry (Naics2)		
Retailing industry	0.51	48,163
Manufacturing industry	0.08	48,163
Accomodation/food services industry	0.14	48,163
Other Services	0.13	48,163
All Other Industries	0.13	48,163
Number of Employees by Industry		
Number Emp. Retail ind.	1.12	20,472
Number Emp. Manufacturing industry	3.86	3,625
Number Emp. accom/food services ind	2.34	5,854
Number Emp. other services ind	1.20	5,541
Number Emp. other ind	7.05	4,873
Business is part of a chain	0.04	48,670
Business has standalone structure (bricks)	0.11	48,670
Business in building with multiple businesses	0.71	48,670
Business has standalone structure (cardboard)	0.03	48,670
Business is in residential house	0.15	48,670

This table presents industry composition for the 2016 Lusaka Census of Urban Entrepreneurs. All entries have been rounded to two decimal places. Observations may be dropped because of missing values.

Table 4: Education and Firm Size by Gender

	Male Mean	Fem Mean	Diff	Male N	Fem N
Panel A: Firm Size					
No. full-time emp.	1.05	0.68	-0.38***	1579	635
	(0.06)	(0.07)	(0.10)		
No. part-time emp.	0.99	0.29	-0.69***	1571	633
	(0.08)	(0.04)	(0.13)		
No. apprentices/unpaid	0.68	0.35	-0.33	1575	634
	(0.13)	(0.04)	(0.21)		
No. family members	0.49	0.30	-0.19***	1546	602
	(0.03)	(0.03)	(0.04)		
Panel B: Education					
Training (mgmt/Entrep)	0.21	0.28	0.06***	1570	631
	(0.01)	(0.02)	(0.02)		
University	0.04	0.03	-0.01	1566	629
	(0.00)	(0.01)	(0.01)		
Diploma	0.16	0.19	0.03*	1566	629
	(0.01)	(0.02)	(0.02)		
Completed Secondary	0.23	0.20	-0.03	1566	629
	(0.01)	(0.02)	(0.02)		
No Formal Education	0.02	0.01	-0.01*	1566	629
	(0.00)	(0.00)	(0.01)		

Panel A compares firm size by gender for completed intervews in the Manufacturers Survey. Panel B compares employment and education by gender for completed interviews in the Manufacturers Survey. All entries have been rounded to two decimal places. Sales variables contain outliers. Stars denote statistical significance of the two-sided t-test by gender. *** denotes p<0.01, ** denotes p<0.05, and * denotes p<0.1.

Table 5: Gender Sales Gap for All Manufacturers

				Logged Sales				
	(1) Good Week	(2) Bad Week	(3) Good Week	(4) Bad Week	(5) Good Week	(6) Bad Week	(7) Good Week	(8) Bad Week
Female	-0.587***	-0.669***	-0.596***	-0.673***	-0.135**	-0.294***	-0.0832	-0.230***
	(0.0584)	(0.0709)	(0.0577)	(0.0712)	(0.0569)	(0.0698)	(0.0631)	(0.0765)
Apparel					-1.037***	-0.899***	-0.952***	-0.833***
					(0.0610)	(0.0742)	(0.0594)	(0.0746)
Food					0.304***	0.765***	0.195**	0.632***
					(0.0832)	(0.0928)	(0.0852)	(0.0956)
Hours Worked							0.0495***	0.0671***
							(0.0166)	(0.0198)
Days Worked							0.0599*	0.0827**
							(0.0312)	(0.0374)
Married							0.157***	0.135**
							(0.0568)	(0.0675)
Observations	2068	1848	2054	1836	2068	1848	2047	1830
Adjusted R^2	0.043	0.045	0.109	0.085	0.217	0.232	0.257	0.252
Mean Dep Var	7.1	5.89	7.09	5.89	7.1	5.89	7.1	5.88
Education dummies	N	N	Y	Y	N	N	Y	Y
SD Dep Var	1.28	1.44	1.28	1.43	1.28	1.44	1.27	1.43
F-test Education = 0			0	0			0	0
P-value Food = Apparel					0	0	0	0

Robust SE in parentheses.* p<0.10, ** p<0.05, ***

This table shows drivers of logged sales in a good or bad week for entrepreneurs of all industries in the 2016 Manufacturers Survey. The dependent variables are the log of the answers given when asked the sales in a good week and the sales in a bad week. If the person could not provide an exact number, we also asked for an upper and lower bound. We then imputed the average of the bounds to the sales variables. We regress on indicator variables indicating different levels of educational achievement: the omitted category is "illiterate or literate, no formal education", the other categories are "Primary Incomplete", "Primary", "Secondary Incomplete", "Secondary", "Diploma", "University". For industry, the omitted category is "other".

Table 6: Trust and Cooperation in Zambia by Gender

	Male Mean	Fem Mean	Diff	Male N	Fem N
Panel A: Trust					
Trust Strangers	0.29	0.20	-0.09***	1590	644
	(0.45)	(0.40)	(0.02)		
Trust Neighbors	0.54	0.43	-0.11***	1589	640
	(0.50)	(0.50)	(0.02)		
Trust GSS	1.10	1.04	-0.07***	1585	645
	(0.31)	(0.19)	(0.01)		
Feel safe with shop unattended	2.81	2.49	-0.32**	692	253
	(1.71)	(1.59)	(0.12)		
Panel B: Cooperation					
Joint Buy	0.35	0.27	-0.08***	1579	637
	(0.48)	(0.44)	(0.02)		
Lent	0.55	0.44	-0.11***	1579	637
	(0.50)	(0.50)	(0.02)		
Advice	0.76	0.71	-0.05**	1579	637
	(0.43)	(0.45)	(0.02)		
Share Order	0.58	0.54	-0.04*	1579	637
	(0.49)	(0.50)	(0.02)		
Coop Average	0.56	0.49	-0.07***	1579	637
	(0.33)	(0.34)	(0.02)		

Panel A shows mean differences in trust between women and men, and Panel B shows mean differences in cooperation between women and men. The variables "Trust Strangers" and "Trust Neighbors" are measured on a scale from 1-4, and have been converted into dummy variables by combining low scores (1 and 2) and high scores (3 and 4). Low scores were given a value of 0, and high scores a value of 1. The "Feel safe leaving shop unattended" variable is measured in a scale from 1-5. Higher scores indicate that people disagree with the statement, and do not feel safe leaving their shop unattended. The variable "Trust GSS" is a dummy measuring whether most people can be trusted or not: a value of 1 indicates that "most people can be trusted", and a value of 0 indicates that "you cannot be too careful in dealing with people". The variables "Joint Buy", "Lent", "Advice" and "Share Order" are dummies that indicate whether a person ever engaged in the relevant activity. The variable "Coop Average" is an index of cooperative behavior, calculated as a simple average of the four dummies "Joint Buy", "Lent", "Advice" and "Share Order". The sample for both panels stems from our Manufacturers Survey in Lusaka (N=2,216).

Table 7: Learning History and Sales

	Learnt from			Logged Sales		Employment
	(1)	(2)	(3)	(4)	(5)	(6)
	Owner	Owner in same sector	Family or friends	Good Week	Bad Week	Full time
Female	-0.192***	-0.139***	-0.152***	-0.638***	-0.736***	-0.507***
	(0.0215)	(0.0192)	(0.0232)	(0.0943)	(0.114)	(0.166)
Informal learning				0.0601	0.0860	-0.0988
				(0.0788)	(0.0943)	(0.151)
Female×Informal learning				0.364***	0.343**	0.325
				(0.124)	(0.157)	(0.202)
Observations	2080	2080	2080	1961	1751	2078
Adjusted R^2	0.047	0.031	0.073	0.160	0.131	0.170
Mean Dep Var	.3	.22	.36	7.08	5.86	.91
SD Dep Var	.46	.41	.48	1.27	1.43	2.23
Business Density Controls	Y	Y	Y	Y	Y	Y
Owner Controls	Y	Y	Y	Y	Y	Y
Industry Fixed Effects	N	N	N	N	N	N

Robust SE in parentheses. * $p<0.10$, ** $p<0.05$, ***$p<0.01$

The variables "Owner", "Owner in same sector", "Family or Friends" are dummies that indicate whether an entrepreneur learnt the job from each category. "Informal learning" is a dummy for whether the owner learnt the business from any of the previous three categories. Business Density Controls include a dummy variable for whether the business is located within 100 meters of a market, the total number of businesses within 100 meters, and the number of business from the same sector within 100 meters. Business Owner Controls includes owner's age, business age, how many days the business owner spends working in the business, educational dummies and whether business owner is married or not. In columns (4) and (5), the dependent variables are the log of the answers given when asked the sales in a good week and the sales in a bad week. If the person could not provide an exact number, we also asked for an upper and lower bound. We then imputed the average of the bounds to the sales variables. In Column (6), the dependent variable is the number of full-time employees. The sample comes from our Manufacturers Survey in Lusaka (N=2,216).

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Table 8: The Market Effect on Cooperation

	(1) Share Order	(2) Lent	(3) Advice	(4) Joint Buy	(5) Coop Average
Female	-0.0956**	-0.156***	-0.0918**	-0.111***	-0.114***
	(0.0378)	(0.0379)	(0.0397)	(0.0381)	(0.0283)
In market	0.102***	0.131***	0.0437*	0.0563*	0.0832***
	(0.0269)	(0.0484)	(0.0252)	(0.0327)	(0.0283)
Female × In market	0.0922*	0.0750	0.0696*	0.0492	0.0715*
	(0.0507)	(0.0504)	(0.0377)	(0.0680)	(0.0401)
Observations	2216	2216	2216	2216	2216
Adjusted R^2	0.018	0.032	0.008	0.011	0.034
Business Density Controls	Y	Y	Y	Y	Y
Business Owner Controls	N	N	N	N	N
Industry FE	N	N	N	N	N
P-value (In + Fem.×In = 0)	0	0	.002	.05	0
P-value (Fem. + Fem. × In market = 0)	.923	.036	.313	.164	.146

Clustered standard errors in parentheses. * $p<0.10$, ** $p<0.05$, ***$p<0.01$

The variables "Joint Buy", "Lent", "Advice" and "Share" are dummies that indicate whether a person ever engaged in the relevant activity. The variable "Coop Average" is an index of cooperative behavior, calculated as a simple average of the four dummies "Joint Buy", "Lent", "Advice" and "Share". Business Density Controls include a dummy variable for whether the business is located within 100 meters, the total number of businesses within 100 meters, and the number of business from the same sector within 100 meters. Business Owner Controls includes whether the business owner keeps written business records of every purchase and sale made, whether her/his business is registered individually, whether the business owners trust their neighbors, how old the business is, how many days the business owner spends working in the business, age of business owner and whether business owner is married or not. Standard errors are clustered at the 1 squared-km area level. The sample comes from our Manufacturers Survey in Lusaka (N=2,216).

Table 9: Effect of Distance to SCC on Cooperation

	(1) Share Order	(2) Lent	(3) Joint Buy	(4) Advice	(5) Coop Average
Female	0.104	-0.0574	0.0204	0.139***	0.0514
	(0.0635)	(0.0407)	(0.0714)	(0.0319)	(0.0348)
2-4 miles from SCC	-0.0115	-0.00324	-0.0115	-0.0354	-0.0154
	(0.0415)	(0.0344)	(0.0621)	(0.0342)	(0.0289)
Female × 2-4 miles from SCC	-0.0852	0.0227	-0.0532	-0.137***	-0.0633
	(0.0761)	(0.0488)	(0.0766)	(0.0386)	(0.0414)
>4 miles from SCC	-0.0236	0.0987**	0.000515	0.0298	0.0263
	(0.0356)	(0.0385)	(0.0630)	(0.0325)	(0.0285)
Female × >4 miles from SCC	-0.208***	-0.0896	-0.148*	-0.241***	-0.172***
	(0.0704)	(0.0586)	(0.0789)	(0.0414)	(0.0431)
Observations	2216	2216	2216	2216	2216
Adjusted R^2	0.007	0.014	0.007	0.009	0.015
Business Density Controls	Y	Y	Y	Y	Y
Business Owner Controls	N	N	N	N	N
Industry FE	N	N	N	N	N
P-value (2-4mi + Fem. × 2-4mi = 0)	.132	.582	.124	0	.004
P-value (>4mi + Fem. × >4mi = 0)	0	.856	0	0	0
P-value (Fem. + Fem. × 2-4mi = 0)	.612	.409	.148	.969	.664
P-value (Fem. + Fem. × >4mi = 0)	.001	.001	0	0	0

Clustered standard errors in parentheses. * $p<0.10$, ** $p<0.05$, ***$p<0.01$

The variables "Joint Buy", "Lent", "Advice" and "Share" are dummies that indicate whether a person ever engaged in the relevant activity. The variable "Coop Average" is an index of cooperative behavior, calculated as a simple average of the four dummies "Joint Buy", "Lent", "Advice" and "Share". Business Density Controls include a dummy variable for whether the business is located within 100 meters of a market, the total number of businesses within 100 meters, and the number of business from the same sector within 100 meters. Business Owner Controls includes whether the business owner keeps written business records of every purchase and sale made, whether her/his business is registered individually, whether the business owners trust their neighbors, how old the business is, how many days the business owner spends working in the business, age of business owner and whether business owner is married or not. Standard errors are clustered at the 1 squared-km area level. The sample comes from our Manufacturers Survey in Lusaka (N=2,216).

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Table 10: Effect of Being in Market on Sales

	(1)	(2)	(3)
		Log Sales	
	Good Week	Bad Week	Yesterday
Female	-0.282***	-0.542***	-0.161
	(0.0943)	(0.115)	(0.111)
In market	-0.114	-0.113	-0.235***
	(0.0707)	(0.0721)	(0.0874)
Female × In market	0.200**	0.335***	0.245*
	(0.0917)	(0.117)	(0.134)
Observations	1911	1691	1364
Adjusted R^2	0.335	0.297	0.326
Business Density Controls	Y	Y	Y
Business Owner Controls	Y	Y	Y
Industry FE	Y	Y	Y
P-value (In + Fem.×In = 0)	.271	.062	.925
P-value (Fem. + Fem. × In market = 0)	.233	.013	.345

Clustered standard errors in parentheses. * p<0.10, ** p<0.05, ***p<0.01

The dependent variables are the log of the answers given when asked the sales in the previous working day, the sales in a good week and the sales in a bad week. If the person could not provide an exact number, we also asked for an upper and lower bound. We then imputed the average of the bounds to the sales variables. Business Density Controls include a dummy variable for whether the business is located within 100 meters of a market, the total number of businesses within 100 meters, and the number of business from the same sector within 100 meters. Business Owner Controls includes whether the business owner keeps written business records of every purchase and sale made, whether her/his business is registered individually, whether the business owners trust their neighbors, how old the business is, how many days the business owner spends working in the business, age of business owner and whether business owner is married or not. The regressions also include industry fixed-effects, a dummy on the owner's gender, a dummy on whether the business is located inside a market, and the interaction between the two of them. Standard errors are clustered at the 1 squared-km area level. The sample comes from our Manufacturers Survey in Lusaka (N=2,216).

Table 11: Effect of Distance to SCC on Sales

	(1)	(2)	(3)
		Log Sales	
	Good Week	Bad Week	Yesterday
Female	-0.288***	-0.480***	0.102
	(0.0550)	(0.0914)	(0.186)
2-4 miles from SCC	-0.0558	-0.0420	-0.00167
	(0.157)	(0.156)	(0.0936)
Female $\times$ 2-4 miles from SCC	0.179*	0.286**	-0.0380
	(0.0942)	(0.117)	(0.198)
>4 miles from SCC	-0.253	-0.141	-0.196**
	(0.161)	(0.164)	(0.0892)
Female $\times$ >4 miles from SCC	0.125	0.0876	-0.141
	(0.0864)	(0.113)	(0.197)
Observations	1911	1691	1364
Adjusted R^2	0.338	0.297	0.327
Business Density Controls	Y	Y	Y
Business Owner Controls	Y	Y	Y
Industry FE	Y	Y	Y
P-value (2-4mi + Fem. $\times$ 2-4mi = 0)	.37	.269	.8
P-value (>4mi + Fem. $\times$ >4mi = 0)	.314	.817	.037
P-value (Fem. + Fem. $\times$ 2-4mi = 0)	.252	.017	.52
P-value (Fem. + Fem. $\times$ >4mi = 0)	.025	0	.698

Clustered standard errors in parentheses. * p<0.10, ** p<0.05, ***p<0.01

The dependent variables are the log of the answers given when asked the sales in the previous working day, the sales in a good week and the sales in a bad week. If the person could not provide an exact number, we also asked for an upper and lower bound. We then imputed the average of the bounds to the sales variables. Business Density Controls include a dummy variable for whether the business is located within 100 meters of a market, the total number of businesses within 100 meters, and the number of business from the same sector within 100 meters. Business Owner Controls includes whether the business owner keeps written business records of every purchase and sale made, whether her/his business is registered individually, whether the business owners trust their neighbors, how old the business is, how many days the business owner spends working in the business, age of business owner and whether business owner is married or not. The regressions also include industry fixed-effects, a dummy on the owner's gender, dummies on the business' distance to the Small Claims Court, and their interaction. Standard errors are clustered at the 1 squared-km area level. The sample comes from our Manufacturers Survey in Lusaka (N=2,216).

Table 12: Experimental Treatments

Institutional Access Treatment

	Control	Chief	SCC
Inside/Inside	95	96	96
Outside/Inside	94	0	96

Numbers indicate the number of rounds in each treatment cell. Each player played two rounds (once as Investor and once as Trustee), with two distinct entrepreneurs. Three out of the 480 rounds that occurred were not used for data quality reasons.

Table 13: Games' Behavior and Earnings: Control vs Chief Treatment

	(1) Tokens Investor Sent	(2) Average Return Ratio	(3) Investor's Earnings	(4) Trustee's Earnings
Female	-1.243***	0.000	-0.210	0.355
	(0.430)	(0.026)	(0.400)	(1.202)
Chief	-0.0851	0.025	0.505	-0.373
	(0.382)	(0.020)	(0.317)	(0.668)
Female × Chief	1.610**	-0.052	0.743	1.055
	(0.682)	(0.042)	(0.694)	(1.552)
Observations	189	190	189	190
Adjusted R^2	0.020	0.000	0.029	-0.000
Mean	4.09	.42	10.86	6.76
SD	2.412	.135	2.244	4.519

Robust standard errors in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.01$

The dependent variable in Column (1) is the number of tokens sent by the Investor and in Column (2) is the average return ratio by the Trustee. The dependent variables in Columns (3) and (4) are the Investor's and Trustee's earnings, respectively. All regressions include a dummy for the round played and exclude the control group in the "outsider" condition and the Small Claims Court treatment. The sample comes from our lab-in-the-field games conducted in Lusaka in 2017.
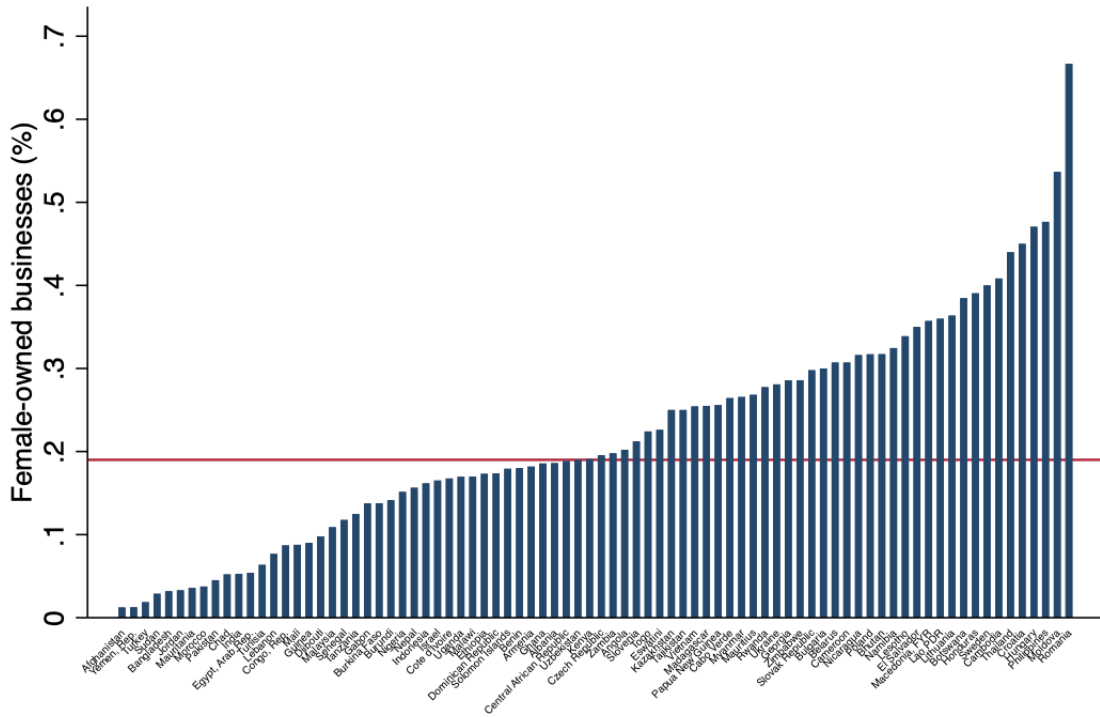
Figures
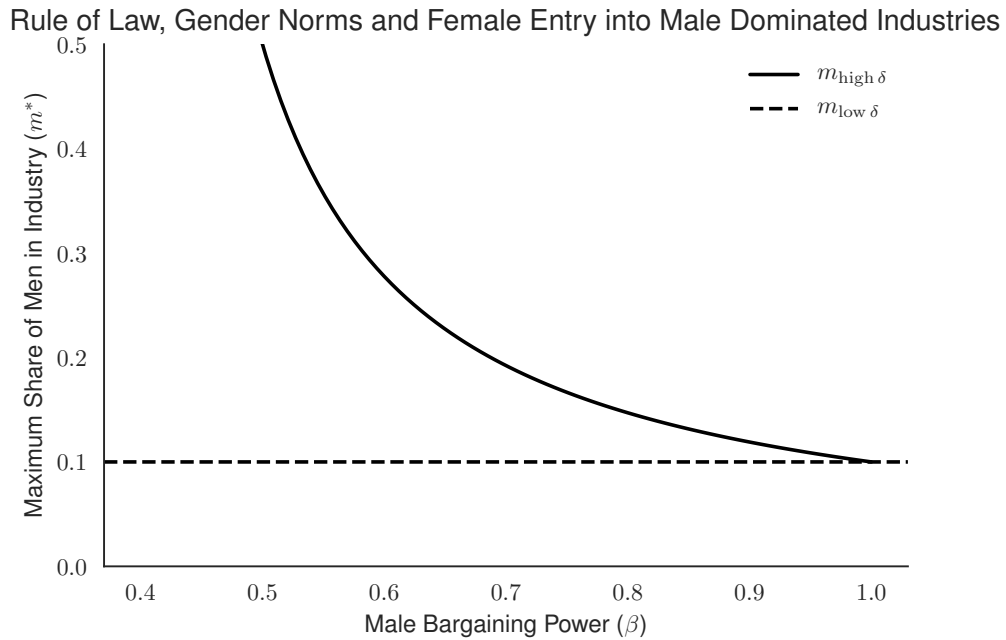
Rule of Law, Gender Norms and Female Entry into Male Dominated Industries

The two lines both capture the maximum share of men in an industry that women will enter. The bottom line shows the case where rule of law is weak and δ is high enough so that women will not partner with men. In that case, the maximum share is $1 - \theta$ which we assume to be .1. The top line is decreasing with β and it shows the case where δ is low enough so that women will partner with men, and $\frac{\delta\Delta}{\pi - 2q}$ is assumed to be .2. The threshold for entry is reasonably high when δ and β is low, but if either δ or β are high, then women will not enter into male-dominated fields.

Figure 2: Female-owned firms across countries

Source: WBES (2006-2016)
Horizontal line at the median

This Figure shows the proportion of female-led businesses across countries. Female-led firms are defined as firms with a weak majority of female owners. We consider the most recent year of the World Bank Enterprise Survey for each country (years from 2009 to 2016). We limit the sample to businesses which are sole proprietorship or partnerships. The final sample excludes countries with less than 10 observations in those categories (5%). The number of countries in this figure is 84.

Figure 3: Business Earnings by Owner's Gender
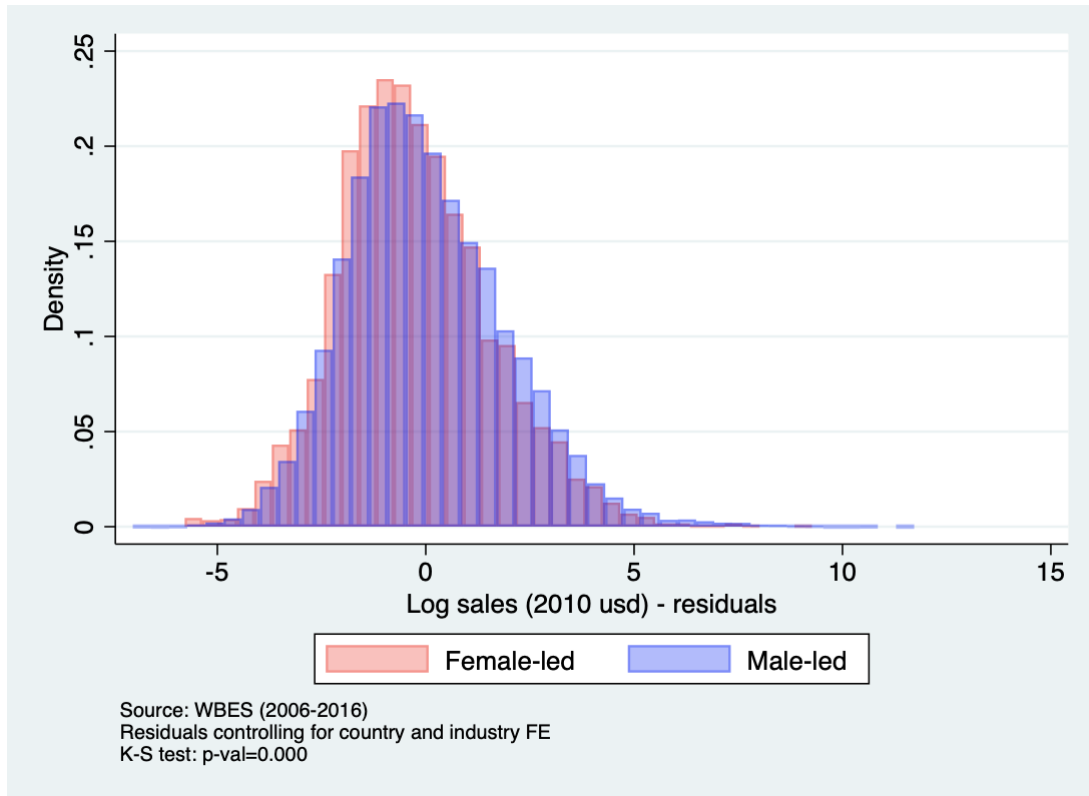
This Figure shows the gender-specific distributions of logsales in 2010 USD after controlling for country and industry fixed effect. We consider the most recent year of the World Bank Enterprise Survey for each country (years from 2009 to 2016). We limit the sample to businesses which are sole proprietorship or partnerships. The final sample excludes countries with less than 10 observations in those categories (5%). Female-led businesses are defined as firms with a weak majority of female owners. The number of countries in this figure is 82.

Figure 4: Female Business Ownership and Family Discrimination


Source: WBES and SIGI, Beta of fitted line = -.416 (SE = .054; p = 0)
N=75
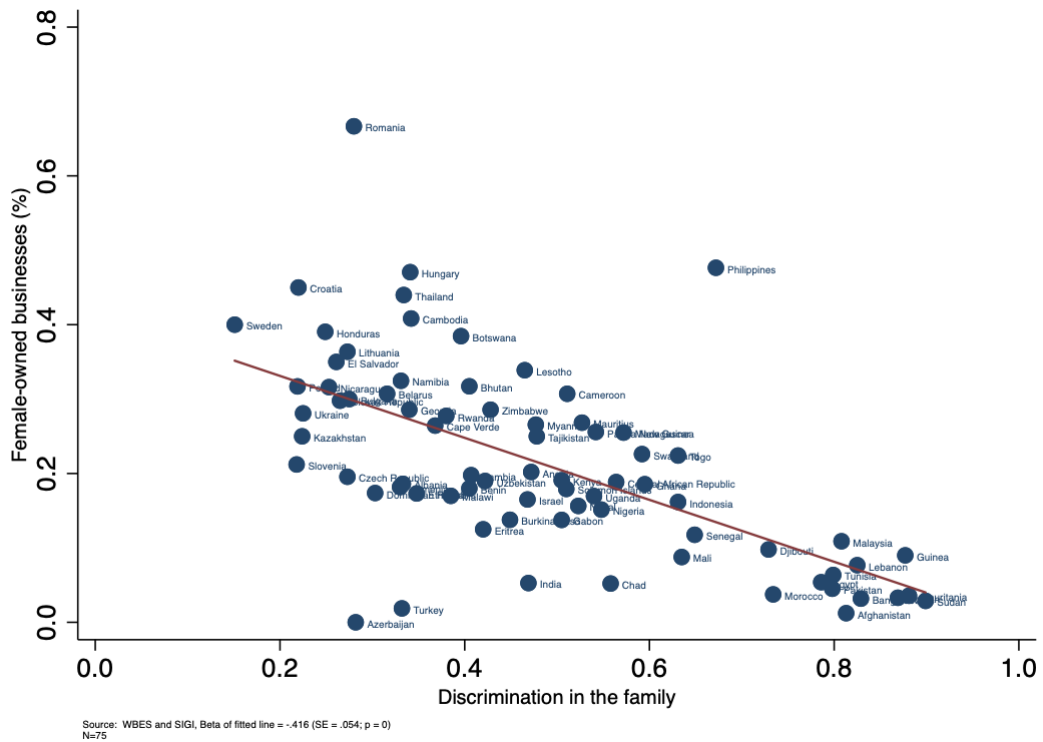
This figure shows the correlation between a country's percentage of female-owned businesses and the SIGI measure of family discrimination. Female-led firms are defined as firms with a weak majority of female owners. We consider the most recent year of the World Bank Enterprise Survey for each country (years from 2009 to 2016). We limit the sample to businesses which are sole proprietorship or partnerships. The final sample excludes countries with less than 10 observations in those categories (5%). The variable for family discrimination is constructed as the weighted average of the following subcomponents: laws on child marriage, household responsibilities, inheritance laws and divorce laws. We use the SIGI 2019. The number of countries with both variables available is 75.

Figure 5: Female Business Ownership and Rule of Law

Source: WBES and Governance Indicators, Beta of fitted line = .002 (SE = .001; p = .002)
N=82
Ownership = majority female owners
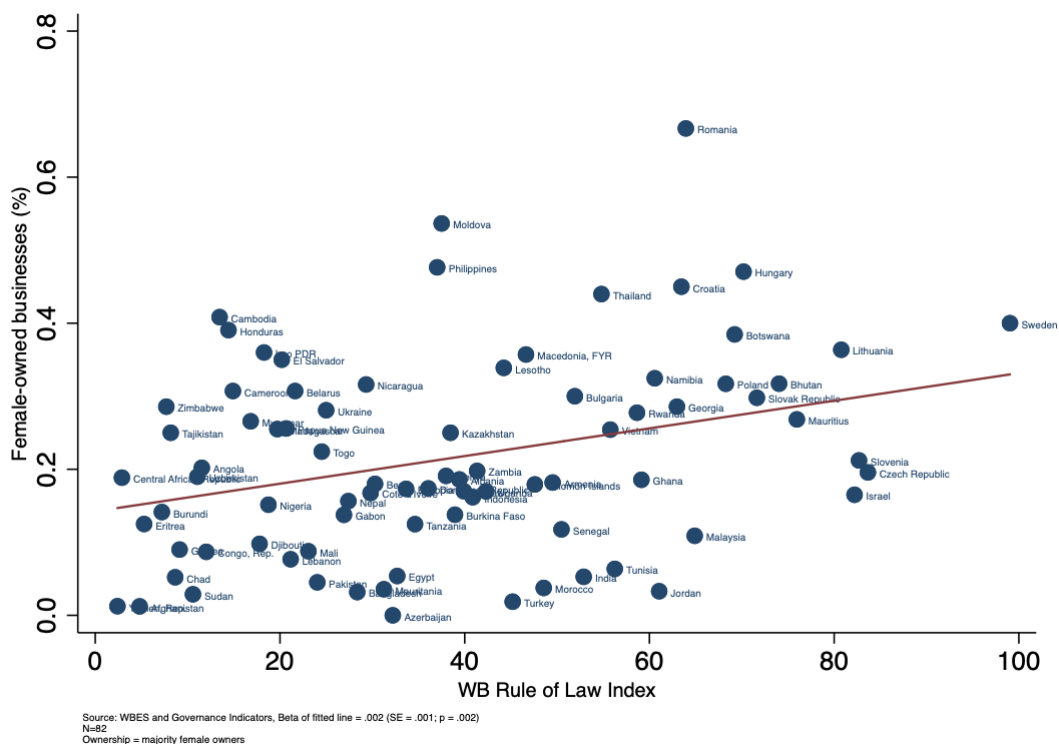
This Figure shows the correlation between a country's quality of contract enforcement as measured by the World Bank Worldwide Governance Indicators (Rule of Law Rank Percentile) and its percentage of female-owned business from the WBES. Female-owned firms are defined as firms with a weak majority of female owners. We consider the most recent year of the World Bank Enterprise Survey for each country (years from 2009 to 2016). We limit the sample to businesses which are sole proprietorship or partnerships. The final sample excludes countries with less than 10 observations in those categories (5%). We use the 2017 Rule of Law Rank Percentile from the World Bank Worldwide Governance Indicators. The number of countries with both variables available is 82.

Figure 6: Census Coverage
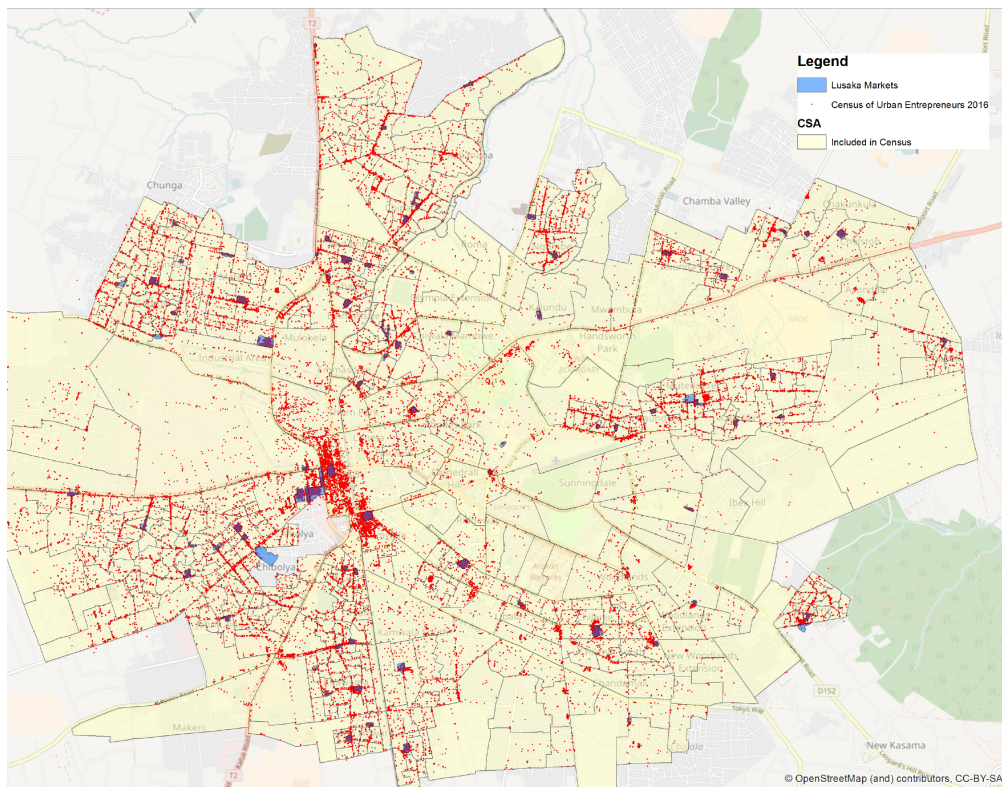
This figure shows the spacial distribution of businesses in the Lusaka Census of Urban Entrepreneurs. It covers 48,163 establishments in Lusaka. The blue squares show where markets exist.

Figure 7: Sales in Good and Bad Weeks by Gender

Logged Sales in Good Week
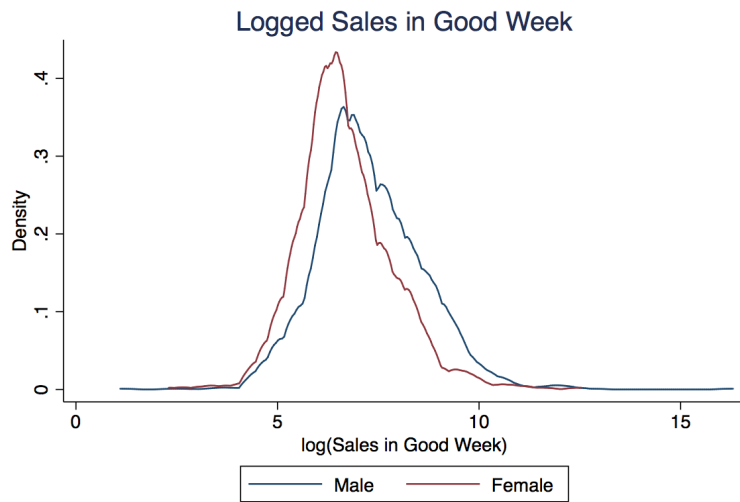
Source: Census; Male N= 1464; Female N=605

Logged Sales in Bad Week
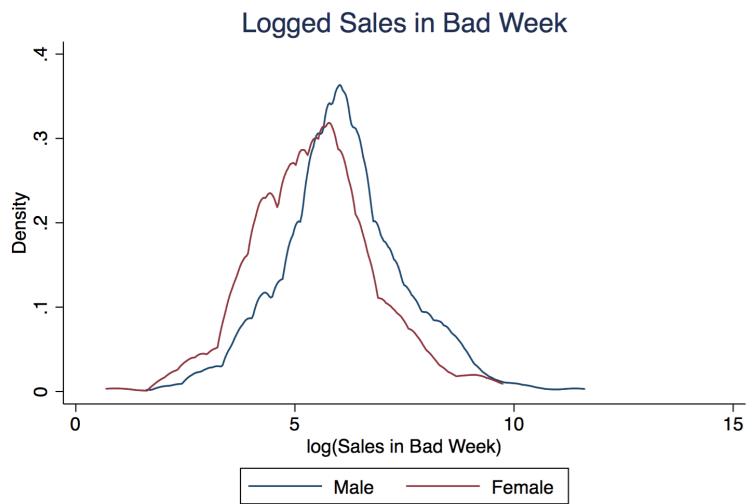
Source: Census; Male N= 1298; Female N=550

This figure shows the kernel density of logged sales in good and bad weeks by gender. The p-value of the Kolmogorov-Smirnov equality of distributions test is 0.00. The p-value of the variance test ratio is 0.001 for sales in good weeks and 0.40 for sales in bad weeks. The sample comes from our Manufacturers Survey in Lusaka (N=2,216).

Figure 8: Distribution across Industries by Gender
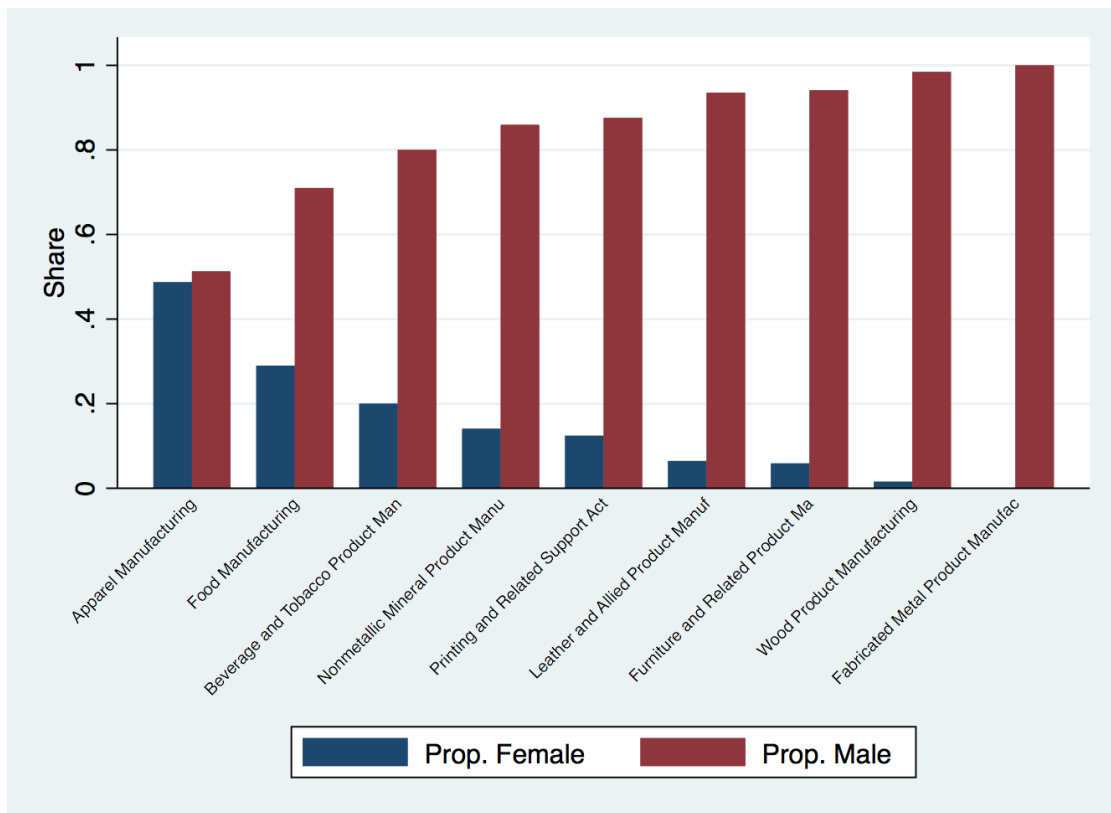
This figure shows the industries in which manufacturers from the Lusaka Census of Urban Entrepreneurs operate, by gender.

Figure 9: Small Claims Court Location
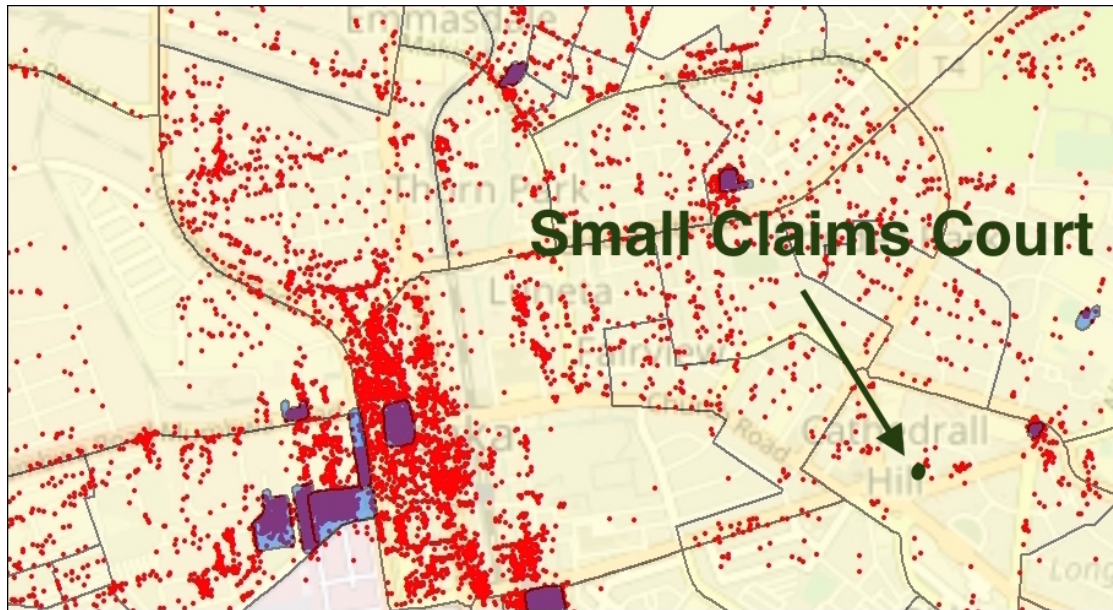
This figure shows a zoom-in of the spacial distribution of businesses in the Lusaka Census of Urban Entrepreneurs. The blue squares show where markets exist and the arrow the Small Claims Court.

Figure 10: Cooperation by Gender and Market Location
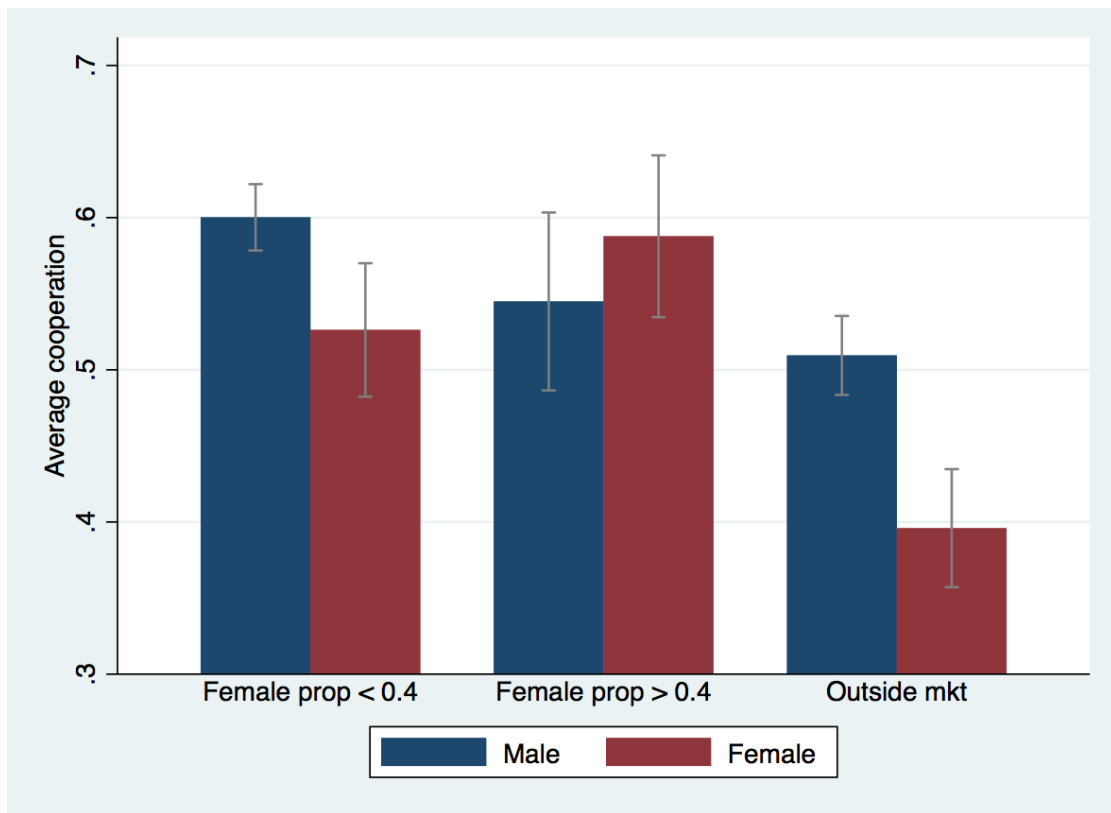
This figure shows the average cooperation of female and male-led businesses in markets with a large or a small share of female businesses, or outside of markets. The sample comes from our Manufacturers Survey in Lusaka (N=2,216).

Figure 11: Where did Entrepreneurs Learn their Trade?

Who taught you how to do this job?
Men

Legend:
- Other
- Entrepreneur in the same busines
- Formal training
- Family member
- Entrepreneur in another business
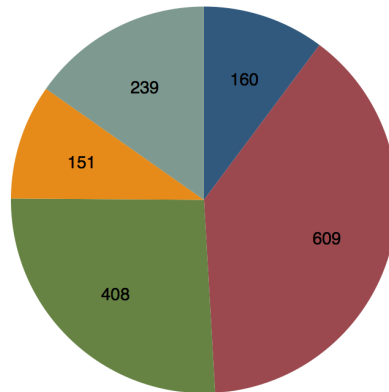
Source: 2016 Lusaka Census of Urban Entrepreneurs. N=1567

Who taught you how to do this job?
Women

Legend:
- Other
- Entrepreneur in the same busines
- Formal training
- Family member
- Entrepreneur in another business
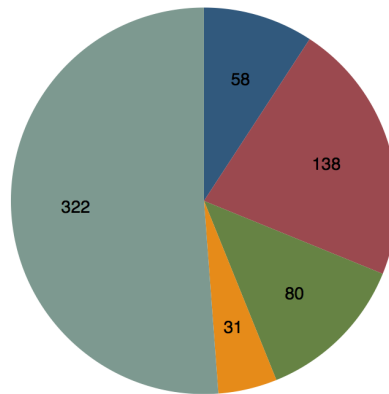
Source: 2016 Lusaka Census of Urban Entrepreneurs. N=629

This figure shows the different ways in which entrepreneurs learnt their job, by gender. Formal training was mainly interpreted as classroom training, usually delivered by governmental associations or NGOs. The sample comes from our Manufacturers Survey in Lusaka (N=2,216).

Figure 12: Talking about the Business with Other Entrepreneurs
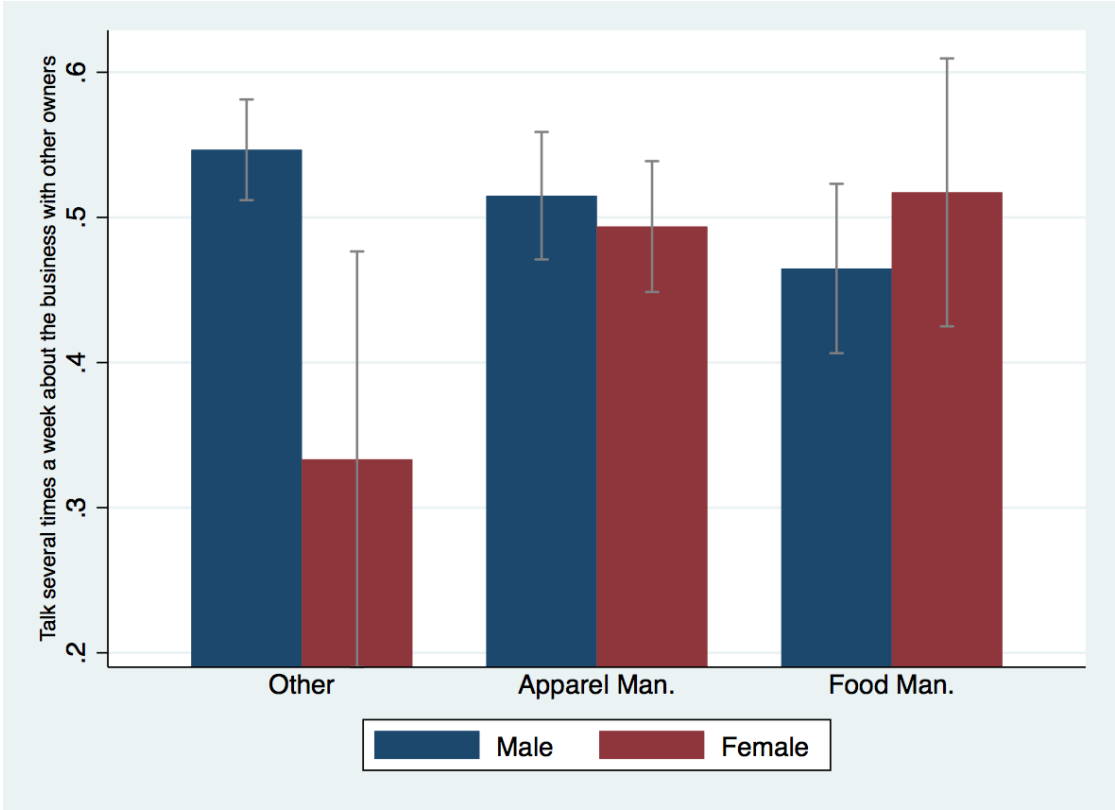
This figure shows the proportion of men and women talking several times a week with other entrepreneurs about the business. We asked "Consider other business owners in your sector in this neighborhood. How many times do you talk about topics related to the business?". The sample comes from our Manufacturers Survey in Lusaka (N=2,216).

Figure 13: Cooperative Activities by Distance to SCC
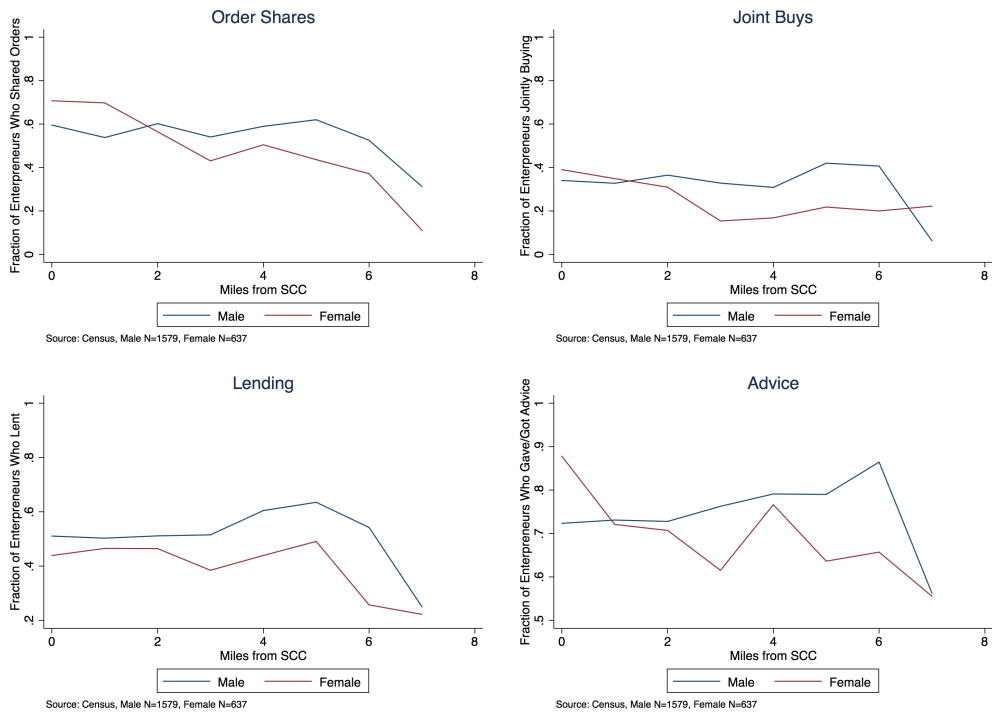
This figure shows the fraction of entrepreneurs who said they cooperated with a similar business in the given activity by gender and distance from the SCC in 1-mile buckets. The sample comes from our Manufacturers Survey in Lusaka (N=2,216).

Figure 14: Number of Tokens Sent and Average Return Ratio: Control vs Chief
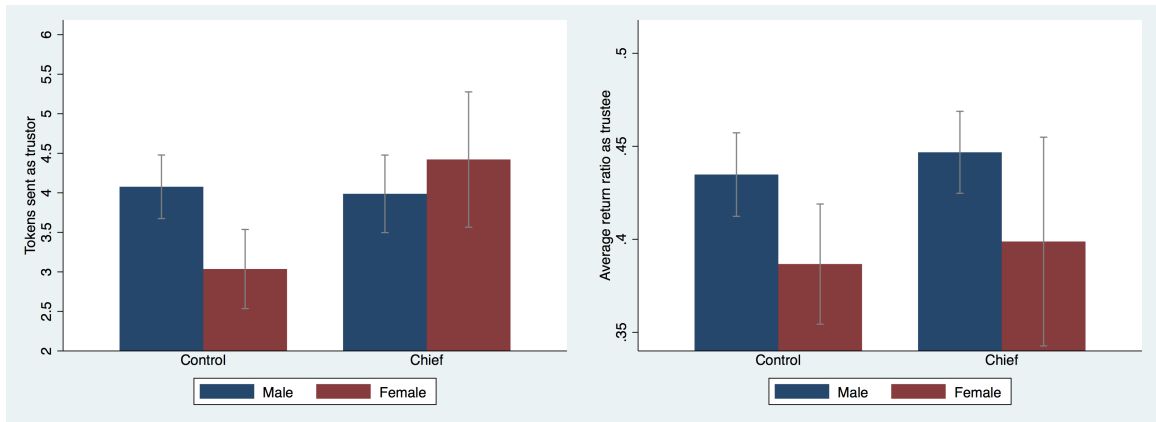
This figure shows the number of tokens sent (left) and the average return ratio (right) by gender and treatment group. The control group includes online businesses located inside markets. Data are from the experimental games.

Figure 15: Final Investor's and Trustee's Earnings: Control vs Chief
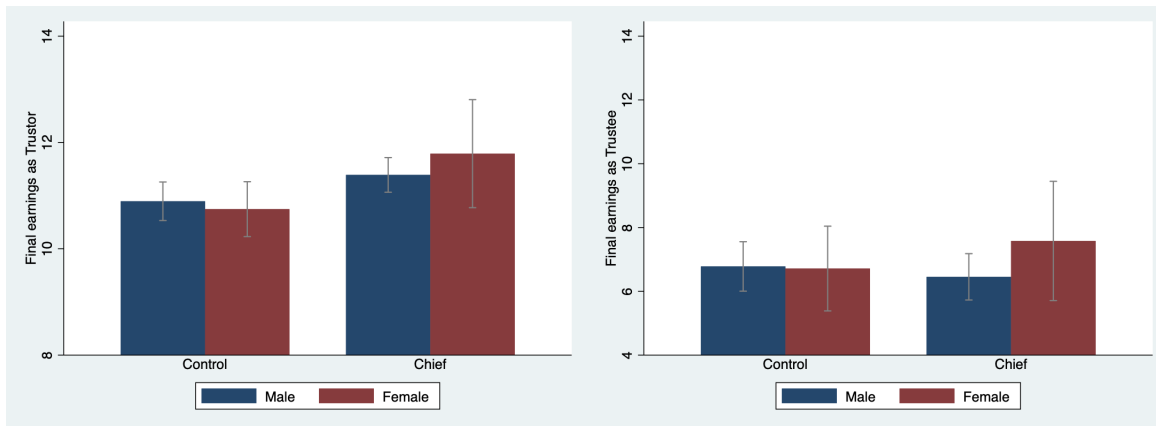
This figure shows the final earnings of the Investor (left) and Trustee (right) by gender and institutional treatment group. The control group includes online businesses located inside markets. Data are from the experimental games.

Appendix A - Proofs

Proof of Proposition 1:

A male P will always shirk when shirking is disputable. When shirking is indisputable, he will not shirk as long as $s\pi > b$. We refer to this as the IC contract and it must be satisfied for a contract to occur, since the woman will never partner when there is always shirking.

If the IC constraint is satisfied, then in any contract between a female E and a male P, the man will in expectation receive in expectation $s\pi - q + \delta \, b$, and so s must also satisfy $s > \frac{q - \delta b}{\pi}$. The woman will receive $(1-s)\pi - q - \delta(b + \Delta)$, and so her participation requires that $s < 1 - \frac{q + \delta(b+\Delta)}{\pi}$.

The total expected surplus is $\pi - 2q - \delta\Delta$, and that must be positive (or $\delta < \frac{\pi - q}{\Delta}$) for a partnership to occur. We refer to this as the individual rationality of IR constraint.

If the IC constraint is slack, then men and women share the surplus according to the bargaining rule so that men receive $\beta(\pi - 2q - \delta\Delta)$ and women receive $(1-\beta)(\pi - 2q - \delta\Delta)$, which implies that $s = \beta - \frac{(2\beta - 1)q + \beta\delta\Delta + \delta b}{\pi}$, which satisfies $1 - \frac{q + \delta(b+\Delta)}{\pi} > s > \frac{q - \delta b}{\pi}$ as long as $\delta < \frac{\pi - q}{\Delta}$.

This value of s will satisfy the IC constraint if and only if $\beta\pi - (2\beta - 1)q - \beta\delta\Delta - \delta \, b > b$ or $\frac{\beta(\pi - 2q) + q - b}{\beta\Delta + b} > \delta$. If that condition fails to hold, then E must effectively pay P efficiency wages to eliminate shirking in the indisputable case. In that case, $s = \frac{b}{\pi}$, and the male receives $(1 + \delta)b - q > \beta(\pi - 2q - \delta\Delta)$ and the woman receives $\pi - b - q - \delta(b + \Delta) < (1 - \beta)(\pi - 2q - \delta\Delta)$. When $\pi < q + (1 + \delta)\,b + \delta\Delta$ or $\frac{\pi - q - b}{\Delta + b} < \delta$, then the woman earns zero profits and the partnership will not occur.

If $\pi - 2q < \Delta\frac{q - b}{b}$ then $\frac{\pi - 2q}{\Delta} < \frac{\beta\pi - (2\beta - 1)q - b}{\beta\Delta + b}$ and if the contract satisfies the IR constraint it automatically satisfies the IC constraint as well. Consequently, if $\frac{\pi - 2q}{\Delta} > \delta$ the contract specifies $s = \beta - \frac{(2\beta - 1)q + \beta\delta\Delta + \delta b}{\pi}$, giving expected welfare of $\beta(\pi - 2q - \delta\Delta)$ to P and $(1 - \beta)(\pi - 2q - \delta\Delta)$ to E. If $\frac{\pi - 2q}{\Delta} < \delta$ then there is no contract.

If $\pi - 2q > \Delta\frac{q - b}{b}$, which will always hold when $q < b$, then we have $\frac{\pi - 2q}{\Delta} > \frac{\pi - q - b}{\Delta + b} > \frac{\beta(\pi - 2q) + q - b}{\beta\Delta + b}$. If $\frac{\beta(\pi - 2q) + q - b}{\beta\Delta + b} > \delta$, then the contract specifies $s = \beta - \frac{(2\beta - 1)q + \beta\delta\Delta + \delta b}{\pi}$, giving expected welfare of $\beta(\pi - 2q - \delta\Delta)$ to P and $(1 - \beta)(\pi - 2q - \delta\Delta)$ to E. If $\frac{\pi - q - b}{\Delta + b} > \delta > \frac{\beta(\pi - 2q) + q - b}{\beta\Delta + b}$, then the contract specifies $s = \frac{\pi}{b}$ and the expected male payout is $(1 + \delta)\,b - q$ and the expected female payout is $\pi - b(1 + \delta) - q - \delta\Delta$. If $\frac{\pi - q - b}{\Delta + b} < \delta$, then there is no contract.

Proof of Proposition 2:

Women enter if and only if expected returns, denoted R, are greater than $\theta(.5\pi - q)$. There are three cases to consider. If $\frac{\pi - 2q}{\Delta} < \frac{q}{b} - 1$, and $\frac{\pi - 2q}{\Delta} < \delta$, or $\frac{\pi - 2q}{\Delta} > \frac{q}{b} - 1$ and $\frac{\pi - q - b}{\Delta + b} < \delta$ then women do not partner with men. As $\frac{\pi - q - b}{\Delta + b} > \frac{\pi - 2q}{\Delta}$ if and only if $\frac{\pi - 2q}{\Delta} > \frac{q}{b} - 1$, these conditions are satisfied whenever $\delta > Max\left[\frac{\pi - 2q}{\Delta}, \frac{\pi - q - b}{\Delta + b}\right]$. In that case, women enter if and only if $1 - \theta > m_i$.

If $\frac{\pi - 2q}{\Delta} < \frac{q}{b} - 1$, and $\frac{\pi - 2q}{\Delta} > \delta$, or $\frac{\pi - 2q}{\Delta} > \frac{q}{b} - 1$ and $\frac{\beta(\pi - 2q) + q - b}{\beta\Delta + b} > \delta$, then women re-

ceive $(1 - \beta)(\pi - 2q - \delta\Delta)$ when they partner with a men. As $\frac{\beta(\pi - 2q) + q - b}{\beta\Delta + b} < \frac{\pi - 2q}{\Delta}$ if and only if $\frac{\pi - 2q}{\Delta} > \frac{q}{b} - 1$, these conditions are satisfied whenever $\delta < Min\left[\frac{\pi - 2q}{\Delta}, \frac{\beta(\pi - 2q) + q - b}{\beta\Delta + b}\right]$. In that case female returns from entry equal $(0.5\pi - q)(1 - m_i) + m_i(1 - \beta)(\pi - 2q - \delta\Delta)$. If $1 - \frac{\theta}{2(1-\beta)} > \frac{\delta\Delta}{\pi - 2q}$, then women enter for all values of m_i. If $\left(1 - \frac{\theta}{2(1-\beta)}\right)(\pi - 2q) < \delta\Delta$, then women enter if and only if $m_i < m^* = \frac{(\pi - 2q)(1 - \theta)}{(\pi - 2q)(2\beta - 1) + 2(1 - \beta)\delta\Delta}$. The value of m^* is rising with π, falling with q, θ, δ, Δ and β.

If $\frac{\pi - 2q}{\Delta} > \frac{q}{b} - 1$ and $\frac{\pi - q - b}{\Delta + b} > \delta > \frac{\beta(\pi - 2q) + q - b}{\beta\Delta + b}$, then the expected female payout from partnering with a man is $\pi - b(1 + \delta) - q - \delta\Delta$, and women enter if and only if $(0.5\pi - q)(1 - m_i) + m_i(\pi - b(1 + \delta) - q - \delta\Delta) > \theta(0.5\pi - q)$. In that case, women always enter if $1 - 0.5\theta > \frac{b(1 + \delta) + \delta\Delta}{\pi - 2q}$. If $(1 - 0.5\theta)(\pi - 2q) < b(1 + \delta) + \delta\Delta$, then women enter if and only if $m_i < m^{**} < \frac{(\pi - 2q)(1 - \theta)}{2b(1 + \delta) + 2\delta\Delta - \pi}$. The value of m^{**} is rising with π, falling with q, b, θ, δ, and Δ.

Appendix B - Games Procedures

Six surveyors and two recruiters were hired to conduct the games and were managed by a research assistant. Typically two days were spent in each market. We created two lists of randomly-ordered businesses for each market; one list for businesses located inside the market and one for businesses located outside the market. Manufacturers, being of primary interest, were placed at the top of each list. The two recruiters met early and were given the randomized list of entrepreneurs; they then set up appointments with potential participants, following the order of the list. If a marketeer could not be located or refused to participate, the following skip pattern was implemented: the marketeer was replaced by the next female on the list and as soon as all women had been exhausted, the recruiters simply moved to the next marketeer on the list. In markets where the response rate was low, or we failed to find many businesses or an above average amount of businesses were closed, we thus also surveyed and played the games with non-manufacturers. It is also important to note that all entrepreneurs on the outside list were screened extensively to ensure that they truly did not belong to the market.

In general, the first day at a market, the games were played with inside-inside pairs, wherein both players worked within the market. The corresponding three treatments arms for these pairs were control, SCC and chief. Generally, the second day at a market, the games were played with inside-outside pairs, wherein one player was a marketeer and the other an entrepreneur located outside of the market. The corresponding two treatment arms for these pairs were control and SCC. Surveys were conducted first, and then the games. However, if there were delays in reaching a participant or if a player refused to play the games after having completed the survey, the order was switched. The order in which each treatment arm was conducted was randomized each market to limit selection bias due to logistical factors (E.g. Time of day, eagerness of participants, etc.).

We ran the games on groups of six entrepreneurs at time, with one surveyor assigned to one entrepreneur. For each market, a switch matrix was constructed to inform surveyors whether their assigned entrepreneur was to be Player A (Investor) or Player B (Trustee) first, and who the entrepreneur was to play in each round. For logistical reasons, surveyors whose respondents were located outside of the market always started the games with the respondent being the Trustee, therefore all outsiders played the games in the same order, first as Trustees then as Investors. Once finishing a survey with a respondent, a surveyor sent a text to their corresponding surveyor to inform that they were about to start the instructions for the games in the following format: "surveyornum-initials-CensusID-AB/BA-start (e.g. 4-D-6230-AB-start)". The instructions for the games were given to the respondent in written as well as oral form in the respondent's preferred language, and surveyors asked the respondent check questions to ensure that they fully understood the pay-out rules, who they were playing against, and the possibilities for complaint when relevant. Once both surveyors in a pair had received the "ready" text message from their partner surveyor for that round and had ensured that the participant understood the rules, they started with the game.

The surveyor of the Investor sent the surveyor of the corresponding Trustee the number of tokens his player had chosen to send in the following format "SurveyorNum-Surname-Game-Player-TokensSent (e.g. 4-AD-R1-A3)". The surveyor of the Trustee then responded with the number of tokens the Trustee had decided to send back in the following format "SurveyorNum-Surname-Game-Player-TokensReturned (e.g. 2-PB-R1-B2)". The surveyors were instructed to always use neutral language to inform the respondents of the amount that had been sent (or sent back) to them.

In the case of the SCC and chief treatments, the Investor, upon being told how many tokens the Trustee had sent back, was asked whether they wanted to complain to the SCC (chief) or not. The surveyor then messaged the corresponding surveyor whether or not the Investor intended to complain (format: A-Comp OR A-NoComp). If the Investor complained, the surveyor also messaged the recruiter in the following format: "SurveyorNum-Surname-ANumGiven-BNumReturned-TotNum-Co E.g. 4-AD-A3-B2-Tot9-Comp". In the case of the SCC treatment, the recruitment officer already had a completed matrix of decisions from the SCC (obtained from the SCC before the start of the games field work). The recruitment officer examined the matrix and sent the SCC's decision to the surveyor of the Investor in the following format: "ANumTokensReceived-BNumTokensReceived. E.g. A6-B3". In the case of the chief treatment, the recruiter would ask the market's chief in real-time how s/he wanted to settle the complaint and sent their response in the same format to the surveyor of the Investor. The chief her/himself was given information (both oral and written) prior to the games commencing, which explained the game and made clear her/his role as an arbitrator during the games. Similar to the respondents, they were asked questions to check whether they had fully understood the games and their role in the games. If/ when a complaint reached the chief, the recruiter who was assigned to her/him would announce the complaint and ask for her/his decision in the following way: "There has been a complaint from a player. In this game, player A (the Investor) sent XX number of tokens to B (the Trustee), which means B received XX number of tokens. B sent back XX tokens. A has complained to you. Do you wish to redistribute the tokens? If so, how?"

It is important to note, that the players were never told who they were playing against, however, they knew whether the player was located inside or outside the market. Furthermore, after playing the first round as Investor or Trustee, they played the second round as Trustee (Investor respectively) against a new player, so that no two players played each other twice. It was explicitly made clear to them that they would be randomly assigned to a new partner after the first round and they were reminded whether this player was inside or outside the market and if they (or the opposing player) could complain to the chief or SCC or neither.

As some of the markets were quite small, and six surveyors, two recruiters and one research assistant naturally stuck out, it is possible that participants had heard of the games we were conducting before we reached them. Thus, we cannot fully exclude the possibility that some players may have played with more information to begin with i.e. on how the SCC or chief had decided in other cases in the market, though, this is more likely to be true for the second day in a specific market as the games conducted in a

specific day followed back-to-back, thus there was not much time for entrepreneurs to gossip in-between. Furthermore, the field team sought to minimize the attention drawn to themselves by merely sending the two recruiters into the depths of the markets to find participants, whilst the surveyors would generally just directly be taken from one entrepreneur to the other.

Data consistency checks were conducted at the end of each field day.

Appendix C - Additional Tables and Robustness Checks

Table C.1: Cross-country Correlations with Female Ownership

Variables	Correlation coefficient	T-stat univar reg	T-stat bivar reg	N
Panel A - discrimination, norms and rule of law				
Discrimination in the family (SIGI-19)	-0.62	-7.7	-8.01	75
Restricted physical integrity (SIGI-19)	-0.5	-4.41	-3.87	64
Men better in business than women (WVS04-14)	-0.64	-5.16	-3.98	36
Justifiable for men to beat wives (WVS04-14)	-0.29	-1.69	-1.22	36
Health and safety rank (GGG-16)	-0.48	-4.74	-4.37	69
Rule of law percentile rank (WB WGI-17)	0.32	3.28	1.94	82
Rule of Law Score (WJP-17)	0.27	2.21	0.67	50
Female disadvantage with police (GPP-17)	-0.31	-2.05	-1.26	53
Gender equality in courts (WJP experts)	0.35	2.93	1.9	52
Gender equality score (WJP experts)	0.3	2.29	1.19	52
Panel B - democracy, religion and education				
Average Polity and Democracy Index (1960-2000)	0.26	2.59	0.86	83
Democracy Index (EIU-18)	0.35	3.67	2.31	76
Female school enrollment, tertiary (UN-15)	0.25	2.16	0.79	56
Female school enrollment, secondary (UN-15)	0.52	5.94	4.02	56
Educational Attainment rank (GGG16)	-0.5	-5.86	-5.09	69
Percentage of muslim citizens (UN-00)	-0.69	-10.68	-10.39	84
Panel C - ease of doing business				
Ease of doing business score global (DB10-14)	0.29	2.96	1.2	56
Score-Enforcing contracts (DB04-15)	0.38	3.44	2.74	61
Score-Registering property (DB05-15)	0.33	2.89	2.18	61

This Table shows the correlation between empirical measures of the model parameters and female ownership across countries. Column 1 reports the raw correlation coefficient. Column 2 reports the t-stat of a univariate regression of female entrepreneurship on the given row variable. Column 3 reports the t-stat of a bivariate regression of female entrepreneurship on the given row variable and log gdp per capita in 2011. The last column reports the number of observations, which may vary depending on the surveys' coverage and years. Acronym in brackets show the source of the variable and the years of collection used.

Table C.2: Correlations between Trust and Cooperation

	Trust ST	Trust NB	Trust GSS	Joint Buy	Lent	Advice	Share Order	Coop Average
Trust Stranger	1							
Trust Neighbor	0.313***	1						
Trust GSS	0.129***	0.119***	1					
Joint Buy	0.0516*	0.0577**	0.00748	1				
Lent	0.0773***	0.123***	0.0151	0.259***	1			
Advice	0.0596**	0.0978***	-0.0123	0.258***	0.356***	1		
Share Order	0.0618**	0.0819***	-0.0394	0.349***	0.328***	0.347***	1	
Coop Average	0.0901***	0.129***	-0.0104	0.665***	0.708***	0.683***	0.734***	1
Complexity	0.0214	-0.00476	0.0435*	0.103***	0.0685**	0.0209	-0.0330	0.0569**
N	2216							

$* \ p < 0.05, \ ** \ p < 0.01, \ *** \ p < 0.001$

This table shows correlations between the trust variables and cooperation variables. The variables "Trust Strangers" and "Trust Neighbors" are measured on a scale from 1-4, and have been converted into dummy variables by combining low scores (1 and 2) and high scores (3 and 4). Low scores were given a value of 0, and high scores a value of 1. The variable "Trust GSS" is a dummy measuring whether most people can be trusted or not: a value of 1 indicates that "most people can be trusted", and a value of 0 indicates that "you cannot be too careful in dealing with people". The variables "Joint Buy", "Lent", "Advice" and "Share" are dummies that indicate whether a person ever engaged in the relevant activity. The variable "Coop Average" is an index of cooperative behavior, calculated as a simple average of the four dummies "Joint Buy", "Lent", "Advice" and "Share". The sample comes from our Manufacturers Survey in Lusaka (N=2,216).

Table C.3: Correlations between Sales and Trust or Cooperative behavior

| | Logged sales | | |
	Good Week	Bad Week	Yesterday
Complexity	.3927***	.3806***	.4030***
Trust NB	.0128	-.0027	-.0201
Trust ST	.0415*	.0376	.0459*
Trust GSS	.0405	.0439*	.0140
Coop Average	.0840***	.0189	.0755***
Lent	.0286	-.0275	.0224
Advice	.0508**	.0110	.0441*
Share Order	.0587***	-.0007	.0315
Joint Buy	.0973***	.0734***	.1178***

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

This table shows correlations between sales and trust or cooperative behavior. The dependent variables are the log of the answers given when asked the sales in the previous working day, the sales in a good week and the sales in a bad week. If the person could not provide an exact number, we also asked for an upper and lower bound. We then imputed the average of the bounds to the sales variables. The variables "Trust Strangers" and "Trust Neighbors" are measured on a scale from 1-4, and have been converted into dummy variables by combining low scores (1 and 2) and high scores (3 and 4). Low scores were given a value of 0, and high scores a value of 1. The variable "Trust GSS" is a dummy measuring whether most people can be trusted or not: a value of 1 indicates that "most people can be trusted", and a value of 0 indicates that "you cannot be too careful in dealing with people". The variables "Joint Buy", "Lent", "Advice" and "Share" are dummies that indicate whether a person ever engaged in the relevant activity. The variable "Coop Average" is an index of cooperative behavior, calculated as a simple average of the four dummies "Joint Buy", "Lent", "Advice" and "Share". The sample comes from our Manufacturers Survey in Lusaka (N=2,216).

Table C.4: The Market Effect on Cooperation with Industry Fixed-Effects and Owner Controls

	(1) Share Order	(2) Lent	(3) Advice	(4) Joint Buy	(5) Coop Average
Female	-0.0453	-0.0314	-0.0488	-0.0367	-0.0406
	(0.0494)	(0.0426)	(0.0481)	(0.0463)	(0.0369)
In market	0.0569*	0.104***	0.0351	0.0820**	0.0694***
	(0.0311)	(0.0363)	(0.0281)	(0.0311)	(0.0250)
Female×In market	0.0877	0.0905*	0.0895**	0.0538	0.0804*
	(0.0569)	(0.0456)	(0.0401)	(0.0659)	(0.0421)
Observations	2077	2077	2077	2077	2077
Adjusted R^2	0.059	0.090	0.028	0.037	0.088
Business Density Controls	Y	Y	Y	Y	Y
Business Owner Controls	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y
P-value(In+Fem.× In=0)	.007	0	.001	.034	0
P-value (Fem. + Fem. × In market = 0)	.232	.055	.122	.612	.082

Clustered standard errors in parentheses. p<0.10, ** p<0.05, *** p<0.01

The dependent variables are our measures of cooperation. The variables "Joint Buy", "Lent", "Advice" and "Share" are dummies that indicate whether a person in our Manufacturers Survey sample ever engaged in the relevant activity. The variable "Coop Average" is an index of cooperative behavior, calculated as a simple average of the four dummies "Joint Buy", "Lent", "Advice" and "Share". Business Density Controls include a dummy variable for whether the business is located within 100 meters of a market, the total number of businesses within 100 meters, and the number of business from the same sector within 100 meters. Business Owner Controls includes whether the business owner keeps written business records of every purchase and sale made, whether her/his business is registered individually, whether the business owners trust their neighbors, how old the business is, how many days the business owner spends working in the business, age of business owner and whether business owner is married or not. The regressions also include industry fixed-effects, a dummy on the owner's gender, a dummy on whether the business is located inside a market, and the interaction between the two of them. Standard errors are clustered at the 1 squared-km area level. The sample comes from our Manufacturers Survey in Lusaka (N=2,216).

Table C.5: Effect of Distance to SCC on Cooperation with Industry Fixed-Effects and Owner Controls

	(1) Share Order	(2) Lent	(3) Joint Buy	(4) Advice	(5) Coop Average
Female	0.188***	0.0218	0.120***	0.186***	0.129***
	(0.0485)	(0.0471)	(0.0433)	(0.0258)	(0.0287)
2-4 miles from SCC	0.0298	0.0172	0.0136	-0.0311	0.00739
	(0.0396)	(0.0383)	(0.0510)	(0.0399)	(0.0351)
Female × 2-4 miles from SCC	-0.144**	0.000277	-0.0938*	-0.146***	-0.0960**
	(0.0583)	(0.0621)	(0.0512)	(0.0419)	(0.0381)
>4 miles from SCC	0.00991	0.0515	-0.0372	0.0333	0.0144
	(0.0335)	(0.0343)	(0.0423)	(0.0363)	(0.0292)
Female × >4 miles from SCC	-0.230***	-0.00737	-0.165***	-0.233***	-0.159***
	(0.0521)	(0.0644)	(0.0546)	(0.0338)	(0.0356)
Observations	2077	2077	2077	2077	2077
Adjusted R^2	0.057	0.076	0.035	0.028	0.074
Business Density Controls	Y	Y	Y	Y	Y
Business Owner Controls	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y
P-value (2-4mi + Fem. × 2-4mi = 0)	.014	.642	.031	0	.001
P-value (>4mi + Fem. × >4mi = 0)	0	.355	0	0	0
P-value (Fem. + Fem. × 2-4mi = 0)	.345	.585	.231	.337	.253
P-value (Fem. + Fem. × >4mi = 0)	.148	.763	.196	.186	.269

Clustered standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01

The dependent variables are our measures of cooperation. The variables "Joint Buy", "Lent", "Advice" and "Share" are dummies that indicate whether a person in our Manufacturers Survey sample ever engaged in the relevant activity. The variable "Coop Average" is an index of cooperative behavior, calculated as a simple average of the four dummies "Joint Buy", "Lent", "Advice" and "Share". Business Density Controls include a dummy variable for whether the business is located within 100 meters of a market, the total number of businesses within 100 meters, and the number of business from the same sector within 100 meters. Business Owner Controls includes whether the business owner keeps written business records of every purchase and sale made, whether her/his business is registered individually, whether the business owners trust their neighbors, how old the business is, how many days the business owner spends working in the business, age of business owner and whether business owner is married or not. The regressions also include industry fixed-effects, a dummy on the owner's gender, dummies on the business' distance to the Small Claims Court, and their interaction. Standard errors are clustered at the 1 squared-km area level. The sample comes from our Manufacturers Survey in Lusaka (N=2,216).

Table C.6: Women and Help from Institutions

	Male Mean	Fem Mean	Diff	Male N	Fem N
Panel A: Knowledges and Opinions					
Heard of SCC	0.22	0.20	-0.02	347	128
	(0.41)	(0.40)	(0.04)		
Would Leave Shop	0.44	0.32	-0.12**	347	127
	(0.50)	(0.47)	(0.05)		
Opposition Abused	0.37	0.41	0.04	339	125
	(0.48)	(0.49)	(0.05)		
Panel B: Work Disputes					
Any Dispute	0.67	0.60	-0.07	348	129
	(0.47)	(0.49)	(0.05)		
Disp. Workplace	0.19	0.12	-0.08*	348	129
	(0.39)	(0.32)	(0.04)		
Disp. Bus. Agree	0.32	0.26	-0.06	348	128
	(0.47)	(0.44)	(0.05)		
Disp. Over Debt	0.52	0.40	-0.12**	347	129
	(0.50)	(0.49)	(0.05)		
Disp. Over Goods	0.34	0.25	-0.09*	347	129
	(0.47)	(0.43)	(0.05)		
Panel C: Theft, Assault, Harassment					
Victim of Theft	0.40	0.37	-0.03	348	129
	(0.49)	(0.49)	(0.05)		
Thief Caught	0.22	0.06	-0.16**	140	48
	(0.42)	(0.24)	(0.06)		
Victim of Assault	0.05	0.03	-0.02	348	129
	(0.22)	(0.17)	(0.02)		
Assailant Caught	0.22	0.00	-0.22	18	3
	(0.43)	(0.00)	(0.25)		
Police Harass	0.05	0.00	-0.05**	348	129
	(0.22)	(0.00)	(0.02)		

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

This table shows mean differences in the access and use of institutions between women and men. All the variables are dummy variables. The variable "Heard of SCC" is 1 if the person has heard of the SCC, and 0 otherwise. The variable "Would Leave Shop" is 1 if the person would feel comfortable leaving the shop unattended for 30 minutes, and 0 otherwise. The variable "Opposition Abused" is 1 if the person feels that members of the (political) opposition frequently receive verbal or physical abuse, and 0 otherwise. The work dispute variables are equal to 1 if the person has experienced the mentioned type of work-disputed, and 0 otherwise. The variables "Victim of theft" and "Victim of assault" equal 1 if the person has been a victim of these crimes, and 0 otherwise. The variables "Thief caught" and "Perpetrator caught" equal 1 if the crime perpetrator has been captured, and 0 otherwise. The variable "Police Harass" is 1 if the person has suffered from police harassment in the last 12 months, and 0 otherwise. The sample stems from the survey we conducted with business owners before the lab-in-the-field games.

Table C.7: Tokens Investor Sends by Institutional Treatment

	Tokens Investor sent		
	(1)	(2)	(3)
Female	-1.243***	-1.030***	-1.236***
	(0.430)	(0.331)	(0.433)
Chief	-0.0851		
	(0.382)		
SCC		0.252	
		(0.281)	
In/out			-0.0527
			(0.416)
Chief × Female	1.610**		
	(0.682)		
SCC × Female		0.281	
		(0.452)	
In/out × Female			0.462
			(0.662)
Constant	4.198***	4.101***	4.267***
	(0.361)	(0.238)	(0.364)
Observations	189	379	187
Adjusted R^2	0.020	0.030	0.031
Mean	4.087	4.076	4.087
SD	2.412	2.346	2.412

Robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01

The dependent variable is the number of tokens sent by the Investor. All regressions include a dummy on the Investor's gender, and each column includes a dummy for the different treatment arm (in/out, SCC, and Chief), together with the interaction of that treatment arm and the Investor's gender. The sample comes from our lab-in-the-field games conducted in Lusaka in 2017.

Table C.8: Average Return Ratio by Institutional Treatment

| | Average Return Ratio | | |
	(1)	(2)	(3)
Female	0.000115	-0.0427**	0.00144
	(0.0263)	(0.0200)	(0.0265)
Chief	0.0247		
	(0.0200)		
SCC		0.0340**	
		(0.0163)	
In/out			0.0218
			(0.0222)
Chief × Female	-0.0524		
	(0.0417)		
SCC × Female		0.0284	
		(0.0260)	
In/out × Female			-0.0787**
			(0.0376)
Constant	0.416***	0.418***	0.403***
	(0.0208)	(0.0143)	(0.0209)
Observations	190	380	188
Adjusted R^2	0.000	0.046	0.053
Mean	.423	.435	.423
SD	.135	.131	.135

Robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01

The dependent variable is the Trustee's average return ratio. All regressions include a dummy on the Trustee's gender, and each column includes a dummy for the different treatment arm (in/out, SCC, and Chief), together with the interaction of that treatment arm and the Trustee's gender. The sample comes from our lab-in-the-field games conducted in Lusaka in 2017.

Table C.9: Investor's Earnings

| | Investor's Earnings | | | |
	(1)	(2)	(3)	(4)
Constant	10.67***	10.67***	10.73***	10.74***
	(0.253)	(0.254)	(0.214)	(0.243)
Female	-0.0680	-0.152		
	(0.355)	(0.381)		
Chief	0.566*	0.566*	0.620**	0.607**
	(0.292)	(0.292)	(0.251)	(0.271)
SCC	1.107***	1.108***	0.914***	0.888***
	(0.282)	(0.282)	(0.221)	(0.292)
In/out	0.208	0.208	0.0577	0.0317
	(0.284)	(0.284)	(0.221)	(0.301)
Female × Chief	0.550	0.634		
	(0.657)	(0.668)		
Female × SCC	-0.588	-0.412		
	(0.429)	(0.478)		
Female × In/out	-0.256	-0.105		
	(0.418)	(0.578)		
Female × SCC × In/out		-0.306		
		(0.612)		
SCC × In/out				0.0516
				(0.442)
Observations	475	475	477	477
Adjusted R^2	0.043	0.041	0.034	0.032
Mean	10.855	10.855	10.863	10.863
SD	2.244	2.244	2.097	2.097

Robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01

The dependent variable is the Investor's final earnings. Regressors include the treatment arms (in/out, SCC, and Chief). Columns 1 and 2 additionally include a dummy variable indicating the Investor's gender, and the interaction terms of this variable with the treatment arms. The sample comes from our lab-in-the-field games conducted in Lusaka in 2017.

Table C.10: Trustee's Earnings

| | Trustee's Earnings | | | |
	(1)	(2)	(3)	(4)
Constant	6.892***	6.903***	6.805***	7.066***
	(0.538)	(0.538)	(0.488)	(0.562)
Female	-0.119	0.517		
	(0.976)	(1.176)		
Chief	-0.202	-0.204	0.114	-0.147
	(0.596)	(0.596)	(0.536)	(0.598)
SCC	-0.393	-0.394	-0.305	-0.824
	(0.512)	(0.512)	(0.432)	(0.582)
In/out	0.389	0.390	0.360	-0.164
	(0.512)	(0.512)	(0.432)	(0.677)
Female × Chief	1.400	0.771		
	(1.390)	(1.537)		
Female × SCC	0.239	-1.093		
	(0.971)	(1.338)		
Female × In/out	-0.143	-1.262		
	(0.987)	(1.464)		
Female × SCC × In/out		2.292		
		(1.657)		
SCC × In/out				1.039
				(0.864)
Observations	476	476	477	477
Adjusted R^2	-0.007	-0.005	-0.002	-0.001
Mean	6.757	6.757	6.821	6.821
SD	4.519	4.519	4.736	4.736

Robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01

The dependent variable is the Trustee's final earnings. Regressors include the treatment arms (in/out, SCC, and Chief). Columns 1 and 2 additionally include a dummy variable indicating the Investor's gender, and the interaction terms of this variable with the treatment arms. The sample comes from our lab-in-the-field games conducted in Lusaka in 2017.

Online Appendix - Survey Measures and Games Behavior

In this appendix we show that our survey measures of trust are correlated with trust-worthiness, as shown in previous research (Glaeser et al., 2000). Moreover, the survey cooperation measures are correlated with the number of tokens sent by the investors.

Table D.1: Trust Survey Measures and Behavior as Investor

| | Tokens Sent | | | |
	(1)	(2)	(3)	(4)
Lent	0.256	0.545**		
	(0.232)	(0.240)		
Gave Advice	1.124***	0.942***		
	(0.346)	(0.356)		
Joint buys	-0.0555	-0.0329		
	(0.214)	(0.230)		
Shared Order	-0.420*	-0.421*		
	(0.241)	(0.253)		
Average Cooperation			0.278	0.497
			(0.339)	(0.377)
Observations	474	474	474	474
Adjusted R^2	0.017	0.041	-0.001	0.023
Mean Dep Var	3.97	3.97	3.97	3.97
Industry FE	N	Y	N	Y
Market FE	N	Y	N	Y

Robust standard errors in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.01$

This table shows correlations between survey measures of cooperation between businesses and the number of tokens that investors send to their partners. The dependent variable is the number of tokens sent by the Investor to the Trustee. The mean of the dependent variable is 3.97 and its standard deviation is 2.21. The variables "Joint Buys", "Lent", "Gave advice" and "Shared Order" are indicator variables that indicate whether a person ever engaged in the relevant activity. The variable "Average Cooperation" is an index of cooperative behavior, calculated as a simple average of the four dummies "Joint Buy", "Lent", "Advice" and "Shared Order". Robust standard errors in parentheses.

Table D.2: Trust Survey Measures and Behavior as Trustee

	Average Return Ratio	
	(1)	(2)
Trust in stranger	0.0341**	0.0300*
	(0.0173)	(0.0180)
Trust in neighbor	0.0182	0.0104
	(0.0119)	(0.0125)
Trust GSS	0.0207	0.0248
	(0.0142)	(0.0171)
Observations	476	476
Adjusted R^2	0.014	0.006
Mean Dep Var	.44	.44
Industry FE	N	Y
Market FE	N	Y

Robust standard errors in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.01$

This table shows correlations between survey measures of trust and the ratio of tokens sent by the Trustee to the number of tokens that the Trustee could have sent (average return ratio). The dependent variable is the number of tokens sent by the Investor to the Trustee. The mean of the dependent variable is 0.44 and its standard deviation is 0.14. The variables "Trust Strangers" and "Trust Neighbors" are measured on a scale from 1-4, and have been converted into dummy variables by combining low scores (1 and 2) and high scores (3 and 4). Low scores were given a value of 0, and high scores a value of 1. The variable "Trust GSS" is a dummy measuring whether most people can be trusted or not: a value of 1 indicates that "most people can be trusted", and a value of 0 indicates that "you cannot be too careful in dealing with people".