

Female Entrepreneurship and Trust in the Market

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Abstract

Commerce requires trust, but trust is difficult when one group can expropriate another due to differences in power. This can lead to the weaker group self-segregating into industries and activities; female-led businesses, for example, tend to be small and clustered in a small number of industries where collaborators are also female. We present a model which relates this economic segregation to rule of law, and predicts that female trust depends on the protective preferences of adjudicators in weak rule of law environments. We then show that effective dispute negotiation in Lusaka, Zambia, especially as administered by “market chiefs,” enables trusting behavior by female entrepreneurs, both in cross-section correlations and in two artefactual field experiments. Such trust generates increased economic returns. We find considerable heterogeneity across market chiefs in their preferences for protecting women, and that female entrepreneurs are more likely to want to reveal their gender with chiefs who are more likely to favor women.

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1 Introduction

Why are some groups, such as women, systematically under-represented in important collaborative activities, such as business partnerships and scientific coauthorship? Collaboration brings risks, such as hold-up and expropriation, and these can be greater when there are asymmetries of social power and physical strength.¹ In this paper, we test whether female collaboration increases when there is stronger protection against malfeasance within relationships, and what institutions generate that protection in a developing world city.

While our empirical work focuses on entrepreneurship in Zambia, the framework of this paper applies to any male-dominated realm which requires collaboration, such as research in economics. We first present a model that details the conditions under which the more vulnerable avoid engagement with the more powerful, and how institutional intermediaries can either exacerbate or overcome this economic segregation. We then turn to the microdata we collected across entrepreneurs in Lusaka, Zambia, and explore the central implication of our model: that effective dispute adjudication can particularly benefit the weak, allowing them to trade with the strong, to the economic benefit of all. We also design and implement two artefactual field experiments (List and Metcalfe, 2014; List and Rasul, 2011) with a large set of entrepreneurs, which reveal how informal institutions providing dispute adjudication can lead to greater trust and risky economic engagement by women, leading to significantly increased returns.

Women in economic collaborations risk particular vulnerability. 31% of women worldwide have been subject to physical and/or sexual violence (World Health Organization, 2021). Workplace sexual harassment is ubiquitous (Folke and Rickne, 2022; Adams-Prassl et al., 2022). 13% of women in the Swedish labor market report having experienced harassment in the past year, but this figure increases up to 25% in the most male-dominated workplaces (Folke and Rickne, 2022). Studies find that at least 25 percent of women in the workforce have experienced sexual harassment in the US (Feldblum and Lipnic, 2016). These figures in the developing world may be even higher (Lim et al., 2018), as unequal social norms and insecure rights, guiding behavior both at home and in the market, exacerbate physical vulnerability.² Given these facts, it is unsurprising that women trust others less.³

Section 2 of this paper provides facts about entrepreneurship throughout the globe, which motivate both our model and our empirical work in Zambia. Entrepreneurship remains a male-dominated activity in almost every country in the world (OECD, 2012). Female entrepreneurs cluster in a small number of less profitable female-dominated industries (Cirera and Qasim, 2014; Fairlie et al., 2017; Singer et al., 2018; Berge and Pires, 2021; Essers et al., 2021; Hardy and Kagy, 2020), such as apparel and food production, perhaps because this allows female entrepreneurs to avoid interactions with expropriatory men.⁴ 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; Berge et al., 2015), especially when norms are more restrictive (Field et al., 2010; Jayachandran, 2020).

Section 3 of this paper presents a model in which the under-representation of more

¹Despite the change in the relative importance of physical strength in economic activity, women remain vulnerable to expropriation and violence, particularly in male-dominated fields (Wilson and Herrnstein, 1985). Sviatschi and Trako (2021), Eswaran and Malhotra (2011) and Aizer (2010) provide research documenting gender-based violence and examining policies to reduce it.

²Adams-Prassl et al. (2022) find that male perpetrators suffer weak economic consequences when they have greater power than their female victims.

³Trust is particularly low among women in weak rule-of-law countries. For example, in Africa and South America, typically between ten and fifteen percent of respondents say that most people can be trusted, but that number falls on average by 6 percent among women (World Value Survey, 2004-2014).

⁴This is particularly pervasive in developing world cities (Klapper and Parker, 2011; Campos et al., 2019; Essers et al., 2020; Nordman et al., 2011; Bardasi et al., 2011; Alibhai et al., 2017).

vulnerable groups in economic activity persists because fear of expropriation leads to avoiding engagement in majority-dominated fields. Such missed collaboration represents both a loss to the vulnerable, but also an efficiency loss to society as a whole. Appropriate contract enforcement, particularly with trusted dispute adjudicators, can help to mitigate the losses that come from missed collaboration.

In our model, women choose whether to become entrepreneurs and whether to partner with men. If their partners' cheat, they have access to an adjudicator, who resembles an institution we study in the Zambian setting: the urban market chief. These adjudicators, like those chiefs, may disproportionately favor their powerful friends or they may see their mission as protecting the weak. If the adjudicator fails to punish misbehavior, then entrepreneurs can rely on their own "social power" to punish misbehavior, perhaps by harming cheaters' reputations. In the adjudicator regularly intervenes, which was seen as a strong rule of law environment, then the preferences of judges do not matter. In weak rule of law environments, then adjudicators' tastes end up determining whether the weak get protection.⁵

World Justice Project evidence suggests that courts generally favor men⁶ but there is a paternalistic strain that often appears in traditional leaders and that can protect women. When adjudicators favor the powerful, then women will not partner with strong men.⁷ In that case, we extend Behrer et al.'s (2021) result that when adjudicators are weak, the strong trade only with the strong and the weak trade only with the weak.⁸

The model suggests that adjudicator preferences can be assessed by knowing whether women want their gender to be revealed during an adjudication process. In our model, unsurprisingly, women prefer to reveal when adjudicators favor the less powerful. We consequently expect to see more partnership between women and men in markets where women prefer to reveal their gender.⁹

The model's key implication is that better contract-enforcement institutions can overcome female vulnerability in entrepreneurship, particularly in male-dominated fields. Consequently, we expect more gender segregation in weak rule of law environments. This is also a testable implication of our model. Better adjudication increases the returns to female entrepreneurship since anarchy privileges male aggression and violence.¹⁰

We test our model using our Census of Entrepreneurs in Lusaka, Zambia, which we overlay with artefactual field experiments embedded in the country's urban markets. Zambia is a country with both weak rule of law and discriminatory gender norms.¹¹ Yet it is also a

⁵This explains Sandefur and Siddiqi (2013)'s finding that women are much more likely to choose the formal legal system when they have that option.

⁶All over the world, women also face disadvantages in accessing fair legal resolution. For instance, 28% of respondents in the World Justice Project say that being a woman represents a disadvantage with the local police. This share goes from a high of 48%, 33% and 32% in Latin America, MENA and Africa to a low of 14% in Europe and North America.

⁷Family firms can allow women to partner with male relatives who may be less likely to exploit them, but Mehrotra et al. (2011) find no correlation between the prevalence of such firms and norms of gender differentiation.

⁸We relate to the literature on court enforcement and firm outcomes (Ponticelli and Alencar, 2016; Cahuc et al., 2024).

⁹These results relate to the pathbreaking work of Goldin and Rouse (2000), who document that shrouding women's gender is useful in some, but not all, parts of the audition process.

¹⁰Our framework can account for the rich empirical evidence on inter-gender relationships in group work and scientific production (Boschini and Sjögren, 2007; Lissoni et al., 2013; Sarsons et al., 2021; Coffman, 2014; Aman-Rana et al., 2021; Shan, 2021). Previous work has highlighted that men (are able to) get more credit than women for joint work and that women's performance worsens in mixed-gender settings, implying that women will seek to work with other women (either through the choice of fields or co-workers). We propose an overarching framework and a mechanism through which gender gaps may be mitigated.

¹¹According to the World Justice Project (<http://data.worldjusticeproject.org/>), Zambian rule of law 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 is below Ghana and South Africa, but above Zimbabwe and Nigeria, and

country in which chiefs often protect the weak, and we will focus on testing whether women partner more when they have a chief who favors the vulnerable.

To empirically study power, gender, and collaboration in business, 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 activities such as lending machines to each other or subcontracting workers (as also suggested by Bassi et al. (2021) and Hardy et al. (2024)).¹² 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 clustering of female entrepreneurs into the least profitable industries. While many factors contribute to the segregation of women in these industries, in our qualitative work, Lusaka’s female entrepreneurs repeatedly emphasized the difficulties of trusting men.¹³

In Section 4, 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 and our qualitative work suggests, 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.¹⁴

We then test whether Lusaka’s female entrepreneurs trust and collaborate more when contract enforcement is stronger. We focus on major local institutions that adjudicate commercial disputes: the Small Claims Court (SCC), the Police, and Market Chiefs. Few entrepreneurs in our sample made any use of Zambia’s formal court system, and most of them rely on local adjudicators known as “Market Chiefs”, who exercise authority over transactions that occur within their own local market areas. The second most-used institution is the police, which is however deemed to be relatively slow and resource-constrained— and more so by women. We measure institutional strength by proximity to the SCC or the Police and location within a market that is adjudicated by a chief. We find that female-led businesses located inside formal markets or closer to the Small Claims Court cooperate more, even controlling for business density, marketplace and industry fixed effects. The gender gap in sales is also smaller within markets.

Building on this evidence, in Section 6 we test the key prediction of our model that women should disproportionately benefit from access to adjudicators who will protect them from expropriation. This implies that the average impact of institutions may mask substantial heterogeneity depending on the degree of biasedness of the adjudication process, and that women should benefit the most when institutions are unbiased or more likely to protect the weak. As the overwhelming majority of our respondents had either not heard of the Small Claims Court or thought that it was not useful for people like them, we focus on the institution of market chiefs.

First, we collect individual measures of gender bias, legal competence and managerial

is about the same as Russia and Mexico.

¹²Bassi et al. (2021), for example, show that inter-firm cooperation is key to achieving scale in small manufacturing in Uganda. While their data do not focus on gender, the sectors they study — carpentry, grain milling, metalwork — are likely male-dominated. Our findings suggest that in male-dominated sectors, female entrepreneurs may be less able to enter or scale through partnerships, not because of skill or capital constraints, but because collaboration entails higher enforcement risk.

¹³Zambia’s female entrepreneurs both say that they trust others less, and indeed are less trusting in standard laboratory measures.

¹⁴Alfred 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.

duties among Lusaka’s market chiefs. Consistent with the model, we show that women inside markets with unbiased chiefs cooperate as much as men do, while a large gender gap in cooperation persists in markets with a chief characterized by high gender bias.¹⁵

We then move beyond observational evidence and conduct two artefactual field experiments with our population of entrepreneurs. We use an adapted version of the trust game (Berg et al., 1995), framed as an opportunity to invest in another person’s business, and involve real adjudicators in the game. The two experiments allow us to ask whether institutional access enables women to trust in business interactions depending on how adjudicators use their authority. In Experiment 1, we examine the effect of access to a gender-blind chief on trust and cooperation, benchmarking it against two alternatives: the absence of any enforcement mechanism and access to a formal legal institution. In Experiment 2, we allow chiefs to observe the participants’ gender, reintroducing the possibility of personalized enforcement. Together, the experiments explore two institutional paths to inclusion: one through formal neutrality, and one through contextualized protection. We use both behavioral outcomes and original measures of adjudicator attitudes and participant expectations to understand which institutional features most effectively support inter-gender economic collaboration.

In the first experiment, the game replicates our survey results and echoes the model: the control group shows a significant gender gap in both trust and trustworthiness, with women sending fewer tokens and returning fewer tokens than men in our game. Sending money in the trust game is positively correlated with our actual measures of cooperation by the participants in their real lives. In the treatment group, providing access to a gender-blind chief significantly increases women’s trusting behavior, increasing the surplus for both parties and earnings for both women and men.

We find that access to a gender-blind adjudicator—particularly one embedded in familiar, informal structures—can increase trust and close the gender gap in risky collaboration. However, real-world institutions rarely operate in the blind. Market chiefs often know the individuals they serve and may factor social identities, including gender, into their decisions. This raises a critical question: when institutions do see gender, does this visibility reduce or reinforce power asymmetries?

In our second experiment, we explore how women’s trust responds when gender is visible to the adjudicator, and whether that visibility helps or harms them. Specifically, we test whether institutions that recognize group identity—in this case, gender—can improve trust for vulnerable populations, and under what conditions this recognition is perceived as protective versus biased. This experimental variation allows us to test the full theoretical model, particularly the prediction that women will prefer to reveal their gender when chiefs have preferences to protect the vulnerable.

We find that revealing a participant’s gender to their own market chief increases trust among women. This effect — the revelation trust premium — is larger for women who express a stronger preference for gender revelation and in markets where chiefs display more favorable behavior toward women in the game. Consistent with the model, the magnitude of the effect varies across markets with the chief’s gender bias and women’s relative power.

Together, the two experiments illustrate a broader point: when formal legal systems are weak or inaccessible, local institutions can fill the gap. In their gender-blind form, they can mitigate power asymmetries and facilitate trust. But when designed—or perceived—to protect the vulnerable, identity-aware institutions can go even further, enabling high-risk, high-return collaboration for those most in need of institutional support.

¹⁵The chief’s level of gender bias is not correlated with the share of female manufacturers within a market (correlation coefficient = -0.05, $p = 0.66$), indicating that we are not simply capturing a selection effect of women-friendly market chiefs being elected in markets with more female businesses.

The results of our experiments reveal that local informal institutions can play a vital role in fostering economic collaboration—particularly when they act as protectors of the weak. Women, who face greater risks in mixed-gender business interactions, are not simply seeking neutrality—they are, in some cases, seeking allies. Chiefs, though embedded in local norms, can function as benevolent adjudicators, and women respond strategically to this possibility. In contrast to the conventional wisdom that anonymity protects the vulnerable, our findings show that being visible to a fair institution can itself be empowering.

This paper connects to several literatures. By positing that the risks associated with incomplete contracts and imbalances in social power can deter women from engaging in potentially profitable activities, relates to research on occupational gender segregation and female vulnerability in predominantly male sectors (Cortes and Pan, 2018; Folke and Rickne, 2022; Adams-Prassl et al., 2022). Our findings particularly follow the seminal work of Udry (1996) on intra-household inefficiencies, as we find that women’s lower engagement in high-return activities may reflect rational responses to risks of expropriation or exploitation. Our work also relates to research on the role of courts in shaping firm outcomes (Johnson et al., 2002; Ponticelli and Alencar, 2016; Chemin, 2020; Aberra and Chemin, 2021; Sadka et al., 2024; Rao, 2024) and on differences in the use of formal institutions by social standing (Sandefur and Siddiqi, 2013; Britto et al., 2025).¹⁶

Our paper suggests that fear of expropriation in environments characterized by asymmetric power may help explain the persistent gender gaps in entrepreneurship and industrial segregation by gender in low-income countries (McKenzie and Woodruff, 2017; Campos et al., 2019; Jayachandran, 2020; Ubfal, 2024). Hardy and Kagy (2018, 2020) show that women-owned businesses in Ghana tend to cluster in highly competitive, low-return sectors. Our paper provides a potential explanation: if women disproportionately avoid industries or occupations where contract enforcement is critical, they may be left with a narrower—and more crowded—set of viable opportunities. We do not want to claim that the strategic avoidance of collaboration or growth explains these gaps more than talents or tastes, but we hope that future work can explore the relative importance of all of these factors.

The paper proceeds as follows. Section 2 provides some motivating facts about female entrepreneurship. Section 3 presents our theoretical model. Section 4 describes our Zambian empirical setting and data. Section 5 presents evidence on gender gaps in entrepreneurship among small-scale entrepreneurs and the potential mitigating role of local adjudicators. Section 6 presents measures and experimental variation of institutional quality, which allows us to show the causal impact of access to contract enforcement mechanisms on female business collaboration. Section 7 concludes.

2 Motivating Facts about Female Entrepreneurship Around the World

In this section, we document three facts about female entrepreneurs globally: the rate of female entrepreneurship is low, female entrepreneurs earn less than male entrepreneurs, and they segregate into a small number of industries. These facts motivate our theoretical model, and the empirical work that follows.

Entrepreneurship is male dominated: globally, only one in 3 businesses is owned by women (Halim, 2020). In the U.K., France, Germany and U.S., more than two men select

¹⁶See also Marx et al. (2019) and Balán et al. (2022) on the role of local intermediaries in shaping outcomes for citizens and local governments in urban areas of low-income countries.

into entrepreneurship for every nascent female entrepreneur (GEM¹⁷, Singer et al., 2018; Fairlie et al., 2017). Gender gaps in entrepreneurship in developing countries are of similar magnitudes, although with higher heterogeneity across business size, sector and geographical region. Female ownership of businesses varies from a low of 18% in South Asia to a high of 50% in Latin America and the Caribbean (Halim, 2020). Limited female engagement in entrepreneurship not only reflects underused talent, but also carries significant aggregate costs for economic growth (Chiplunkar and Goldberg, 2024).

We replicate these results using three World Bank data collection efforts: the 2006-2024 waves of the Regular Enterprise Survey (WBES), covering a representative sample of registered businesses with more than five employees across sectors; the survey of micro-enterprises, covering businesses with five employees or less; and the survey of informal enterprises, covering businesses that are not formally registered. We define female-owned firms as those in which women hold majority or full ownership.¹⁸

Figure C.1 shows that the median country in the regular WBES has slightly more than 10% of firms owned by women.¹⁹ This share increases to approximately 30% among informal and micro firms, perhaps pointing to gender barriers in formalization and growth. The rates of female entrepreneurship differ significantly across countries, although very few countries have a clear majority of firms led by women. Some of the lowest rates are found in North Africa and the Middle East, reflecting an important influence of religion (Ashraf et al., 2025).

Across the entire sample of formal firms from the regular WBES, male-led firms average 0.93 log points higher sales than female-led firms, controlling for the year of data collection (women's mean sales 60.5% lower than men's).²⁰ The overall sales gender gap decreases to 0.72 log points (women's mean sales 51.3% lower than men's) when controlling for ISIC3 industry code, year and nation (K-S test p-val = 0.01). As seen in Figure C.2, the distributions differ especially in their right tail, suggesting that women hit a cash ceiling to their earnings.

The sales gender gap is smaller among formal and micro firms than in larger firms, supporting findings that structural barriers like limited access to capital or networks may disproportionately hinder women's ability to scale their businesses (Campos and Gassier, 2017; Jayachandran, 2020).

Strikingly, female entrepreneurship is very concentrated in a small number of industries with lower average returns. This concentration has been documented in several countries at different levels of development (Goldstein et al., 2019; Hardy and Kagy, 2020; Campos et al., 2014; Alibhai et al., 2017). According to the regular enterprise survey, the three industries with the greatest proportion of female managers across countries are retail trade, food products and beverages manufactures, hotels and restaurants. According to the WBES, while women only own 14% of all manufacturing firms, they own 21% of enterprises in food and apparel production. The cross-country average of the Herfindahl–Hirschman index (HHI) of industrial concentration is 0.13 for female-led businesses, significantly greater than

¹⁷The Global Entrepreneurship Monitor (GEM) survey is collected across countries and, for each country, at least 2000 adult entrepreneurs/business managers are surveyed. It interviews nascent and established entrepreneurs and excludes people who are considered to be out of the labor market. Specific information can be found here <https://www.gemconsortium.org/wiki/1157>.

¹⁸We exclude firms with equal ownership, as it is unclear whether women are in charge in those cases. Following Hardy et al. (2022), we compare female entrepreneurship across the three World Bank enterprise datasets. They further show that gender shares in the regular WBES are similar to those in nationally representative surveys such as the Living Standards Measurement Study (LSMS) when restricting to firms with five or more employees.

¹⁹The distribution looks similar when considering female-led businesses as firms with at least a female owner.

²⁰We focus on the revenue differences between female-led and male-led firms, as the World Bank surveys provide more reliable measures of revenues than profits.

the 0.04 average HHI for male-led businesses ($p=0$).²¹ Segregation persists among informal and smaller firms. Among the micro-enterprises interviewed by the World Bank, 56.36% of those led by women are in the textiles, hospitality (hotels and restaurants), retail vending and food production sectors, while only 40.33% of male-led firms belong to these sectors. Additionally, the industries that women choose to enter have a greater proportion of peers, customers and employees of the same gender. On average, 50% of the full-time workforce in female-led firms is made up of women, almost twice the amount as in male-led firms (28%). Similarly, 60% percent of female-owned firms have a female top-manager, as opposed to only 7% of male-owned firms.

This gender segregation has been explained by preferences over fields of work and flexibility that certain industries offer, often shaped by social norms (Goldin and Katz, 2011; Campos and Gassier, 2017). In this paper, we explore an additional explanation: working in female-led industries shield female entrepreneurs from workplace interactions with men, which can make them vulnerable to expropriation.

3 A Model of Female Entrepreneurship, Gendered Power and Contract Enforcement

We now present a model where female entrepreneurs undertake collaborative tasks with partners who may cheat or expropriate them. Our goal is both to generate predictions about the link between cooperation and protective institutions, and to understand the determinants of female entrepreneurship more broadly. Indeed, a prominent advantage of urban density is enabling interactions, but that advantage can be lost or reversed if distrust erodes collaboration.

We assume that gender interacts with collaboration because it shapes the available punishment. We assume that there are two mechanisms that discipline bad behavior. First, there is “private punishment,” which might include violence or non-violent abuse or reputational penalties generated by disparaging remarks. If women are less violent or have less social power, then they will have less private punishment ability. Second, there is “public punishment,” in which an arbitrator or “chief” may intervene, and restore the harm done. That chief may intervene more to protect the weak.

Formal judicial systems are typically seen as less accessible to both the poor and to women. The World Justice Project (2023) reports that “in nearly 90 percent of countries, people living in poverty tend to face greater barriers to justice than those not living in poverty,” and “women face greater barriers to justice than men in nearly 70 percent of the countries surveyed.” However, courts are far less relevant in our setting. Globally, The World Justice Project (2024) ranked Zambia 119th out of 142 countries in whether “people can access and afford civil justice.” Market chiefs, rather than local magistrates, are the natural source of justice.

Market chiefs are a local institution that have taken on much of the role of a traditional and widespread rural institution (the “chief”), adapted to an urban setting. While “Zambian chiefs have few legally recognized powers,” they “have unofficial courts in which they adjudicate cases” (Baldwin, 2018). Palagashvili (2018) writes that “the chief is also called upon to resolve legal disputes regarding violations of contracts,” even though “contracts in indigenous societies were not written, but were formed on the basis of social norms or customs.” Logan (2013) uses Afrobarometer data and reports that “the influence of traditional leaders is most evident with respect to solving local disputes, where they are reported to play a greater

²¹For each country, the HHI is computed as the sum over industries of squared shares of female (or male) entrepreneurs.

role than either local or central government” and that in 16 out of 19 countries (including Zambia), a majority of respondents “think that the amount of influence traditional leaders have in governing your local community should increase.”

We now turn to the model. In stage 0, a female entrepreneur “E” chooses whether to pay a fixed cost to enter industry i . She knows the share of co-workers who are men (m_i) and the average character of adjudicators within the industry. If “E” does not join the industry, the model ends.

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, E can either pay π to produce the good or do nothing. In either case, her payoff is zero. If the parties do partner, E can make P a take-it-or-leave-it offer. Like E, P’s opportunity cost of time is 0, and so the contract must just compensate P for production costs.

In stage 2, P chooses whether to work or shirk. P can fulfill the contract and pay a cost of $q < .5\pi$ for effort and materials. P can also 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 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.²²

In stage 3, E pays P the contracted wage for his or her work. This payment is not contingent upon observing whether P has shirked, which can be justified either because P needs the money *ex ante* to perform the task or because E doesn’t immediately observe the shirking. We make this payment non-contingent both to match the experiments discussed later, and because the ability to make contingent payments would both complicate the model and the role of the adjudicator.

If P has fulfilled the contract, then E can sell the good and receive π . 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 . We assume that $2q + \Delta > \pi > b + \Delta$, so that E will always remediate if work has begun, but a partnership will not generate a positive social surplus if shirking always occurs.

We have chosen an “entrepreneurship” frame for this model, because that captures the examples that initially motivated our work, but this model is also equivalent to a standard investment frame. In that frame, E decides whether to invest $2q$ in P in period 1, some of which is meant to be P’s salary. In period 2, P’s investment increases in value to π . In period 3, the investment is meant to return to E, but P can decide to keep “b” of value for himself, which reduces the value of the investment to E by $b + \Delta$. While the two frames differ because E pays P in period 1 in the investment frame but in period 3 in the entrepreneurship frame, as long as the period 3 payments are unconditional, they are equivalent to period 1 payments.

If P shirks, then E has two potential means of punishment. E can punish P with “social punishment” and E can appeal to an adjudicator, who may be willing to intervene on behalf of the injured party. There is no double jeopardy, so that if the adjudicator intervenes, there is no possibility of applying social punishment. The size of the social punishment that a person can inflict and the probability that they have access to the adjudicator are functions of the “power gap” between the injurer and the injured party. We let θ denote the difference between the power of P and E. While we will typically think of settings in which a male P has more power than a female E ($\theta > 0$), it is possible for θ to take on any positive or negative value. Social punishment costs zero to impose and applies a penalty of $\max[k - \theta, 0]$, independent of the harm done. The adjudicator will intervene with probability $\delta + \alpha\theta$, where

²²It is never optimal for E to shirk as she is the residual claimant of the product.

α reflects the “protective” instincts of the adjudicator. If the adjudicator intervenes, then the adjudicator will force P to pay E the damages of $b + \Delta$. Consequently, E will always prefer the adjudicator to intervene. We will typically assume that θ is known, at least by E and P, but the model would be unchanged if we treat θ as the expected power difference.

If the parameter α is negative, then the adjudicator favors the mighty and that seems to be true in much of the world. The World Justice Project notes that “in nearly 90 percent of the countries surveyed,” they find that “more people living in poverty face barriers to justice than people not living in poverty.” Chanock (1998) reports that in colonial Zambia, chiefs often seemed to be biased against women: “The decisions of the chiefs were usually in favor of the man in a marital dispute,” and “women, especially in the mixed Chewa/Ngoni areas, and Lomwe migrant, who distrusted the Yao headmen under whom they had settled, used the courts,” that had been set up by the British.

Yet there is also evidence that α is positive for at least some African chiefs. Logan (2013) shows, through modern Afrobarometer data, that support for chiefs declines sharply with education, and that “the lack of a gender difference is especially noticeable,” which seems to reject that view that the chiefs particularly favor either elites or men. Matsvayi (2012) studies three chiefs’ courts in Zimbabwe and finds that two of the courts illustrate “how we can build our traditional systems into a model that ensures many more women, especially rural women, access justice.” Baldwin (2016) reports that in Zambia, “40 percent of the chiefs’ visitors are seeking assistance in resolving disputes, whereas almost one quarter are looking for economic or financial assistance.” She also finds “chiefs benefit, rather than harm, local public goods provision,” and that “the deaths of chiefs significantly reduce [...] the building of new schools and the sinking of boreholes.” The fact that chiefs supply both charity and public services suggests that many chiefs feel an obligation to help the weak.

We let $\hat{\alpha}$ denote the expectation of α by both E and P. If the adjudicator’s identity is known, then $\hat{\alpha}$ will equal α . Otherwise, $\hat{\alpha}$ will equal the population average of α across adjudicators. In either case, the expected probability of intervention is $\delta + \hat{\alpha}\theta$. If the adjudicator does not know θ , then his probability of intervention is based on its expectation. Proposition 1 assumes that the power differential is known by the adjudicator and everyone else. Proposition 2 allows for the possibility that the adjudicator does not know anything about θ , and in that case the probability of intervention is just δ . We will interpret δ as the overall quality of the legal environment, but its value can also be shaped by the preferences of the adjudicator and the circumstances of the case. Murky evidence will make intervention less likely, but some adjudicators may be less tolerant of imperfect knowledge.

Proposition 1 describes the returns to partnering as a function of the relative power of E and P (θ) and as a function of the the overall quality of the legal environment (δ) and the adjudicator’s propensity to protect the weak (α):

Proposition 1. *E will always partner with P if $k - b > \theta$, but if $k - b < \theta$, then there exists a value of δ denoted δ^* , which is between $-\hat{\alpha}\theta$ and $1 - \hat{\alpha}\theta$, such that E will partner with P if and only if $\delta > \delta^*$. The value of δ^* is always declining with Δ and k and increasing with b . δ^* is decreasing with $\hat{\alpha}$ if and only if $\theta > 0$, and increasing with $\hat{\alpha}$ if and only if $\frac{\Delta}{(\Delta+b-k+\theta)^2} > \hat{\alpha}$.*

The proposition first notes that when E is sufficiently powerful relative to P, so that θ is less than $k - b$ (which is negative by assumption), then the adjudicator becomes irrelevant. The strong don’t need the courts. But when E is weak, she can only stop P shirking (which is necessary for cooperation to occur) when the adjudicator is sufficiently likely to intervene. The threshold level for intervention can be seen as a measure of how likely partnership is to take place, since intervention levels may be different in different markets or at different times, and a lower threshold means that cooperation and female entrepreneurship are more

likely to occur.

The minimum intervention threshold is always falling with Δ , since that drives the punishment meted out by the adjudicator, and k , since that determines the punishment that E can generate without the adjudicator. The threshold is rising with b since that determines the incentive to shirk and a higher value of b make shirking harder to deter. The threshold is rising with α if E is weaker than P and falling with α otherwise, since α determines the response of the adjudicator to weakness. If E is weak, then she wants an adjudicator who is more likely to protect the vulnerable. If E is strong, then she wants an adjudicator who respects strength.

Two of the chiefs discussed by Matsvayi (2012) seem to see their role as protecting women, such as wives who are physically abused by their spouses. That fact suggests a positive α , as we suspect that husbands have a power edge over wives in rural Zimbabwe. By contrast, the colonial chiefs described by Chanock (1998) who favored men and were shunned by female litigants, appear to have a negative α .

If $\alpha < 0$, and the adjudicator favors the strong, then an increase in E's social power increases both her ability to punish outside the court and her likelihood of getting help from the arbitrator. Both factors make it easier to stop P from shirking and make partnership more attractive. If $\alpha > 0$, and the adjudicator favors the weak, then an increase in E's social power still raises her ability to punish outside the court, but makes the adjudicator less likely to intervene. These two forces work against each other, and if $\frac{\Delta}{(\Delta+b-k+\theta)^2} > \alpha$, then the threshold actually falls as E becomes weaker because the advantage of likelier help from the adjudicator is more important than the ability to punish outside the court.

We now turn to the question of masking power, which can be done artificially in a lab setting or might reflect a court setting where the adjudicator just doesn't know the parties involved. We assume that adjudication can either be anonymous, in which case the adjudicator treats the value of θ as zero, or identified. These differences could correspond to literally blind adjudications or settings in which the adjudicator is an outsider who knows nothing about the actors involved and their social milieu.

Proposition 2. *If $k - b < \theta$, and E and P are anonymous so that θ is hidden from the adjudicator but not from each other, then there exists a value of δ denoted δ^{**} , which is between 0 and 1, such that E will partner with P if and only if $\delta > \delta^{**} = \delta^* + \hat{\alpha}\theta$. The value of δ^{**} is always declining with Δ and k and increasing with b and θ . If $\theta < 0$ then E will always be weakly better off in non-anonymous adjudication if and only if $\hat{\alpha} > 0$.*

Proposition 2 shows that hiding one's power is advantageous if you are powerful and the courts protect the weak, or you are weak and the courts defer to the strong. Consequently, if women are weaker, then a woman E would only want to reveal her gender identity with an adjudicator who she expects to protect the vulnerable. As long as the adjudicator displays more care for the weak, then revelation will be appealing because it will increase the probability that the adjudicator acts, which makes partnership and profits more likely. If the adjudicator is hostile to women, which we interpret as $\hat{\alpha} < 0$, then E will prefer anonymity. This proposition motivates looking at heterogeneity across adjudicators in our experiments.

We finally turn to E's decision to enter industry i. We assume that the social power is homogenous within genders, and that the difference across genders is denoted θ_G . We assume that $k > (1 - \delta)b$, so that there is no shirking in within gender partnerships, but that $b > k - \theta_G$, so that men will cheat if there is no possibility other than adjudicator's intervention. Matching between P and E is random so that the probability of receiving a male potential partner in any given period is m_i . We also assume that the expected value of α in the industry is $\hat{\alpha}_i$, and that adjudication is non-anonymous. Finally, we assume that the fixed costs mean that E will enter if and only if expected returns in each period is greater than f_i .

Proposition 3. If $\delta + \hat{\alpha}_i\theta_G < 1 - \frac{\Delta}{\Delta+b+\theta_G-k}$, then women in industry i will not partner with men and they will end the industry if and only if $(1-m_i)(\pi - 2q) > f_i$. If $\delta + \hat{\alpha}_i\theta_G > 1 - \frac{\Delta}{\Delta+b+\theta_G-k}$, then women in industry i will partner with men and men will not shirk and women will end the industry if and only if $\pi - 2q > f_i$.

If $\delta + \hat{\alpha}_i\theta_G$ is low, then women cannot trust men and, consequently, they will only join industries with enough women. If $\delta + \hat{\alpha}_i\theta_G$ is high, then men will not shirk and consequently the gender composition of the industry becomes irrelevant.

4 The Zambian Context: Data and Institutions

In this section, we introduce the Zambian context and our main source of entrepreneurship data, the Census of Small-Scale Manufacturers. We then describe the main adjudicating institutions for entrepreneurs' disputes. Zambia is a natural setting to study weak institutions, gender power asymmetries and female entrepreneurship. Zambia ranks 99th out of 179 countries in the 2019 SIGI index of discrimination within the family and 94th out of 132 countries in the 2019 SIGI index of physical integrity restrictions. Sixty-eight percent of the 2007 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.

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 index of gender equality in courts from the World Justice Project are among the lowest in Africa. As of 2024, the country ranks 119 over 142 countries in whether people can access and afford civil justice. Not surprisingly, Zambian firms cite institutional constraints as being more important than those related to finance to their expansion and growth (Bloom et al., 2014). Just as in many Sub-Saharan African countries, entrepreneurship is an important activity for many households in urban Zambia. Despite gender discrimination and weak rule of law, our data still documents a sizable number of female entrepreneurs.

4.1 The Lusaka Census of Small-Scale Manufacturers

Between May and September 2016, we collected the Lusaka Census of Urban Entrepreneurs (hereafter, "Census"), 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 and structural description (e.g., standalone building, inside markets).²³

The Census 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 the Lusaka district in the 2012

²³A 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. We split Lusaka into sub-regions called Census Supervisory Areas (CSAs), and our census covered all the businesses in 90 percent of all CSAs in the Lusaka district. For security reasons, we excluded 8 CSAs 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.

Economic Census, our data suggests either a 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 between 5 and 10 employees, and fewer than one percent have 50 or more employees.²⁴ The spatial distribution of businesses in the Census is shown in Figure C.3.

Table C.1 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 the number of businesses) are retailing, accommodation and food industry, and other services (the vast majority being hairdressers). Retailing firms typically have fewer employees compared to any other industry. The Census also shows that Zambian manufacturing enterprises are smaller— in terms of employment— than those in both neighboring and developed countries (Hsieh and Klenow, 2009; Bloom et al., 2014).

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 “Census of Small-Scale Manufacturers”. This survey had a total of 2,216 respondents, which accounts for 58.3% of the total number of businesses in these sectors.²⁵ The survey includes questions on business practices, sales and history, levels of trust, collaborative behavior with other businesses, and demographics.²⁶ We know the gender of the owner for 97% of businesses eligible to participate in the “Census of Small-Scale Manufacturers”.²⁷ 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. Nevertheless, for external validity, we also include other industries in our artefactual field experiments discussed in Section 6.

4.2 Adjudicating Institutions in Lusaka

There are three main sources of legal support for small-scale firms in Lusaka: the Small Claims Court (SCC), the police and more informal local adjudicators. Few entrepreneurs in our sample heard or made any use of the Small Claims Court. Instead, many of them rely on the police, which is deemed to be quite slow and resource-constrained, or local adjudicators known as “Market Chairmen/Chairwomen” or “Market Chiefs”, who exercise authority over transactions that occur within their own local market areas. We describe these institutions in the following paragraphs, and provide a more comprehensive account of the chiefs institution.

Market chiefs. There are approximately 80 formal markets in Lusaka, covering 30 percent of firms across all industries and 59 percent ($N=1324$) of manufacturers. Cooperation appears easier within markets, and somewhat surprisingly, rents also tend to be lower rela-

²⁴In the 2012 Economic Census, the percentages were respectively 71, 11 and 3 percent. In total 84 percent of businesses disclosed their employment figures in our Census, so the percentages in the body of the paper refer to about the 40,517 respondents to this question. Some larger businesses were unwilling to share their employee numbers with our census takers.

²⁵Table C.2 shows differences in the characteristics of respondents and non-respondents. Respondents to our Census of Small-Scale Manufacturers are smaller than non-respondents, with about half as many employees. Non-respondents are more often from Construction/Mining, part of a chain, or in brick structures, suggesting they may operate more successful businesses or face higher opportunity costs of time. This selection was also reflected in refusal reasons (40% “too busy,” 27% “uncomfortable discussing business”).

²⁶If the owner was not available, the interview was conducted with the main manager.

²⁷Gender is available also for non-respondents as it was coded by our surveyors when asking about the owner’s availability to participate in the survey. Table C.2 shows that selection into the survey is very similar for men and women. Importantly, for women we do not find any differences in the type of business location between respondents or non-respondents, including whether they work from a residential building.

tive to spaces in high-traffic commercial areas, potentially due to restricted access, shorter opening hours, and limited business space.

Markets fall under two broad categories: council and cooperative. Historically, Lusaka's markets were governed by the Markets Act of 1937, which gave local authorities control but delegated day-to-day management to appointed Market Masters or, in practice, party-linked "chairmen" who wielded significant influence over stall allocation and fee collection. Following political reforms and later the Markets and Bus Stations Act (2007), councils formally regained control, yet trader-elected leadership persisted in cooperative and most council markets. These leaders, typically called market chairmen, are elected by market members for multi-year terms (usually 2–5 years) to represent traders' interests, enforce market rules (e.g., fines for prohibited behavior, such as drinking or insulting others), manage finances, and maintain order and sanitation. The chairmen's exact functions are guided by legislation and market unit guidelines, but, importantly, all market chairmen are involved in resolving disputes among marketeers and/or customers.²⁸

Given their central role in everyday market governance—effectively handling issues ranging from unpaid loans to consumer complaints—these chairmen are widely recognized as local authorities in their own right, despite lacking statutory power in council-run markets after 2007. Traders and customers alike often prefer to bring disputes before them rather than to the police or courts. As one trader explained, "Police say: 'Bring a record from your market committee first'; that's why we sort things here before courts get involved." This de facto institutional authority has earned market chairmen the colloquial title of "market chiefs." The term reflects how entrenched and respected these figures are: they are first-instance adjudicators, peacekeepers, and gatekeepers of access to market stalls, functioning as an informal but well-established governance structure within Lusaka's commercial ecosystem.

For example, one typical dispute involved a marketeer selling a stall to two different buyers. The chief intervened, ensuring that funds from a known lender were redirected to compensate one buyer. In another case, a customer claimed a marketeer had failed to repair a television as promised; the chief set a two-day deadline or imposed a fine. As one chair said, "We want to handle disputes internally and peacefully first, only if this does not work do we go to the police." Such examples underscore the institutionalized trust and authority these leaders command.

Small Claims Court. To address the weaknesses of the formal court system, a Small Claims Court was founded in 2008 by an act of Parliament. No legal representation is required, as the court is intended to hear minor cases 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% of average sales in a good month in our sample of businesses.

In our data, only 21% of respondents had heard of the SCC, and of those, 56% did not believe "people like them" had access.

The police. Alongside formal courts, the police is another common institution where small-scale businesses bring their disputes. Since the late 1990s, the Zambia Police Service has been particularly focused on establishing a connection between its forces and the communities they serve. For instance, in 1999, a Community Services Directorate (CSD) was

²⁸Arrangements may vary. In Council markets, which are regulated by the Lusaka City Council, there are sometimes two figures in charge: a market "master" and a market chairperson (the chief). The former is a civil servant appointed by the Lusaka city council who usually has a short mandate (around one or two years). The market chairperson (the chief) is instead elected by marketeers and owners of market slots to manage the market and represent them where necessary. Moreover, the market chief is the main person in charge of dispute resolutions.

established with the explicit goal to improve policing within communities and commercial centers. Community Liaison Officers were created to help the vulnerable and disadvantaged people in the community, including women. Figure 3 shows the location of formal markets, the Small Claims Court and the 93 police stations or posts.

A comparison of contract enforcement institutions. Tables C.8 and C.9 compare the three dispute-resolution institutions available to Lusaka entrepreneurs—market chiefs, police, and the Small Claims Court—in terms of knowledge, perceived fairness and speed, and actual usage. Respondents are the entrepreneurs who participated in our artefactual field experiments, described in Sections 6.1 and 6.2.

When presented with hypothetical business disputes, the vast majority of respondents indicated that they would seek help from their market chief: 73 percent of men and 68 percent of women would turn to this local authority (Table C.8, Panel A). By contrast, only 17 percent reported that they would approach the police, and fewer than 10 percent would use the Small Claims Court. The market chief also enjoys the strongest reputation among the three institutions: 55 percent of men and 50 percent of women consider their chief to be always or usually fair, while only 18 percent of men and 24 percent of women perceive the chief as always or usually slow (Table C.8, Panel B). By contrast, the police are seen as less fair than both chiefs and courts, and both the police and the SCC are perceived as slower than chiefs. Men and women are equally pessimistic about the fairness of police on average, but women are more likely than men to think that either the market chief or the police are slow in dispute resolution (see Table C.8).²⁹ A striking pattern in Table C.8 is respondents' limited knowledge of the formal legal system. Only one in five entrepreneurs has ever heard of the Small Claims Court, and just one in four can name any other institution for dispute resolution besides the chief and the police. Among those who can, only half mention "courts."

These patterns are mirrored in actual behavior. As Table C.9 shows, only 21% percent of male and 13% of female entrepreneurs have ever used a court to resolve a dispute ($p < 0.05$ for the gender difference). About half of respondents know someone who has used a court. In practice, however, fewer than one in five business owners seek help from any institution when faced with a dispute. Men are more likely than women to report work-related disputes and are slightly more likely to seek assistance from a third party (in one of our two samples; see Table C.9). Among those who seek help, both men and women overwhelmingly turn to their market chief rather than to formal state institutions. For example, in our two experiments, 30% and 76% of women, and 50% of men, sought assistance from their market chief.

Taken together, this evidence suggests that local institutions—and in particular market chiefs—function as the primary and most trusted adjudicators for Lusaka's small manufacturers. They are well-known, widely used, and perceived as relatively fair and efficient, making them a good empirical proxy for the imperfect third-party enforcers described in our theoretical model. We therefore focus on market chiefs in the main analysis, while presenting complementary results for the other institutions in the Appendix.

5 Gender Gaps in Entrepreneurship and Collaboration

In this section, we use our Census of Small-Scale Manufacturers to describe widespread gender gaps in entrepreneurial activity. While some of these gaps have been documented in other contexts, we show additional facts on gender gaps in trust, business collaboration and peer-to-peer learning. We then show that these gender gaps in economic collaboration are smaller when female entrepreneurs have access to the chief's (unbiased) adjudication.

²⁹Anecdotally, taking a long time to arbitrate a dispute is one common way in which Market Chiefs try to favor one party.

5.1 Segregation and Earnings

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 often a male-dominated activity (Global Partnership for Financial Inclusion and International Finance Corporation, 2011; Campos et al., 2014). 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 USD respectively. Figure C.4 shows the kernel densities of log sales in good and bad weeks by gender, where the sales variables have been winsorised at the top 1% to remove the influence of outliers.³⁰ The distributions are significantly different between men and women ($p=0.00$, 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.

Figure 2 shows that Lusaka 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.³¹

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 C.3. Women are more likely to have participated in management or entrepreneurship training than men and the two groups do not differ in terms of practices such as record keeping.

Column (2) of Table C.4 shows the raw gender gap in sales variables (average, in a good week and a bad week), both in levels and in logs, and employment level and growth. Column (3) shows 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, and social skills. Column (4) of Table C.4 adds controls for industry and Column (5) adds household constraints, including marital status and work time. Selection into different industries explains between two-thirds and three-fourths of the gender gap in average sales, in logs and levels respectively. The coefficient on the female dummy for log sales in a good week is reduced from -0.59 to -0.18 when controlling for education and industry, and the R-squared goes from 0.045 to 0.26. The coefficient on log sales in a bad week is similarly reduced by one-half when controlling for education and industry, and the R-squared goes from 0.045 to 0.25. The average level of sales is the lowest in apparel manufacturing—where most women operate—and the highest in food manufacturing. The other sectors lie between these two. Employment growth differences between the two genders are completely explained by the distribution of the two genders across different industries. When controlling for sector, education, working time and marital status, the coefficient on the female dummy becomes insignificant for sales in both levels and logs, as well as for employment variables.³²

³⁰During 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.

³¹We 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.

³²This evidence is compatible with previous studies also finding that women enjoy less profitability and

One explanation for female industrial segregation may be that, when gender bias is large and institutions are absent or weak, women cannot trust men.

5.2 Trust and Collaboration

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 in a short time frame), which limits entrepreneurs' ability to search for or repeat partners. In seventy-five percent of cases, partnerships form between entrepreneurs that are located close to each other. We first examine whether female entrepreneurs are less trusting and form fewer partnerships than their male counterparts. We also discuss our limited information on the transfer of knowledge across Lusakan entrepreneurs.

We use standard survey measures of trust taken from the World Values Survey (WVS) and General Social Survey (GSS).³³ 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 questions on collaboration with other businesses in terms of shared orders, joint buying of materials, lending, and offering advice.³⁴ In our analyses, we use both indicator variables that take on a value of one if an individual ever engaged in the last 12 months in a particular activity and an index of cooperative behavior from their responses created as the average of the four indicator variables.³⁵

Panel A of Table 1 shows the mean differences in trust between men and women. Women are less trusting across all three direct survey measures. Women are also more likely to disagree with the statement that they would be comfortable leaving their shop unattended. Additionally, Panel B of Table 1 shows that women are less likely to engage in any of the

lower sales growth even controlling for extensive observable characteristics (Bardasi et al., 2011; Klapper and Parker, 2011; Campos et al., 2014; Nordman and Vaillant, 2014a; Nix et al., 2014; Nordman and Vaillant, 2014b; McKenzie and Woodruff, 2017; Hardy and Kagy, 2018, 2020). 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). For a recent review on the several constraints faced by female entrepreneurs, see Ubfal (2024).

³³See tables D.1 and D.2 for validity checks of the survey measures of trust and trustworthiness using our experimental data. The GSS Trust measure is an indicator for the answer to “Do you think that most people can be trusted or you cannot be too careful?”. Trust in strangers/neighbors is taken from the WVS questions: “How much do you trust people you meet for the first time / your neighbors?”, measured on a 4-points Likert scale. We ask for trust in business as agreement to the statement: “I am comfortable leaving my shop unattended during the day if I need to do something for 30 minutes”, measured on a 5-points Likert scale. The Trust in strangers, neighbors and in business variables were converted into dummy variables by combining low and high scores.

³⁴After each of the following statements, participants were asked whether they had engaged in the described activity with a similar business in the past 12 months:

1. Sometimes two or more businesses participate in a common order from a client, or one business sub-contracts to other businesses part of an order. (share order)
2. Sometimes businesses make joint orders of materials from suppliers. (joint buy)
3. 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. (advice)
4. 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. (lending)

³⁵Results are robust to alternative aggregations of these variables, such as a z-score.

four cooperative behaviors that we measure.

We find not only a gender gap in collaboration but also strong gender segregation in collaborative activities. In our second experimental samples, respondents reported the gender, age, and number of their collaborators from the previous year. Both men and women overwhelmingly worked with same-gender partners, with only about 1 in 5 collaborating across genders. These patterns align with the power asymmetries in our model, suggesting that women have smaller networks and may avoid more powerful collaborators.³⁶

Table C.5 shows that low levels of trust are associated with a 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. Finally, Table C.6 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 the selection of female entrepreneurs 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. Figure 5 shows that women collaborate more and similarly to men in apparel, which is the only gender-balanced industry in our data. In contrast, women in other industries cooperate less than female tailors and substantially less than men.³⁷ Figure C.5 replicates this evidence by looking at more general social interactions with other entrepreneurs. Women talk less about the business with other entrepreneurs than men, but that tendency disappears in industries that are not male-dominated, so that women who work in disproportionately female industries have the same frequency of cooperative and social interactions as men in those industries.³⁸

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 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.

Panel C of Table 1 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 and slightly less likely to talk with others frequently about their business, but this last difference is not statistically different from zero.

Table 2 shows these results using a linear probability model with controls for business density and owner characteristics. Regression (1) shows that women are 18.4 percent less likely to learn their trade from another owner. Regression (2) shows that they are 13.2 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,

³⁶This sample is described in section 6, and includes tailors, hairdressers and restaurants.

³⁷In contrast to women, men tend to cooperate slightly less in apparel manufacturing than they do in other industries. This suggests that female tailors' cooperation level is not driven by a higher industry-specific need for collaboration.

³⁸In terms of the correlates of cooperation, we find that businesses which cooperate tend to be older, and their owners are more likely to be married and to have received had capital from their spouse, they are less likely to be recent immigrants and are more educated.

sales and employment. Regression (4) shows that in a good week, women have sales that are 0.6 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 similar results. Regressions (6) and (7) repeat the regression using employment and employment growth as the dependent variables. 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.

5.3 Female Collaboration and Chiefs' Support

In this section, we ask whether institutions can mitigate the gender gap in collaboration and earnings among Lusaka manufacturers. The model predicts that female entrepreneurship is more viable when institutions provide them with reliable contract enforcement (i.e., a higher δ or protective adjudicators with $\alpha > 0$). Yet conditional upon entry, even when gender norms are biased, stronger institutions alone are sufficient to increase cross-gender collaboration.³⁹

Empirical model. Our main measure of institutional strength is having access to the justice offered by the chief of a formal market. We first test whether being able to resort to the chiefs' adjudication increases female collaboration. To this goal, we compare the outcomes of female and male entrepreneurs who are located within a market with their counterparts who are located just outside the same market, controlling for marketplace fixed-effects, business density and a variety of entrepreneurs' characteristics. Through the lens of our model, assuming that women are always on average less powerful than men (i.e. $\theta > 0$), a reduction of the gender gap in collaboration in markets indicate that $\delta + \hat{\alpha}\theta$ is on average higher than partners' shirking incentives, and that $\hat{\alpha} > 0$. But if market chiefs are thoroughly biased, then physical proximity to them will not engender cooperation by women. The simplest way of thinking about the mapping between these measures and our model occurs when women have no ability to enforce contracts against men without these institutions, but the likelihood of the chiefs' intervention in support of women increases to some positive number in markets.

Table 3 shows the following regression where cooperative behaviors are regressed on access to the market chief's adjudication and the interaction between this institution and gender. For business i in sector s within 1 km from market m we run the following specification:

$$y_{ism} = \beta_1 Fem_{ism} + \beta_2 InMarket_i + \beta_3 Fem_{ism} * InMarket_i + X'_{ism}\delta + \lambda_m + \epsilon_{ism}$$

The set of controls X_i includes the logarithm of the total number of businesses within 100 metres of business i , the logarithm of the total number of businesses in the same industry (NAICS3) within 100 meters around business i , a dummy for whether the business is within 100 meters of a market, the population density in the administrative area where the business is located and whether the business has a below-median distance from the police or the SCC ("density controls"). We add marketplace fixed effects λ_m and standard errors are clustered at the marketplace level.⁴⁰

³⁹Proposition 1 shows that partnerships between an entrepreneur (E) and a partner (P) occur when the expected institutional intervention rate $\delta + \hat{\alpha}\theta$, exceeds the threshold at which shirking becomes profitable for P. As long as the returns to partnership and the returns and costs of cheating are held constant, the main prediction is that improvements in institutional enforcement (higher δ or a more protective adjudicator, i.e., higher $\hat{\alpha}$ when $\theta > 0$) increase the likelihood of cross-gender collaboration.

⁴⁰A marketplace is defined as the set of businesses located inside a formal market or within one kilometer from the market. Each business located outside a formal market is assigned to the closest market within a kilometer. Businesses located further than one kilometer from a formal market (N=103) are assigned to one extra category ("Far from market").

Variable Fem_{ism} is an indicator for a female-owned business and $InMarket_i$ is an indicator variable equal to one if the business i is located inside a formal market, and thus can refer to the market chief for disputes.

Our empirical strategy compares the effect of having access to the chief's support for businesses of different genders that are exposed to similar demand conditions and density effects, controlling for unobservable characteristics of the marketplaces where businesses are located. We control for both population and business density at a granular level as increased business interactions can be directly affected by supply (other businesses) or demand (customers) factors. We add marketplace fixed effects to control for idiosyncratic differences in the quality of institutions across marketplaces. Our coefficient of interest β_3 captures the systematic effect of the chief's support on female owners' outcomes.

Drivers of business location. Our empirical strategy relies on business location inside markets, and the identifying assumptions are that location is not correlated with chiefs' quality and not differential by gender. To assess the sensibility of these two assumptions, we asked participants in one of our experiments why they chose to locate their business within the current market. Most cited business opportunities, available services, or proximity to home—regardless of gender (see Figure C.6). Only a small share selected “quality of market management,” suggesting institutional quality is not a primary driver of location. We also asked why firms chose to be inside the market rather than just nearby. The main reasons were better services (e.g., waste, toilets), security, and lower rent—inside-market stalls are typically cheaper than nearby outside ones. Again, fewer than 10% mentioned management quality. These findings align with our qualitative interviews with entrepreneurs, who noted that outside-market locations offer more customers and longer hours, but at the cost of higher rents and fewer basic services. Inside markets, traders emphasized the value of amenities like toilets, water, security, and waste disposal. In terms of gender-based selection into markets, Table C.7 shows that the observable differences between women who locate inside versus outside markets closely mirror those for men, suggesting similar selection patterns across genders. Consistently, Table C.12 indicates that the average share of women located inside markets is nearly identical to that of men.

Results on collaboration. Panel A of Table 3 shows that being in a market disproportionately increases women's probability of enacting any cooperation activity with other businesses, as well as average cooperation.⁴¹ The dependent variables y_{ism} in columns 2-5 of Panel A of Table 3 are the indicator variables for 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 1 is their mean.

Being inside a formal market increases women's collaboration by 16 percentage points, which is double the effect of being in a market for men and represents 30% of the mean collaboration levels. This is consistent with the hypothesis that strong market leaders might provide support to women's interactions with other businesses, overcoming their disadvantage in power. Figure 4 shows that the increase in women's cooperation 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.⁴²

⁴¹The relationship is substantially unchanged when including business owner controls (our set of individual controls includes: whether the business owners trust their neighbors or people in general, business age, days worked, owner's age, marital status, educational achievement and ethnicity) and industry fixed effects. See table C.11 of the Appendix.

⁴²Figure 4 splits the sample in markets with above 40% female share of manufacturers, which is the 75th percentile of the distribution of female shares in the sample.

Results on economic performance. Panel B of Table 3 turns to sales and employment, which are our primary measures of economic success. We use the same empirical specification described at the beginning of this section, but we further control for sector s fixed effects given their explanatory power for gender differences. The outcome variables in Columns (2) and (3) are average sales, in levels and logs, while Columns (4) to (5) focus on full-time employment level and growth. Column (1) shows results on an index of economic performance, which averages standardized measures of sales and employment (in levels).⁴³ On average women sell less than men, but the interaction term is positive across all the columns, suggesting that female businesses particularly benefit from locating within a market and having access to a market chief. The coefficient on the interaction $Fem_{ism} * InMarket_i$ is statistically significant for mean sales in levels but not in logs. Yet, it is large in magnitude and similar to the coefficient on the female dummy. Similarly, while women tend to have smaller businesses that do not grow, the gender gap in both employment levels and change is attenuated inside markets. The coefficient on the market dummy is negative across specifications, and significant for sales outcomes, indicating that male-owned businesses perform worse inside markets than their counterparts outside the same market.

These results suggest that the economic pie in markets is smaller for everyone, but relatively smaller for men with respect to women, with a resulting attenuation of the gender gaps in economic performance uncovered in previous sections. Given the central role of the chief in dispute resolution, these results may reflect women's increased ability to trust and redistribute the pie in their favor when there is a stronger enforcing institution. The worse economic performance of businesses inside markets also suggests that owners may be negatively selected into markets. However, the mitigated gender gap may still be the result of the chief's support as long as selection is not differential by gender.⁴⁴

Proximity to formal institutions. Given how few small-scale businesses in Lusaka know or use formal institutions, we explore in the Appendix whether simply being located closer to them matters. Figure C.7 shows cooperation rates by gender across distance quintiles from the SCC or a police station. For men, cooperation is fairly stable except in the most remote areas. For women, however, cooperation declines steadily with distance.

Table C.10 confirms this pattern using our main regression model, where we replace the market location dummy with indicators for whether a business is located closer than the median distance to either the Small Claims Court or a police station. Being closer to formal institutions is associated with more cooperation by women, but this relationship is statistically significant only for distance from the SCC (Panel A). However, we do not find evidence that proximity to these institutions affects business sales for either gender (Table C.10, Panel B). One likely explanation is that the Market Chief remains the primary and most trusted source of dispute resolution—unlike the Small Claims Court, which is largely unknown, or the police, which is seen as slow and ineffective.

Summary. While the findings presented in this section are robust to different controls, unobservable characteristics of entrepreneurs located inside markets may still affect our estimates. First, businesses decide where to locate. If there is endogenous selection of more cooperative female businesses closer to local institutions, our estimates would capture this selection rather than the effect of institutional support per se. Second, if the marginal female

⁴³ As in previous specifications using sales, the variables have been winsorised asymmetrically at the top 1% to control for outliers and reduce noise. Appendix Figure C.8 shows the robustness of the coefficients on the interaction term $Fem_{ism} * InMarket_i$ for different cleaning procedures and sales variables.

⁴⁴The effect of being in a formal market on mean sales remains the same when including business owner controls (as defined above) in addition of industry fixed effects. See Table C.11.

marketeer is better than the marginal male marketeers inside markets, higher cooperation and sale may be attributed to women's better quality instead of enforcement.

Our next Section addresses these concerns. First, we will show that the market effect on cooperation is heterogeneous depending on the chief's quality of arbitration. Then, we will experimentally isolate the impact of having access to chiefs.

5.4 Chief Bias Mediates Female Collaboration

Our model predicts that women – who suffer from a power gap θ – should disproportionately benefit from competent and redistributive adjudicators, who are characterized by a high parameter δ and are sensitive to the gender power gap through $\alpha > 0$. Yet, weak (low δ) or gender biased (α low or negative) adjudicators may even discourage female collaboration above and beyond the effect of power asymmetries. Thus the average impact of institutions uncovered in the previous section may mask substantial heterogeneity depending on the degree of adjudicator's likelihood of acting in disputes and bias.⁴⁵

Measuring chiefs' gender bias. In 2021, we went back to Lusaka's markets and tried to interview all the market chiefs who were in charge of markets during 2016. We found a total of 76 respondents, of whom 68% are the original 2016 chiefs. Appendix D contains details on the survey collection.

Chief's sensitivity to gender power gaps (α) is linked to gender bias, as chiefs are less likely to want to protect women if they are biased against them (α low or negative). We create an index of the chief's gender bias, which captures whether the chief is unlikely to help a woman in a business dispute against a man and/or has traditional gender values.

The gender bias index aggregates survey answers about the chief's use of subjective decision rules, whether the chief thinks that a woman is unlikely to win a dispute against a man, whether he thinks it's more likely to catch a thief for a male rather than a female marketeer, and whether he reports more traditional gender attitudes according to questions from the World Value Survey (WVS) and the World Justice Project (WJP).⁴⁶

We further construct two indexes which capture the overall quality of the chief's adjudication process (index of legal competence) and the chief's degree of involvement in the market affairs (index of managerial duties). The former can be thought as a determinant of δ (e.g., how easy is to find evidence to be used in the adjudication so that the chief takes action), thus we expect better legal competence to positively affect business collaboration. We measure the chief's managerial burden as a possible confounder in the relationship between the chief's characteristics and female outcomes.

Chiefs' bias and the gender gap in collaboration. Figure 6 shows the main results on the relationship between the chief's gender bias and female trust in business using the raw data. The gender gap in average cooperation between women and men goes from -10 to -7 percentage points moving from outside markets to markets with a highly biased chief. The gap only disappears in markets with an unbiased chief. While access to a chief improves collaboration, chiefs without gender bias are most strongly associated with female

⁴⁵When asked about a hypothetical dispute between a man and a woman, market chiefs varied in their adjudications and views. Some voiced pro-women sentiments ("Most women are vulnerable and men take advantage of that"), others bias ("It is easier to deal with men as most women are quarrelsome"), while some highlighted that gender would not be a factor in their adjudication ("We rule in favor of one who provides enough evidence")

⁴⁶The exact components of the index are listed in Table D.2. Questions on the way in which the chief arbitrates disputes were asked referring to two hypothetical scenarios involving a female and a male marketeers, reported in Appendix D.

collaboration, consistent with our theoretical predictions.

We next restrict our attention to businesses located inside markets and compare the collaboration behavior of women and men, allowing for differences in the degree of chief's gender bias across markets. Figure 7 shows the coefficients from the following specification:

$$coop_{ism} = \beta_1 Fem_{ism} + \beta_2 HighIndex_{im} + \beta_3 Fem_{ism} * HighIndex_{im} + X'_{ism} \delta + \epsilon_{ism}$$

where $coop_{ism}$ is average cooperation for business i in sector s located inside market m , Fem_{ism} is equal to 1 for being a female owner and $HighIndex_{im}$ is a dummy variable for having a chief who scores above median in one of the indexes constructed from the chiefs' survey (gender bias, legal competence and managerial duties). The set of controls X_{ism} is defined in section 5.3.

Figure 7a shows three facts. First, as previously discussed, women inside markets with unbiased chiefs cooperate as much as men (top panel). Second, men cooperate more in markets with a high degree of chief's bias against women. This suggests that men are able to take advantage of biased institutions in their business dealings. Third, consistently with our model, women's cooperation is significantly lower in markets with a chief characterized by high gender bias (β_3 negative and significant). Importantly, the chief's level of gender bias is not significantly correlated with the share of female manufacturers within a market (correlation coefficient = -0.05, $p = 0.66$). Moreover, the observable characteristics of men and women under more or less biased chiefs are similar. This reassures that we are not simply capturing a selection effect of more or different types of women electing women-friendly market chiefs.

Figure 7b shows that female cooperation is also related to the degree of legal competence of the chief. High legal competence benefits both men and women, as both coefficients β_2 and β_3 tend to be positive, but their magnitude and significance highly depend on the controls used. A robust result is that women in markets with a legally competent chief cooperate significantly more than women in markets with an adjudicator of low quality ($p \leq 0.10$ across specifications). This is in line with better institutions – even in a gender-neutral way (i.e. higher δ) – have the potential to benefit women in business.⁴⁷

Appendix Figure D.1 shows similar patterns for the sample of women only, by comparing their average cooperation levels when located inside versus outside markets with varying levels of chief's gender bias, legal competence and managerial duties. Figure D.1a shows that there is no significant difference in the cooperative behavior of women located outside markets which differ in the degree of chief's bias, a fact which reassures that the constructed index is not only a proxy for broader gender attitudes in the area where the chief operates.

Since chiefs are not randomly assigned to markets, we cannot exclude that they become less biased in areas where women and men cooperate more together. To overcome remaining endogeneity concerns, we turn to our artefactual field experiments.

6 Experimental Variation in Institutional Access and Quality

Institutional support can reduce the risks of economic collaboration—especially for women—as shown by the positive link between having access to a higher-quality market chief and female cooperation. But this effect varies, suggesting that institutions do not function uniformly. Chiefs are embedded in local social structures and may differ in how they exercise authority—some may reinforce prevailing gender hierarchies, others may act as egalitarians or as protectors of vulnerable groups like women.

⁴⁷Figure 7c also shows that a busy chief seems to favor male rather than female cooperation. This effect is not coming from a positive relationship between managerial duties and gender bias, as the correlation coefficient is -0.15 between the two indexes ($p < 0.10$).

In this section, we experimentally isolate the causal impact of institutional access on women’s trust in business interactions. Specifically, we ask whether such access disproportionately benefits women depending on how adjudicators use their authority. In Experiment 1, we examine the effect of access to a gender-blind chief on trust and cooperation, benchmarking it against two alternatives: the absence of any enforcement mechanism and access to a formal legal institution. In Experiment 2, we allow chiefs to observe the participants’ gender, reintroducing the possibility of personalized enforcement. In light of the potentially powerful effects of blinding institutions to gender, the second experiment allows us to understand whether, when institutions do see gender, this visibility helps overcome or simply reinforces existing power asymmetries.

Together, the experiments explore two institutional paths to inclusion: one through formal neutrality, and one through contextualized protection. We use both behavioral outcomes and original measures of adjudicator attitudes and participant expectations to understand which institutional features most effectively support inter-gender economic collaboration.

Common design features. We conduct two artefactual field experiments (List and Metcalfe, 2014; List and Rasul, 2011), with a similar design. First, both experiments adapt the investment game introduced by Berg et al. (1995) and – in line with our model – frame it as two entrepreneurs having the opportunity to partner for business. Second, they involve Lusaka entrepreneurs operating inside or around formal markets in Lusaka. To limit participant burden, minimize attrition, and preserve anonymity, the games were conducted inside participants’ shops, with surveyors relaying choices electronically to each other in real time. Third, we embedded real local institutions into the experimental setting—namely, Market Chiefs and Small Claims Court judges. While we build on a rich literature that uses trust games to study institutional and interpersonal dynamics (e.g., Bohnet et al., 2008; Fehr and Rockenbach, 2003; Ederer and Schneider, 2019; Bartoš and Levely, 2021), to our knowledge, this is the first study to involve real adjudicators from the local institutional environment.

6.1 Experiment 1: Testing Gender-Blind Adjudication

Our first experiment tests an extreme case of our model: an unbiased institution with no information on entrepreneurs’ power and/or gender ($\theta = 0$).

6.1.1 Design

Game rules and structure. 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.

Experimental conditions. We cross-randomized two experimental conditions. See Table C.13 for sample sizes by experimental condition, and Table C.14 for balance checks.

Randomized access to gender-blind adjudicators. The first condition tests the effect of gender-blind 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 trustee is told that the Investor can consult the chief or clerk, and that their ruling will determine the distribution of tokens if the Investor complains.

This condition brings real institutions into a controlled setting, with the complaint process designed to closely reflect how disputes are handled in actual markets. However, the treatment introduces an important difference with respect to reality: adjudicators receive only information about the players' choices—not their gender or their identity. By ensuring anonymity, we remove the possibility that decisions are influenced by gender, allowing us to test whether institutional access, in the absence of gender-based power differences, disproportionately benefits women.⁴⁸

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.

Randomized match with market outsiders. Our second experimental condition allows us to explore whether in-group vs out-group dynamics increase cooperation within markets independently of contract enforcement (Kranton et al., 2020). 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. Because the chief cannot adjudicate disputes involving businesses outside the market, we only assign pairs of insiders to the chief condition. We present results on this condition in the Appendix.

Payment. 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.⁴⁹ In addition, all players received a participation fee of 35KW (3.5 dollars) as a token of appreciation for their time.

Sampling and randomization. Using data from the Lusaka Census of Urban Entrepreneurs, we randomly selected participants for the experiment, stratifying by whether the business is located within a market. The sample selection procedure was designed to oversample manufacturers and women in a selection of Lusaka's 80 dense urban marketplaces. We chose sixteen markets that contained the largest numbers of (female) manufacturers. For each market, we used the 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

⁴⁸By submitting complaints on participants' behalf, we also simplify access and eliminate any image concerns associated with filing a complaint.

⁴⁹In 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.

a marketeer could not be located or refused to participate, we 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.⁵⁰ We randomly paired players together and assigned them to a certain experimental condition based on a pre-determined order.

Benchmarking the effect of the chief. We implemented a Pre-Games Survey with questions about access and opinions about different institutions, dispute resolution and exposure to crime.⁵¹ Our Pre-Games Survey helped us uncover that awareness of the Small Claims Court’s existence was very limited. Eighty percent of our sample had not heard of the Small Claims Court before. Among those who had heard of it, half thought that “business owners like them had no access to the Small Claims Court”. Five women out of 25 (and seven men out of 76) mention that the Court has high costs and “terribly” long procedures. 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 C. We therefore interpret the SCC treatment only as a useful benchmark: a formal institution offering legal protection on paper, but lacking credibility or salience among entrepreneurs.

6.1.2 Results

Women’s trust increases with gender-blind chief. Table 4 shows our primary results. Panel A, Columns (1) and (2) use 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 consistent with all of the previous results in this paper showing that female entrepreneurs collaborate less than men.

The gender difference in trust is eliminated when we introduce the possibility of complaining to a gender-blind market chief. As Figure 8 shows, there is a sizable gap in trust between men and women without the Market Chief. With the market chief, this gap disappears, as women send significantly more tokens than in control. This result suggests that the experimentally generated differences in access to contract enforcement encourage cooperation disproportionately for women in a developing world setting.

Figure 10 shows that the increased women’s investment in the chief condition occurs mainly in markets where the chief has above-median gender bias.⁵² Thus women used to unfair or slow chiefs benefit the most from the improvement in local institutions offered in the game. Women located in markets where the chief has a good reputation also slightly increase the tokens sent as Investors, probably as access is also easier compared to reality.

Access to gender-blind chiefs discourages bad male behavior. Columns (3) and (4) examine trustworthiness using the average return ratio, as in Glaeser et al. (2000). We

⁵⁰ Manufacturers are 78% of the final sample and we could include between 1 and 17 women in each market. We excluded 3 responses in the analysis because of limited understanding of the respondent. Because of the limited female representation, we do not have power to look at market-by-market treatment effects by gender. We overcome this limitation in experiment 2.

⁵¹ Answers to these questions are presented in Table C.8 and discussed in previous sections. 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.

⁵² A similar pattern appears when splitting by marketeers’ opinion of the chief (fairness and speed): the increase comes from markets with below-median reputation.

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. In the control group women return less than men, even if this result is no longer statistically significant when controlling for individual characteristics. In the chief condition, neither men nor women's trustworthiness change on average.

While there is no significant average impact on trustworthiness, Figure 9 shows that access to the chief's ruling discourages extremely low return ratios and reduces the variance in the return to trust, in particular among men. Effectively, the Market Chief is able to coordinate trustees' behavior around the norm considered fair by the marketeers and reduces the risk involved in trusting others. Lower risk together with the chief's protection, in turn, disproportionately helps women trust others. Women also seem aware of the value of the chief's support. As an exploratory question, we asked players at the end of the experiment how much they would be willing to pay for institutional access should the activity be repeated. Women's distribution of answers is shifted to the right of men's (although not statistically different from each other).

Higher female trust increases the economic pie in the game. Panel B of Table 4 shows the final earnings. 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. The last columns of Table 4 show that the chief has little impact on the earnings of the Trustees.⁵³

As a result of higher female trust, investors' earnings increase, and the economic pie becomes bigger. Focusing into rounds of the game with male or female investors, Figure 11 indeed shows that women's increased trust in the chief condition leads to an increase in the economic surplus produced in the experiment (of around 19%), with a greater share for both the Investor and the Trustee.

A gender-blind court does not affect trust. Appendix Table C.16 shows that neither female nor male investors randomized into having access to the gender-blind adjudication of the court significantly change their behavior in sending tokens. This is consistent with the limited awareness of the SCC revealed in our surveys: without knowledge of the court's existence or procedures, access to its adjudication does not reduce perceived uncertainty around the investment. Interestingly, however, trustworthiness does increase in the Court condition—Trustees return more on average—even though Investors do not appear to anticipate this change.⁵⁴ This suggests that entrepreneurs do not internalize the potential deterrence effect of the court on others' behavior. Overall, this indicates that legal reforms may be difficult to implement effectively in informal, low-income and low-education settings: simply mentioning the possibility of formal punishment is unlikely to influence behavior unless institutions are well-known, trusted, and understood by the community.

6.1.3 Summary

Our results show that introducing a gender-blind Market Chief closes the trust gap between men and women—especially benefiting women in markets with biased chiefs. A gender-blind court does not increase female trust, indicating that women's greater responsiveness is not simply due to preferences for third-party enforcement in general. Instead, women appear particularly sensitive to the Market Chief's impartial role embedded in their local context, highlighting that the identity and perceived legitimacy of the adjudicator matter.

⁵³See Appendix C for results splitting the sample by all the different institutional treatments.

⁵⁴Investors neither change their behavior nor revise their expectations of trustworthiness in the court condition.

Nevertheless, the observed trust increase among women may reflect several overlapping factors: confidence in the blindness and fairness of adjudication within the game; reliance on trusted local actors due to weaker means of social punishment or prior exposure to bias; and potentially greater sensitivity to risk reduction, as the chief lowers the uncertainty of trust-based interactions.

These findings raise an important question: is it the impartiality of the chief that matters most to women, or the broader institutional role the chief plays in local power structures? To answer this, we turn to a second experiment that compares the effects of gender-blind versus gender-aware chiefs on women’s trust.

6.2 Experiment 2: Gender-Aware vs Gender-Blind Chiefs

The first experiment demonstrated that access to a gender-blind adjudicator—particularly one embedded in familiar, informal structures—can increase trust and close the gender gap in risky collaboration. However, real-world institutions rarely operate in the blind. Market chiefs often know the individuals they serve and may factor social identities, including gender, into their decisions. This raises a critical question: when institutions do see gender, does this visibility reduce or reinforce power asymmetries?

In this second experiment, we explore how women’s trust responds when gender is visible to the adjudicator, and whether that visibility helps or harms them. Specifically, we test whether institutions that recognize group identity—in this case, gender—can improve trust for vulnerable populations, and under what conditions this recognition is perceived as protective versus biased.

This experimental variation allows us to test the full theoretical model, particularly the predictions of Proposition 2 regarding women’s preferences for adjudicators who may or may not be aware of their own power (θ_g), may or may not be biased against a particular gender (α_g), and women’s expectations of this bias ($\hat{\alpha}_g$).

6.2.1 Design

Game rules and structure. The rules of the game mirror that of Experiment 1: the Investor decides how many of 10 tokens to send to the Trustee, with the amount tripled upon transfer. The Trustee pre-commits to how much to return for each possible amount sent. As in the chief condition of Experiment 1, all Investors in Experiment 2 have the option to file a complaint if they feel the return is unfair. Again, if they complain, their real market chief will adjudicate the dispute and may reallocate the final payoff.

Unlike in Experiment 1, where participants may play in both roles across rounds, here each participant plays only once and in a single role (Investor or Trustee) to avoid potential order effects.

Experimental treatments. In this experiment, all the investors have access to the chief’s adjudication. The key experimental variation lies in what information the adjudicator receives about the Investor. Participants were randomly assigned to one of two treatments (see Table C for balance checks):

- *Chief: Gender-Blind.* Complaint forms submitted to the chief reveal only the choices made by the investor and the trustee, without any identifying information.
- *Chief: Gender-Aware.* Complaint forms submitted to the chief reveal the choices made by the investor and the trustee, as well as the investor’s gender.

Unlike in Experiment 1, where players only knew about the treatment they were assigned to, here all Investors are informed that two distinct types of complaint processes exist—one where gender is revealed and one where it is not. This choice ensures that gender is equally salient across both treatment arms, addressing a key concern in the experimental design: avoiding a confound where gender salience alone could drive behavior in the Gender-Aware condition.

Trustees were informed that complaints could be submitted but did not know that multiple versions of the form existed. Thus, the institutional context was held constant, and what varied was only whether the chief saw the sender’s gender.⁵⁵

This design reintroducing the power asymmetries that were shut down in Experiment 1. The key question becomes: do women trust more—or less—when their gender is visible to their market chiefs?

Sampling and randomization We selected 12 markets from among Lusaka’s dense urban marketplaces, five of which were also in Experiment 1. The market sampling procedure had two aims. First, to achieve variation in market size, market type (council or cooperative), and attitudes of the chief, based on our chief survey. Second, to ensure that the sampled markets had a sufficient number of businesses in the industries we planned to recruit.

To increase the external validity of our findings, the second trial broadens the set of industries and stratifies both participant sampling and treatment assignment by gender and industry group (manufacturing vs. non-manufacturing). Within non-manufacturing, we focus on restaurants and hairdressers—two sectors that represent a large share of market vendors and, based on piloting, frequently engage in collaborative activities that exploit returns to scale.

Because our primary outcome is trust,⁵⁶ we stratify sampling by gender and industry group only for Player As (Investors). Player Bs (Trustees) are drawn from any industry ineligible to be a Player A, predominantly retail shops. In particular, within each market, we recruited an equal number of men and women, with overall targets determined by market size from a business listing. For Player As, the split between manufacturers and non-manufacturers was set based on availability, aiming for equal representation of manufacturers across genders. For Player Bs, we recruited an equal number of men and women without distinguishing industries.⁵⁷

Treatment assignment was randomized within markets and Investor gender–industry cells. Trustees were not treated (i.e., they were unaware of the experimental treatments) but were paired to Investors within strata defined by the Investor’s gender–industry and the Trustee’s gender. Real-time assignment protocols, based on pre-randomized slots and randomized business lists, ensured that treatment was orthogonal to participant characteristics.

Further details about sampling and field protocols are included in Appendix B.2.

6.2.2 Results

Women’s trust increases with gender-aware chiefs. Panel A of Table 5, Columns (1) and (2), show treatment effects on trust. On average, we find that women send more in the chief gender-aware condition. In contrast, men send slightly less tokens when the chief knows their gender compare to a blind chief, but the effect is small and not statistically significant.

⁵⁵The script read to each player can be found in Appendix B.2.

⁵⁶Our pre-registration (AEA RCT number AEARCTR-0014859) lists trust as the primary outcome, and trustworthiness and earnings as secondary outcomes.

⁵⁷The number of participating businesses ranges from 28 to 72 per market. Overall, 48% of Player As are manufacturers.

This suggests that, in our games, women prefer being visible to being anonymous, and implies that on average women perceive the chief to be supportive towards weaker parties (i.e. $\hat{\alpha} > 0$).

In the second experiment, a gender gap in trust emerges even when participants are assigned to a gender-blind chief. Women send about 15% fewer tokens than men on average—a smaller gap than in the previous experiment (25%)—and the difference becomes statistically insignificant once we control for individual characteristics. This stands in contrast to the first experiment, where women trust as much as men under a blind chief. One likely reason for this discrepancy is that, in the second experiment, participants are aware of both the gender-aware and gender-blind conditions, making gender more salient. If women expect that only a gender-aware chief would actively protect their interests, they may interpret the blind condition as less favorable, leading to lower trust. In the first experiment, the neutral chief is presented without comparison, and participants may simply assume fairness.

Effects on trust vary across markets and are negatively correlated between genders. The average effect of assigning a gender-aware chief masks important variation across markets. Figure 12 ranks markets by the difference in tokens sent by women under the gender-aware versus the gender-blind chief condition. In three markets, women send slightly more tokens under the blind condition, though these differences are not statistically significant. In the remaining eight out of twelve markets, women send more tokens when the chief is gender-aware, with large and significant effects in three of them. The figure also reports the corresponding effects for men. Three main patterns emerge. First, male responses tend to move in the opposite direction from women’s: in seven markets, men send more tokens under the gender-blind condition. Second, the magnitude of the treatment effect for men is smaller than for women, suggesting that men are less sensitive to variation in adjudication. This is consistent with the idea that men, due to greater social power, may be less dependent on third-party enforcement or less attentive to institutional differences. Third, markets where women’s trust increases the most under a gender-aware chief (vis-a-vis a gender-blind one) are also those where men’s trust declines the most, producing a positive difference-in-differences across markets. In other words, women exhibit a “revelation trust premium” relative to men, and this premium is larger in markets where men’s trust is higher under the gender-blind condition.

This heterogeneity aligns with several other experimental outcomes, as shown in Table C.20. In markets with a larger revelation trust premium between women and men, women are also more likely to state a preference for adjudication forms that reveal their gender. Expectations and behaviors surrounding the chief’s role further support this pattern. In markets with a larger revelation trust premium, chiefs are more likely to take action when the complainant is a woman rather than a man. This is mirrored in marketeers’ incentivized beliefs: when presented with hypothetical disputes, respondents expect chiefs to redistribute more tokens in favor of women in markets with higher trust differentials. Taken together, these results suggest that the heterogeneity across markets reflects meaningful variation in how chiefs are perceived and how they actually behave in gendered disputes. It also supports the interpretation that women’s greater trust in gender-aware adjudication stems from context-specific expectations of protection and fairness.

The variation in treatment effects across markets captures more than just participants’ behavior in the experiment—it also reflects key features of the markets themselves (Table C.21 and Figure 13). In markets with a revelation trust premium for women, real-world female collaboration is significantly higher ($p < 0.05$). These are also the markets where women report more frequent disputes and are more likely to cite security concerns as a reason for choosing their business location. This pattern suggests that women respond more

strongly to protective adjudication in environments where they feel more exposed or vulnerable, and where institutional support is especially valued.

Market heterogeneity is explained by female power and chiefs gender bias.

The experimental variation generated in the type of chief’s adjudication allows us further test the predictions of our theoretical model. In particular, *ceteris paribus*, we expect women’s preference for gender-aware adjudicators to be weaker when female power in the market is higher (a lower θ), when the chief is biased against women (a lower or negative α), and/or when women expect the chief to be biased (a lower or negative $\hat{\alpha} < 0$).

To proxy female power, we rely on two distinct measures. First, we use self-reported data on social support in the event of a dispute, collected through our survey.⁵⁸ This measure maps closely to our theoretical definition of power as the capacity to impose social punishment. Our second measure captures variation in gender norms across ethnic groups. Drawing on the methodology of Ashraf et al. (2020), we link the ethnicity of business owners in our sample to the Ethnographic Atlas, which provides indicators of matrilineality, matrilocality, and women’s participation in agriculture. We combine these three variables into a single index of “historical female empowerment,” which reflects long-standing cultural norms around female authority and autonomy. This allows us to test whether, as Gneezy et al. (2009) find, female power as proxied by tribal matrilineality or patrilineality, would enable women to respond to opportunities as men do.

Figure 14 shows the relationship between our measures of female power and the revelation trust premium at the market level. Consistent with the model’s predictions, markets with higher female power—whether measured through social support or historical empowerment—exhibit a smaller trust gain for women under the gender-aware chief condition, relative to the blind condition. In this way, women become less sensitive to, and needing of, the protection of the chief.

The second key implication of our model concerns institutional gender bias. Figure 14 shows that women’s revelation trust premium is smaller in markets where the chief exhibits greater bias against women, based on our chief bias index (defined in Section 5.4). In contrast, women trust more when the chief is both attentive to gender and predictable. Specifically, women send relatively more tokens under the gender-aware treatment when the chief scores higher on an implicit gender salience task and when women can more accurately predict the chief’s behavior in hypothetical dispute scenarios. These findings align with the idea that institutional support matters most when it is both impartial and perceived as reliable.

Trustworthiness and earnings results. Trustees in this experiment were blind to the existence of any treatment, and to the best of our knowledge, this protocol was consistently followed in the field. Among female trustees, we find no significant differences in the average return ratio across treatment arms. However, Figure C.9 shows that male trustees assigned to the gender-aware chief condition commit to returning significantly more tokens than their counterparts in the blind condition, as well as more than women in any condition. While this effect is statistically precise, it is modest in size—around 10% of the mean return ratio—and concentrated in just two small markets, comprising a total of 15 male trustees (see Figure C.9c).⁵⁹ Figure C.9c orders markets by the difference in tokens sent by women in the gender-aware versus blind chief treatments. Notably, the observed differences in male trustworthiness do not arise in the same markets where we observe larger differences in women’s trust. This

⁵⁸Due to implementation issues, this question was asked only to manufacturing businesses. For missing observations in other sectors, we impute the market-gender-level mean.

⁵⁹While we aimed to recruit a balanced number of male and female trustees within each market, logistical constraints prevented full gender balance across treatments.

suggests that the patterns in trustee behavior are not driven by the same structural market characteristics that appear to explain investor responses, and which are the main focus of the analysis.⁶⁰

We find no significant effects of either treatment on investor’s or trustees’ earnings. Nevertheless, we replicate the result of our previous experiment on total earnings: when female investors trust more, the game economic pie is larger (see Figure 15). Panel B of Table 5 show results on trustworthiness and earnings.

6.3 Discussion

The results of our experiments reveal that local informal institutions can play a vital role in fostering economic collaboration—particularly when they act as protectors of the weak. Women, who face greater risks in mixed-gender business interactions, are not simply seeking neutrality—they are, in some cases, seeking allies. Chiefs, though embedded in local norms, can function as benevolent adjudicators, and women respond strategically to this possibility. In contrast to the conventional wisdom that anonymity protects the vulnerable, our findings show that being visible to a fair institution can itself be empowering.

Together, the two experiments illustrate a broader point: when formal legal systems are weak or inaccessible, local institutions can fill the gap. In their gender-blind form, they can mitigate power asymmetries and facilitate trust. But when designed—or perceived—to protect the vulnerable, identity-aware institutions can go even further, enabling high-risk, high-return collaboration for those most in need of institutional support.

Beyond contract enforcement institutions, what else could women resort to for protection from expropriation? In our qualitative work, we repeatedly asked female entrepreneurs why they don’t bring their husbands, brothers or any other trusted male family member to help in disputes and negotiations. Their replies consistently pointed to one issue: if women get help, they have to give away decision rights over the business to their men. Thus the insecurity of property rights, beyond incomplete contracts, limits alternative solutions. A similar situation has been shown for female farmers, whose plots are less productive – not because they are on worse soil or because women are less skilled, but because there is less investment in inputs on those lands (Udry, 1996). Maximizing production by rearranging inputs would benefit the whole household, but insecure property rights for women mean the wife would lose some of her decision, and potentially property, rights to the land if her husband started investing in her plots. As in our case of collaborative market exchange, production is sub-optimal because of insecure contracting rights, with insecurity being highly gendered.

Our findings raise broader questions about which types of economic cooperation are most constrained by weak enforcement and trust—particularly for women. One such area is input sourcing and trade. Startz (2016) documents that Nigerian entrepreneurs often travel long distances to source goods in the face of search and contract frictions. Future work might investigate whether female entrepreneurs avoid sourcing arrangements that require travel or high-stakes intermediation due to contracting risk, and whether this limits their access to more profitable supply chains. More broadly, insights from the trade literature on which sectors are most vulnerable to enforcement frictions may help explain patterns of female under-representation across industries.

We also speak to recent work documenting gender segregation in buyer-seller matches (Hardy and Kagy, 2018, 2020) and employees hiring (Chiplunkar and Goldberg, 2024), with women predominantly selling to or hiring other women. These patterns may reflect mutual concerns about trust and enforceability in cross-gender transactions—on both the supply and

⁶⁰Reassuringly, the distribution of the average return ratio in this second experiment is indistinguishable from the distribution from the previous experiment, for both genders.

demand side. Viewed through this lens, our findings contribute to a deeper understanding of how institutional frictions shape not only firm outcomes, but also the gender structure of entire markets, including spillovers into wage labor markets.

Our results extend beyond entrepreneurial partnerships into any area of economic collaboration where contracts are incomplete and property or decision rights are limited. One of these realms is scientific collaboration and co-authorships. What is the equivalent of the adjudicators in our model in scientific production? While previous theoretical frameworks emphasize the rule of law, and indeed ours began with considering different types of contract enforcement including legal courts, our experimental results suggest that informal intermediaries can play a large role in increasing protection of minorities' investment. This makes even more sense in a world with pervasive contract incompleteness, as informal intermediaries may be more flexible in their support compared to the legal system. The equivalent in academia are roles such as department chairs or seminar moderators, which can potentially have a large role to play in protecting the inclusion of women and minorities and their investment in scientific production. In the context of seminars, Dupas et al. (2021) and Schmidt et al. (2017) mention session chairs as a potentially important "institution" for guiding seminar interactions and maintaining a professional environment against the hostile treatment of female presenters. Lissoni et al. (2020) document that women are more likely to be excluded from patents' inventorship in mixed-gender and mixed-seniority teams, but different institutional settings can mitigate (or exacerbate) the gap.

Finally, our experiment does not have variation in the type of output generated by pairs of players, which would depend on their skills, effort and coordination ability. However, it's natural to think that the economic losses of missed collaboration opportunities will be larger in activities that hinge on partnerships between people with diverse skills, such as entrepreneurial innovation and scientific knowledge.

7 Conclusion

Economic opportunities arise through the density of potential collaborators and ideas. Yet the ability to interact positively is limited if one partner consistently fears expropriation by the other. If men are more prone to use aggression than women, then this will reduce women's bargaining power without fair institutional support, and may cause inter-gender partnerships to break down or fail to form. In Lusaka, we believe that the industrial segregation of female entrepreneurs partially reflects the safety 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 contract enforcement can have benefits that accrue disproportionately to women. When rule of law is absent, the threat of aggressive action looms over even seemingly innocuous market transactions.

A second theme is that female entrepreneurship can be blocked by the combination of weak institutions and social norms that favor men and male bargaining power. Women can either lose in *ex ante* bargaining or *ex post* expropriation. Only protection from both types of losses will enable women to flourish in entrepreneurial fields where interacting with men can yield profits.

While our paper focuses on women's expropriation risks in entrepreneurship, the interplay between contract enforcement and norms is central also in other settings, such as formal employment. An implication of our model is that the strength of contract enforcement should matter only in entrepreneurship, while discrimination should affect women's outcomes in both wage work and self-employment. This predicts that improvements in contract enforcement may not necessarily affect women's labor force participation over the course of development (Olivetti and Petrongolo, 2016), but may change the relative expected utility of

self-employment with respect to wage work, affecting the occupational structure by gender (Ashraf et al., 2022). Future research may shed further light on this topic.

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Tables

Table 1: Trust and Cooperation Among Small-Scale Businesses in Lusaka, by Gender

	Census Data			Experiment 1			Experiment 2		
	Male N=1578	Fem N=637	Diff	Male N=347	Fem N=128	Diff	Male N=290	Fem N=304	Diff
Panel A: Trust									
Trust Strangers	0.29 (0.45)	0.20 (0.40)	-0.09*** (0.02)	0.18 (0.02)	0.07 (0.02)	-0.11*** (0.04)			
Trust Neighbours	0.54 (0.50)	0.43 (0.50)	-0.11*** (0.02)	0.69 (0.02)	0.62 (0.04)	-0.07 (0.05)			
Trust GSS	0.10 (0.31)	0.04 (0.19)	-0.06*** (0.01)	0.17 (0.02)	0.10 (0.03)	-0.07* (0.04)	0.07 (0.02)	0.05 (0.01)	-0.02 (0.02)
Feel safe leaving shop unattended				0.44 (0.03)	0.32 (0.04)	-0.12** (0.05)	0.26 (0.03)	0.15 (0.02)	-0.10*** (0.03)
Panel B: Cooperation									
Joint Buy	0.35 (0.48)	0.27 (0.44)	-0.08*** (0.02)	0.28 (0.02)	0.26 (0.04)	-0.02 (0.05)	0.24 (0.03)	0.22 (0.02)	-0.02 (0.03)
Lent	0.55 (0.50)	0.44 (0.50)	-0.11*** (0.02)	0.69 (0.02)	0.62 (0.04)	-0.06 (0.05)	0.35 (0.03)	0.37 (0.03)	0.02 (0.04)
Advice	0.76 (0.43)	0.71 (0.45)	-0.05** (0.02)	0.91 (0.02)	0.88 (0.03)	-0.03 (0.03)	0.23 (0.02)	0.22 (0.02)	-0.01 (0.03)
Share Order	0.58 (0.49)	0.54 (0.50)	-0.04* (0.02)	0.62 (0.03)	0.54 (0.04)	-0.08 (0.05)	0.39 (0.03)	0.32 (0.03)	-0.06 (0.04)
Ever cooperated in any activity	0.86 (0.34)	0.81 (0.40)	-0.06*** (0.02)	0.95 (0.01)	0.95 (0.02)	0.00 (0.02)	0.71 (0.03)	0.63 (0.03)	-0.08** (0.04)
Coop Average	0.56 (0.33)	0.49 (0.34)	-0.07*** (0.02)	0.63 (0.02)	0.58 (0.02)	-0.05* (0.03)	0.30 (0.02)	0.28 (0.02)	-0.02 (0.02)
Ever cooperated with a woman							0.22 (0.02)	0.53 (0.03)	0.31*** (0.04)
Ever cooperated with a man							0.68 (0.03)	0.26 (0.03)	-0.42*** (0.04)
Share of partners of different gender							0.11 (0.01)	0.18 (0.02)	0.06*** (0.02)
Number of Partners							1.67 (0.09)	1.28 (0.07)	-0.39*** (0.12)
Panel C: Knowledge sharing									
Learnt from family or friends	0.42 (0.49)	0.25 (0.43)	-0.17*** (0.02)	0.42 (0.03)	0.20 (0.04)	-0.22*** (0.05)			
Learnt from entrepreneur	0.35 (0.48)	0.17 (0.38)	-0.18*** (0.02)	0.40 (0.03)	0.23 (0.04)	-0.17*** (0.05)			
Learnt from entrepreneur in same sector	0.26 (0.44)	0.13 (0.33)	-0.13*** (0.02)	0.31 (0.02)	0.16 (0.03)	-0.15*** (0.05)			
Learnt through formal training	0.15 (0.36)	0.52 (0.50)	0.37*** (0.02)	0.12 (0.02)	0.49 (0.04)	0.38*** (0.04)			
Ever taught others	0.71 (0.45)	0.64 (0.48)	-0.08*** (0.02)	0.83 (0.02)	0.68 (0.04)	-0.15*** (0.04)			
Talk frequently with others about business	0.52 (0.50)	0.49 (0.50)	-0.04 (0.02)	0.62 (0.03)	0.55 (0.04)	-0.07 (0.05)			

Panel A shows mean differences in trust, Panel B shows mean differences in cooperation and Panel C mean differences in knowledge sharing between women and men. The variables 'Trust in Strangers' and 'Trust in Neighbours' 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 empty' variable is measured in a scale from 1-5, converted into a dummy variable equal to 1 if people agree or strongly agree with the statement that they feel safe leaving their shop unattended for 30 minutes. 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 variable 'Ever cooperated with a male' and 'Ever cooperated with a female' is a dummy equal to 1 if any of the partners of the past is male or female accordingly. The variable 'share of partners of different gender' measures the share of different gender partner among the 6 most important partners of the past. The variable 'Number of partners' measures number of partners in the last 12 months. Variables 'Learnt from' show answers to the question 'Who taught you how to do this job?'. Formal training was mainly interpreted classroom training, usually delivered by the government or NGOs and other associations. The variable 'Ever taught others' is equal to one if a person says that s/he 'ever taught her/his job to anyone else, who afterwards started a business', and zero otherwise. 'Talk frequently with others about business' is a dummy constructed for values above the median in answers to the question 'Consider other business owners in your sector in this neighborhood. How many times do you talk about topics related to the business?'. Answers were given on a 5-Likert scale: Never, Once a Month, Between 1 and 4 times a month, More than once a week, Every day. The dummy takes value one for the two highest values (median is 4). The sample in the first three columns comes from our Census of Small-Scale Manufacturers in Lusaka (N=2,216), for columns (4) to (6) from participants in experiment 1 (N=477) and for columns (7) to (9) from participants in experiment 2 (N=594). 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 2: Learning History and Sales

	Learned from			Logged Sales		Employment	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Owner	Owner in same sector	Family or friends	Good Week	Bad Week	Level	Growth
Female	-0.184*** (0.0215)	-0.132*** (0.0191)	-0.153*** (0.0236)	-0.616*** (0.0934)	-0.720*** (0.114)	-0.533*** (0.168)	-0.0680 (0.0640)
Informal learning				0.0512 (0.0780)	0.0664 (0.0931)	-0.0783 (0.152)	0.0563 (0.0648)
Female*Informal learning				0.353*** (0.121)	0.347** (0.155)	0.299 (0.202)	-0.0290 (0.0841)
Observations	2081	2081	2072	1963	1752	2079	2004
Adjusted R^2	0.051	0.035	0.074	0.163	0.132	0.176	0.020
Mean Dep Var	.3	.22	.37	7.08	5.85	1.91	.15
SD Dep Var	.46	.41	.48	1.24	1.41	2.23	1.04
Density Controls	✓	✓	✓	✓	✓	✓	✓
Owner Controls	✓	✓	✓	✓	✓	✓	✓
Industry Fixed Effects							

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. 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, the number of business from the same sector within 100 meters and population density in the ward where the business is located. 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. In Column (7), the dependent variable is the growth rate in the number of full-time employees since the start of the business. The sample comes from our Census of Small-Scale Manufacturers in Lusaka (N=2,216). Differences in observations are due to missing owner controls. Robust SE in parentheses. Sales Variables subject to 1% asymmetric winsorization. * p<0.10, ** p<0.05, *** p<0.01

Table 3: Local Adjudication, Cooperation and Economic Performance

	(1)	(2)	(3) Collaboration Activities	(4)	(5)
	Avg coop	Share order	Lent	Advice	Joint buy
Panel A: Cooperation					
Female	-0.102*** (0.029) [0.000]	-0.078* (0.040)	-0.140*** (0.040)	-0.082** (0.037)	-0.106** (0.043)
In market	0.081** (0.031) [0.016]	0.117** (0.052)	0.108** (0.053)	-0.016 (0.047)	0.115** (0.048)
Female × In market	0.081** (0.040) [0.029]	0.072 (0.051)	0.109* (0.056)	0.064 (0.048)	0.080 (0.057)
P-value (In + Fem.*In = 0)	0.00	0.01	0.00	0.48	0.00
P-value (Fem + Fem.*In = 0)	0.41	0.84	0.39	0.54	0.43
Observations	2214	2214	2214	2214	2214
Mean Dep Var	0.54	0.57	0.52	0.75	0.32
SD Dep Var	0.33	0.50	0.50	0.44	0.47
Controls: Business Density Control	✓	✓	✓	✓	✓
Controls: Business Ownership Control					
Controls: Industry FE					
Controls: Market FE	✓ (1)	✓ (2)	✓ (3)	✓ (4)	✓ (5)
		Mean Sales		Employment	
	Index	Levels	Logs	Levels	Growth
Panel B: Economic Performance					
Female	-0.135** (0.058) [0.000]	-772.011** (309.968)	-0.269** (0.107)	-0.221* (0.127)	-0.144** (0.067)
In market	-0.227** (0.096) [0.000]	-1031.877* (526.244)	-0.420** (0.177)	-0.366 (0.252)	-0.009 (0.109)
Female × In market	0.152*** (0.054) [0.096]	761.011** (311.681)	0.139 (0.123)	0.324*** (0.121)	0.198*** (0.067)
P-value (In + Fem.*In = 0)	0.48	0.61	0.09	0.88	0.15
P-value (Fem + Fem.*In = 0)	0.52	0.93	0.07	0.09	0.16
Observations	2212	2087	2079	2210	2102
Mean Dep Var	0.02	1861.26	6.65	1.94	0.15
SD Dep Var	0.93	3563.94	1.27	2.22	1.03
Controls: Business Density Control	✓	✓	✓	✓	✓
Controls: Business Ownership Control					
Controls: Industry FE	✓	✓	✓	✓	✓
Controls: Market FE	✓	✓	✓	✓	✓

The variables in Panel A ‘Joint Buy’, ‘Lent’, ‘Advice’ and ‘Share Order’ are dummies that indicate whether a person ever engaged in the relevant activity. The variable ‘Mean Collab’ is an index of cooperative behavior, calculated as a simple average of the four dummies ‘Joint Buy’, ‘Lent’, ‘Advice’ and ‘Share Order’. The variable ‘In market’ is an indicator of value one if the business is located inside a formal market. In Panel B the Index of economic performance is obtained by standardizing mean sales in levels and employment levels (separately) and then by taking the average of these two standardized values. The variable ‘In Market’ is an indicator of value one if the business is located in the local market and 0 otherwise. Standard errors are clustered at the marketplace level. The sample comes from our Census of Small-Scale Manufacturers in Lusaka (N=2,216). Clustered standard errors in parentheses. MHT corrected p-values are shown in brackets. *** denotes $p < 0.01$, ** denotes $p < 0.05$, and * denotes $p < 0.1$.

Table 4: Experiment 1 - Games' Behavior and Earnings: No Chief vs Gender Blind Chief

Panel A: Behavior	(1)	(2)	(3)	(4)
	Tokens Investor Sent	Average Return Ratio		
Female	-1.005*** (0.331) [0.027] {0.005}	-0.792** (0.378) [0.017] {0.043}	-0.044** (0.020) [0.730] {0.032}	-0.027 (0.021) [0.542] {0.214}
Chief	-0.022 (0.362) [0.960] {0.837}	-0.133 (0.371) [0.802] {0.582}	0.014 (0.019) [0.475] {0.370}	0.003 (0.018) [0.871] {0.693}
Female × Chief	1.365** (0.632) [0.073] {0.040}	1.550** (0.646) [0.083] {0.019}	-0.012 (0.037) [0.776] {0.763}	0.000 (0.037) [0.994] {0.986}
P-value(Ch Blind + Fem.*Ch Blind = 0)	0.02	0.02	0.94	0.93
P-value(Fem + Fem.*Ch Blind = 0)	0.49	0.18	0.08	0.39
Observations	283	283	284	284
Mean	4.08	4.08	0.45	0.45
Individual Controls		Yes		Yes
Panel B: Earnings	(1)	(2)	(3)	(4)
	Investor's earnings		Trustee's earnings	
Female	-0.218 (0.324) [0.106] {0.529}	-0.142 (0.297) [0.373] {0.651}	-0.241 (0.777) [0.542] {0.741}	-0.696 (0.940) [0.136] {0.442}
Chief	0.507* (0.298) [0.129] {0.062}	0.556* (0.309) [0.099] {0.061}	-0.532 (0.641) [0.426] {0.429}	-0.504 (0.665) [0.436] {0.565}
Female × Chief	0.728 (0.659) [0.251] {0.309}	0.659 (0.665) [0.301] {0.357}	1.687 (1.253) [0.271] {0.179}	1.292 (1.318) [0.400] {0.314}
P-value(Ch Blind + Fem.*Ch Blind = 0)	0.04	0.05	0.33	0.54
P-value(Fem + Fem.*Ch Blind = 0)	0.35	0.38	0.15	0.61
Observations	283	283	284	284
Mean	9.00	9.00	9.00	9.00
Individual Controls		Yes		Yes

Robust standard errors in parentheses. Randomization inference and multiple hypothesis testing corrected p-values in brackets and curly brackets respectively.

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

The dependent variable in Panel A, Columns (1) and (2) is the number of tokens sent by the Investor, in Column (3) and (4) is the average return ratio by the Trustee. The dependent variables in Panel B, Columns (1) and (2) are the Investor's earnings, and in (3) and (4) are the Trustee's earnings. Investor and Trustee "Individual controls" include whether the individual is in manufacturing, age, age squared, dummies for primary and secondary education, a dummy for the individual being married, the number of days per week worked by the owner as well as the number of hours per day the number of collaborations the individual has had in the past 12 months, the number of years the business has been operating in the market, a dummy for agreeing with the statement that "most people can be trusted", a dummy for the individual agreeing with the statement "I am comfortable leaving my shop unattended during the day if I need to do something outside of the market or in another part of the market for 30 minutes", a dummy for whether the individual has a smart phone, the number of full-time employees, a dummy for agreeing with the statement "Have you ever heard of the small claims court?", dummies for belonging to the Bemba, Chewa or Nsenga ethnicities, and a dummy for the individual having had any business dispute in the past 12 months. All regressions include a dummy for the round played and for the control group in the "outsider" condition. The regressions exclude the Small Claims Court treatment.

Table 5: Experiment 2 - Games' Behavior and Earnings: Gender Blind vs Gender Aware Chief

Panel A: Behavior	(1)	(2)	(3)	(4)
	Tokens Sent	Investor	Average Return	Ratio
Female	-0.904** (0.401) [0.030] {0.055}	-0.717 (0.440) [0.040] {0.193}	-0.007 (0.017) [0.990] {0.708}	-0.000 (0.021) [1.000] {0.987}
Chief: Gender Aware	-0.335 (0.409) [0.480] {0.420}	-0.272 (0.411) [0.570] {0.502}	0.044** (0.018) [0.040] {0.099}	0.045** (0.019) [0.040] {0.127}
FemaleXChief: Gender Aware	1.286** (0.551) [0.020] {0.058}	1.127** (0.568) [0.050] {0.115}	-0.063*** (0.023) [0.010] {0.054}	-0.068*** (0.025) [0.010] {0.051}
P-value (Fem + Fem*Ch Aware = 0)	0.314	0.347	0.000	0.000
P-value (Ch Aware + Fem.*Ch Aware = 0)	0.011	0.032	0.211	0.139
Observations	297	297	297	297
DV Mean	4.431	4.431	0.442	0.442
Individual controls		Yes		Yes
Panel B: Earnings	(1)	(2)	(3)	(4)
		Investor's Earnings		Trustee's Earnings
Female	-0.452 (0.316) [0.350] {0.551}	-0.648* (0.382) [0.260] {0.415}	1.156* (0.685) [0.220] {0.431}	1.359* (0.707) [0.120] {0.292}
Chief: Gender Aware	0.346 (0.370) [0.390] {0.837}	0.450 (0.359) [0.200] {0.639}	0.379 (0.583) [0.530] {0.761}	0.596 (0.606) [0.380] {0.690}
FemaleXChief: Gender Aware	0.375 (0.482) [0.470] {0.829}	0.373 (0.482) [0.450] {0.685}	-0.704 (0.891) [0.420] {0.867}	-1.078 (0.908) [0.230] {0.619}
P-value (Fem + Fem*Ch Aware = 0)	0.834	0.521	0.427	0.649
P-value (Ch Aware + Fem.*Ch Aware = 0)	0.021	0.015	0.629	0.461
Observations	297	297	297	297
DV Mean	11.939	11.939	6.923	6.923
Individual controls		Yes		Yes

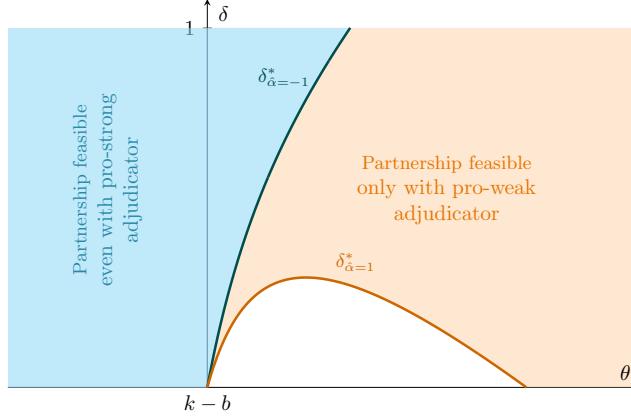
Robust standard errors in parentheses. Randomization inference and multiple hypothesis testing corrected p-values in brackets and curly brackets respectively.

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

The dependent variable in Panel A, Columns (1) and (2) is the number of tokens sent by the Investor, in Column (3) and (4) is the average return ratio by the Trustee. The dependent variables in Panel B, Columns (1) and (2) are the Investor's earnings, and in (3) and (4) are the Trustee's earnings. Investor and Trustee "Individual controls" include age, age squared, dummies for primary and secondary education, a dummy for the individual being married, the number of years the business has been operating in the market, the number of days per week worked by the owner as well as the number of hours per day, a dummy for the individual having had any collaboration in the past 12 months, the number of collaborations the individual has had in the past 12 months, a dummy for agreeing with the statement that "most people can be trusted", a dummy for the individual agreeing with the statement "I am comfortable leaving my shop unattended during the day if I need to do something outside of the market or in another part of the market for 30 minutes", dummies for belonging to the Bemba, Chewa or Nsenga ethnicities, and a dummy for the individual having had any business dispute in the past 12 months.

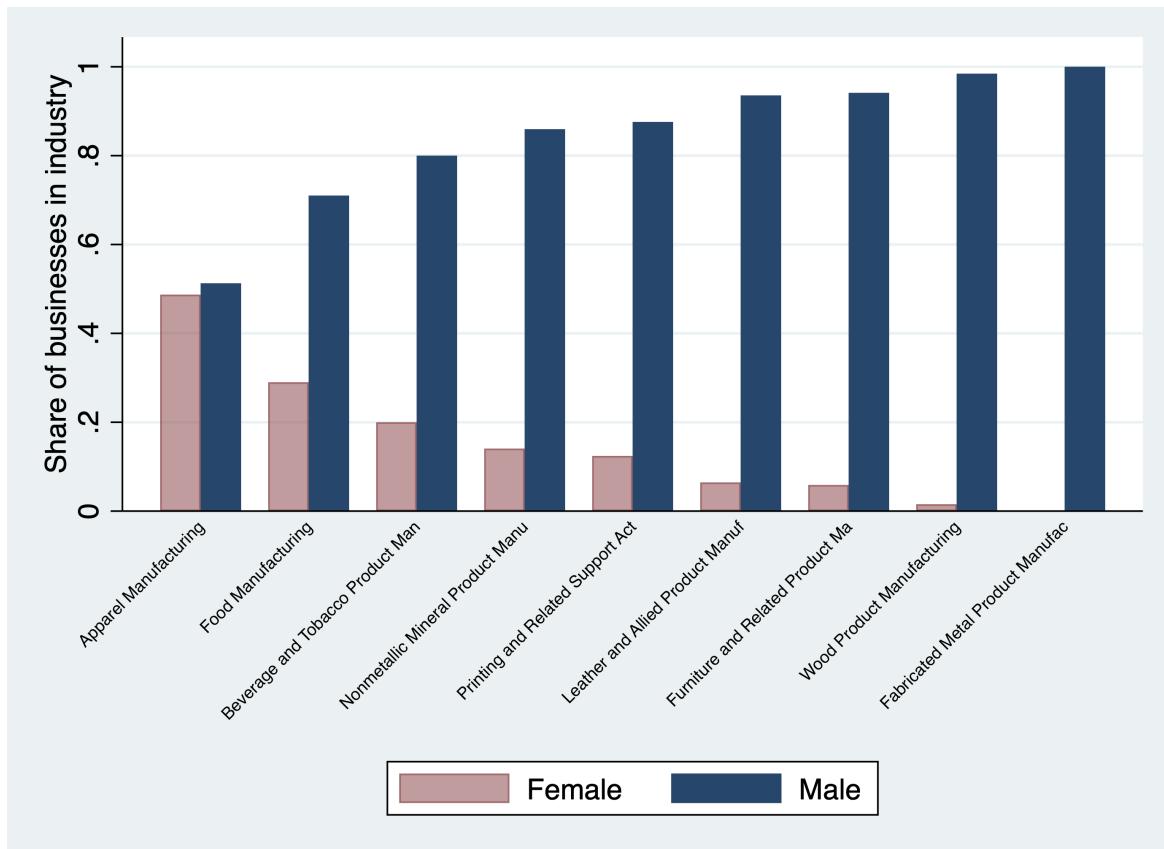
Figures

Figure 1: Theoretical Predictions



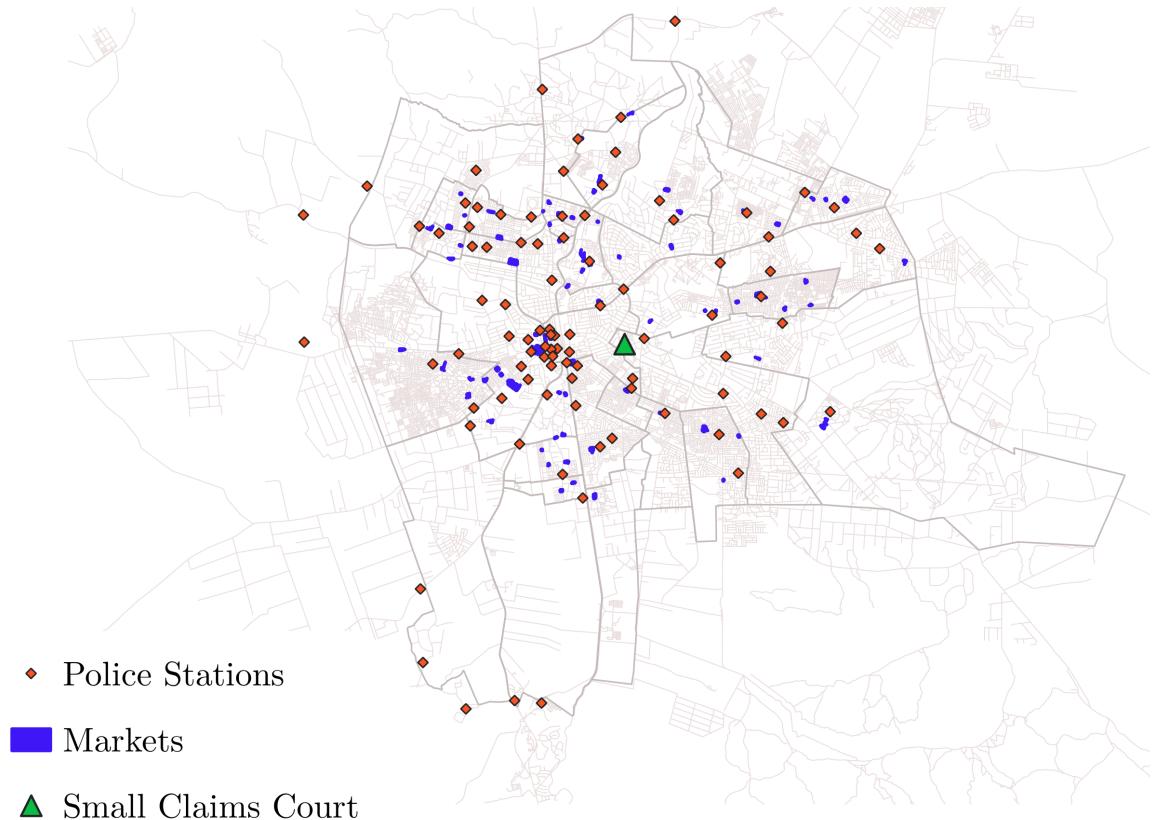
This figure illustrates the predictions of Proposition 1. Partnership is sustainable when legal quality δ exceeds the threshold $\delta^*(\theta) = \frac{b-k+\theta}{\Delta+b-k+\theta} - \hat{\alpha}\theta$. In the plot we fix $b = k = 1$ and $\Delta = 0.2$, so $\delta^*(\theta) = \frac{\theta}{0.2+\theta} - \hat{\alpha}\theta$. **Curves.** The blue solid curve shows $\delta^*(\theta)$ when the adjudicator is biased in favor of the powerful ($\hat{\alpha} = -1$); the orange solid curve shows the threshold when the adjudicator favors the weak ($\hat{\alpha} = +1$). **Shaded regions.** For power gaps $\theta \leq k - b = 0$ (blue strip on the left of $k - b = 0$) the entrepreneur is strong enough to deter cheating on her own, so partnership always forms. For $\theta > k - b = 0$ partnership is feasible for (θ, δ) pairs lying *above* the relevant curve. The orange wedge marks situations in which partnership can be sustained only by a protector of the weak, whereas the blue wedge above the blue curve indicates values where even a pro-strong adjudicator suffices.

Figure 2: Distribution across Industries by Gender



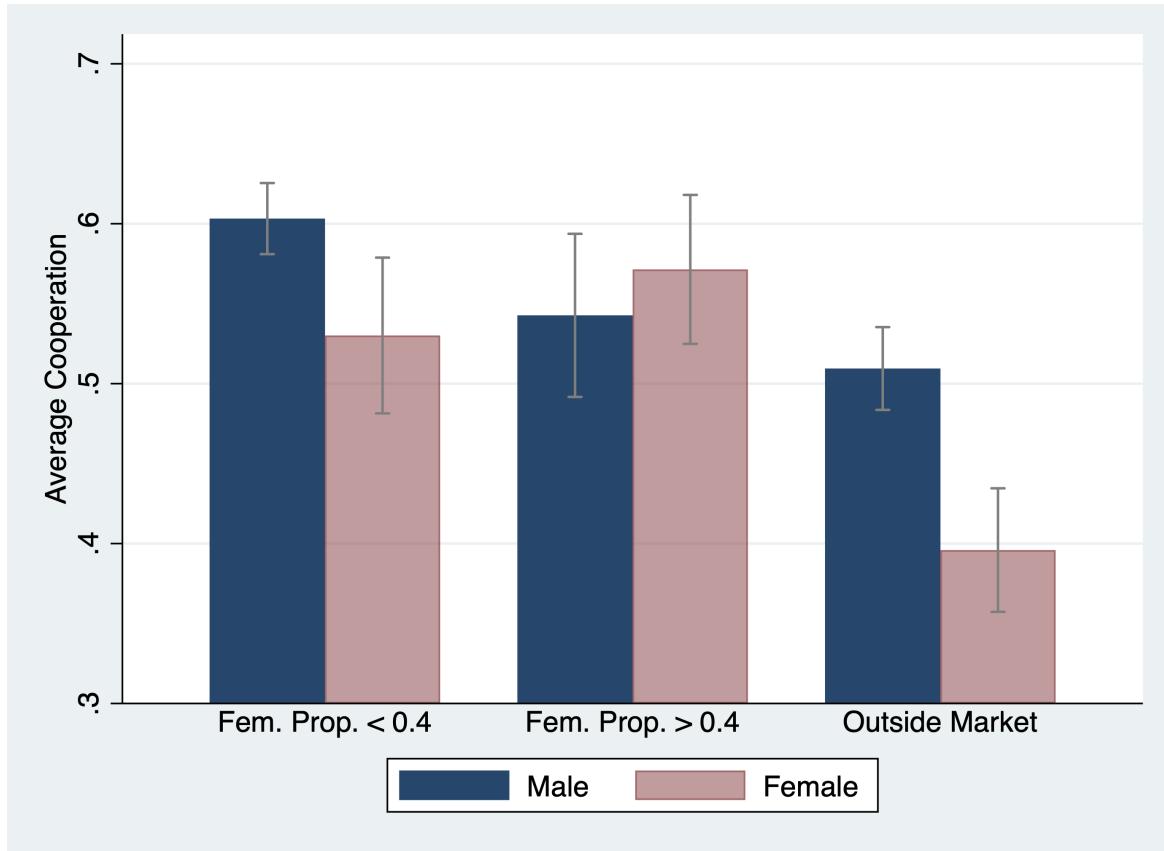
This figure shows the industries in which manufacturers from the Lusaka Census of Urban Entrepreneurs operate, by gender. Gender data are available for 97% of businesses in manufacturing, construction and mining with less than 20 employees (N=3723). The graph shows only industries with more than 10 businesses in our data.

Figure 3: Local Institutions in Lusaka



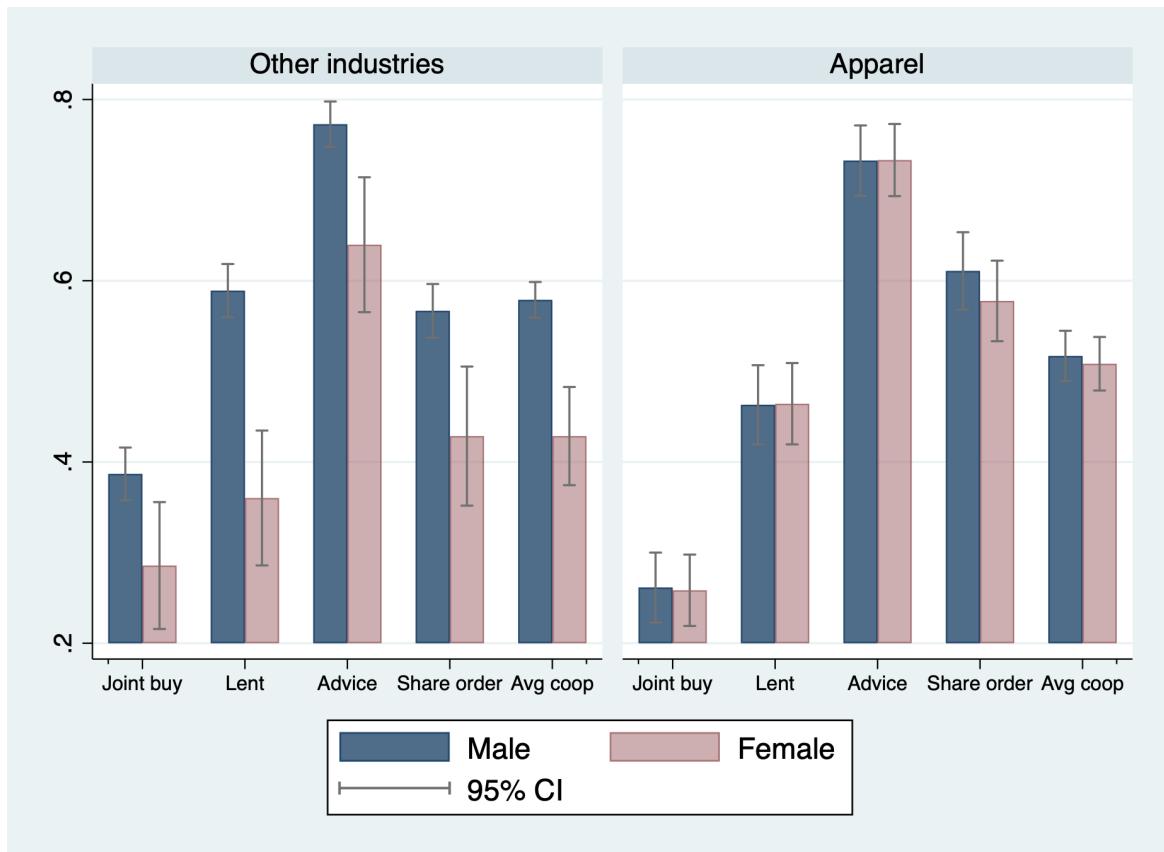
The figure shows the spacial distribution of local institutions in Lusaka. The blue dots show where markets are located, the green triangle shows the Small Claims Court and the red diamonds show the location of police stations.

Figure 4: Cooperation by Gender and Market Location



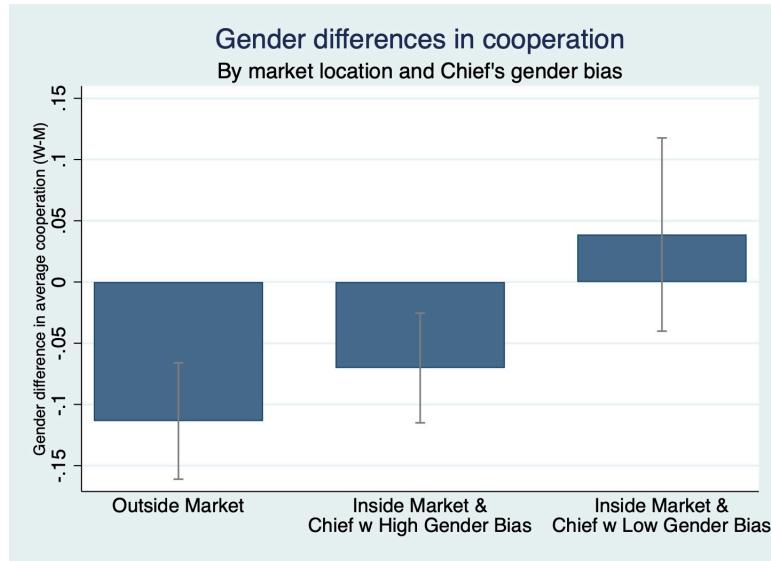
This figure shows the average cooperation of female and male-led businesses in markets with a large or a small share of female businesses, or outside of markets. The threshold of 0.4 corresponds to the 75th percentile of the distribution of gender shares across markets. The sample comes from our Census of Small-Scale Manufacturers in Lusaka (N=2,216).

Figure 5: Cooperation by Gender and Industry



This figure shows the proportion of men and women engaging in each of the collaboration activities we asked about, and their level of average cooperation (last bar). 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 comes from our Census of Small-Scale Manufacturers in Lusaka (N=2,216).

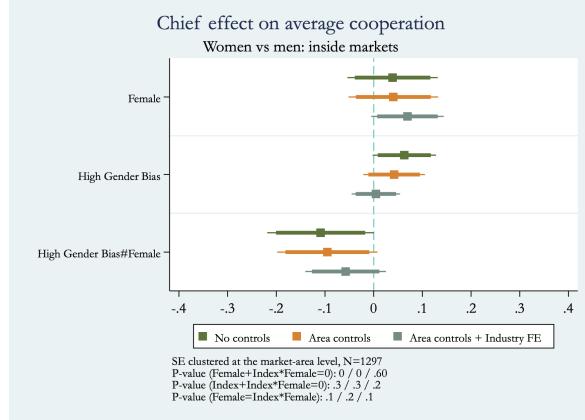
Figure 6: Gender Gap in Cooperation by Chief's Gender Bias



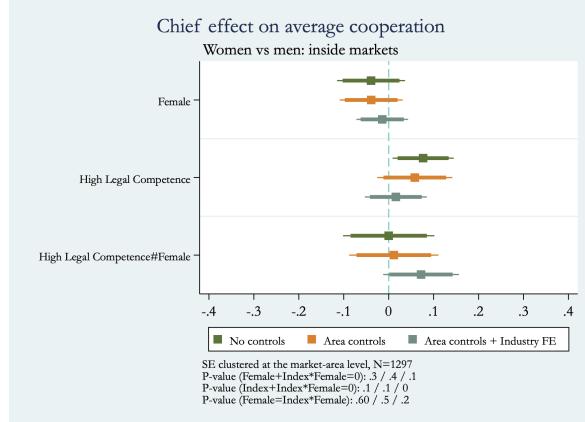
This figure shows the difference in average cooperation between women and men outside markets, inside markets with a chief with above median gender bias and inside markets with a chief with below median gender bias. Average cooperation is an index of cooperative behavior, calculated as a simple average of the four dummies “Joint Buy”, “Lent”, “Advice” and “Share Order” defined in the main tables. Error bars show 95% confidence intervals. The construction of the gender bias index is explained in Appendix D.

Figure 7: Market Effect on Female Cooperation by Chief's Characteristics: Women vs Men Inside Markets

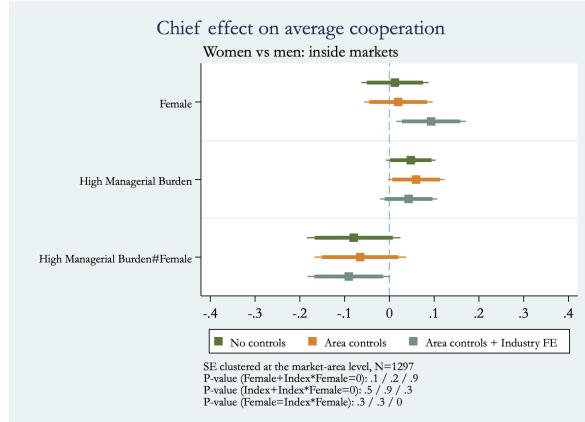
(a). Cooperation and Chief's Bias



(b). Cooperation and Chief's Legal Competence

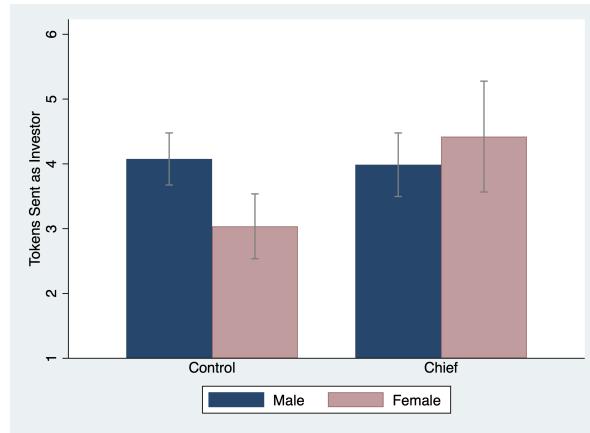


(c). Cooperation and Chief's Managerial Duties



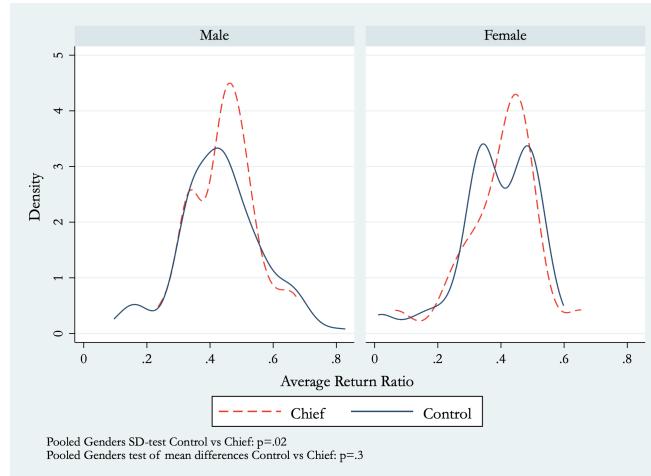
Each figure in Panels (a), (b) and (c) show the coefficients of three regressions, which differ only in the controls used. All the specifications regress average cooperation on a dummy variable for being a female owner ("Female"), a dummy variable for having a chief with above average score on a certain index and the interaction between the two. In Panel (a), the dummy is for above-median score in the index of gender bias. In Panel (b), the variable is for above-median score in the index of legal competence and in Panel (c) for above-median managerial duties. The top coefficient (dark green) is for a regression with no additional control, the intermediate (orange) coefficient is for a regression with density controls and the bottom coefficient (light green) is for a regression with density controls and industry fixed effects (Naics 3). Average cooperation is an index of cooperative behavior, calculated as a simple average of the four dummies "Joint Buy", "Lent", "Advice" and "Share Order" defined in the main tables. Error bars show 95% and 90% confidence intervals. The construction of the indexes on gender bias, legal competence and managerial duties is explained in Appendix D.

Figure 8: Experiment 1: Number of Tokens Sent by Gender: Control vs Gender Blind Chief



This figure shows the number of tokens sent by gender and treatment group. The control group includes both businesses located inside markets and outside markets. Data are from the experimental games (N=477).

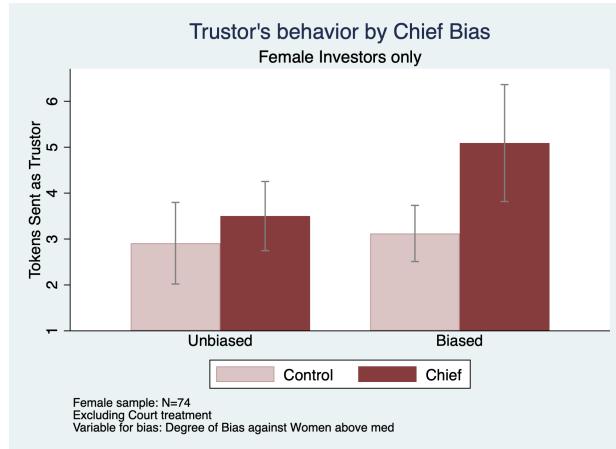
Figure 9: Experiment 1: Distribution of Average Return Ratios by Gender: Control vs Gender Blind Chief



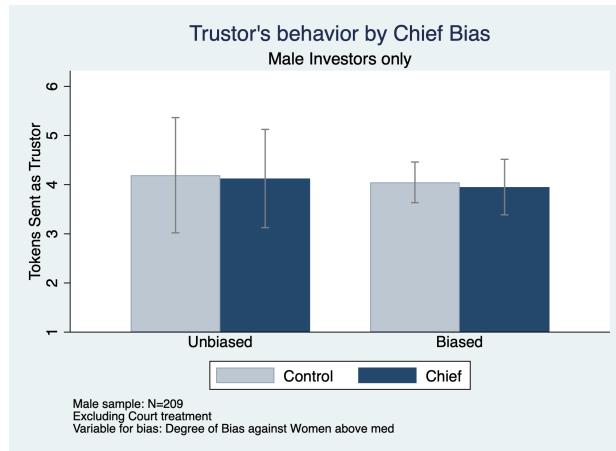
This figure shows the distribution of average return ratios by treatment (Chief or Control) and gender. The control group includes both businesses located inside markets and outside markets. Data are from the experimental games (N=477).

Figure 10: Experiment 1: Number of Tokens Sent by Market Chief's Gender Bias: Control vs Gender Blind Chief

(a). Tokens Sent by Women

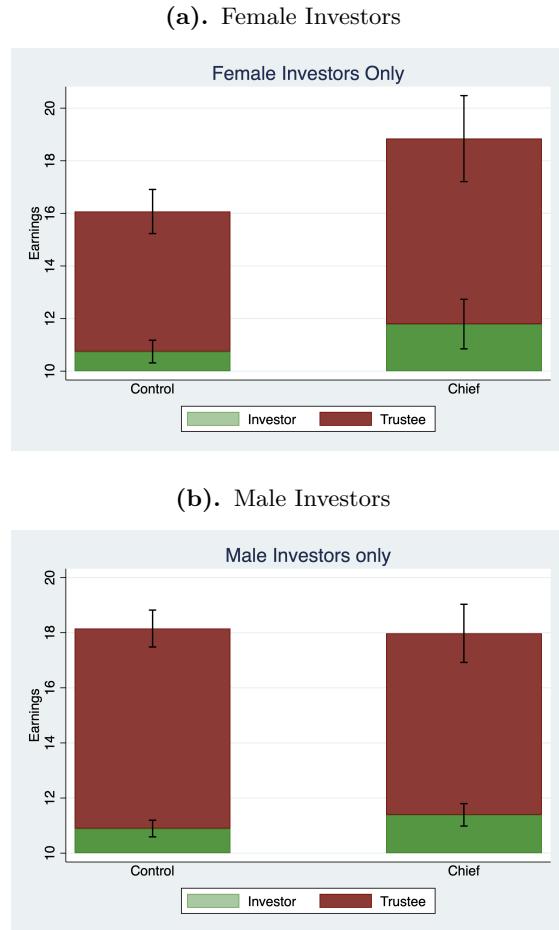


(b). Tokens Sent by Men



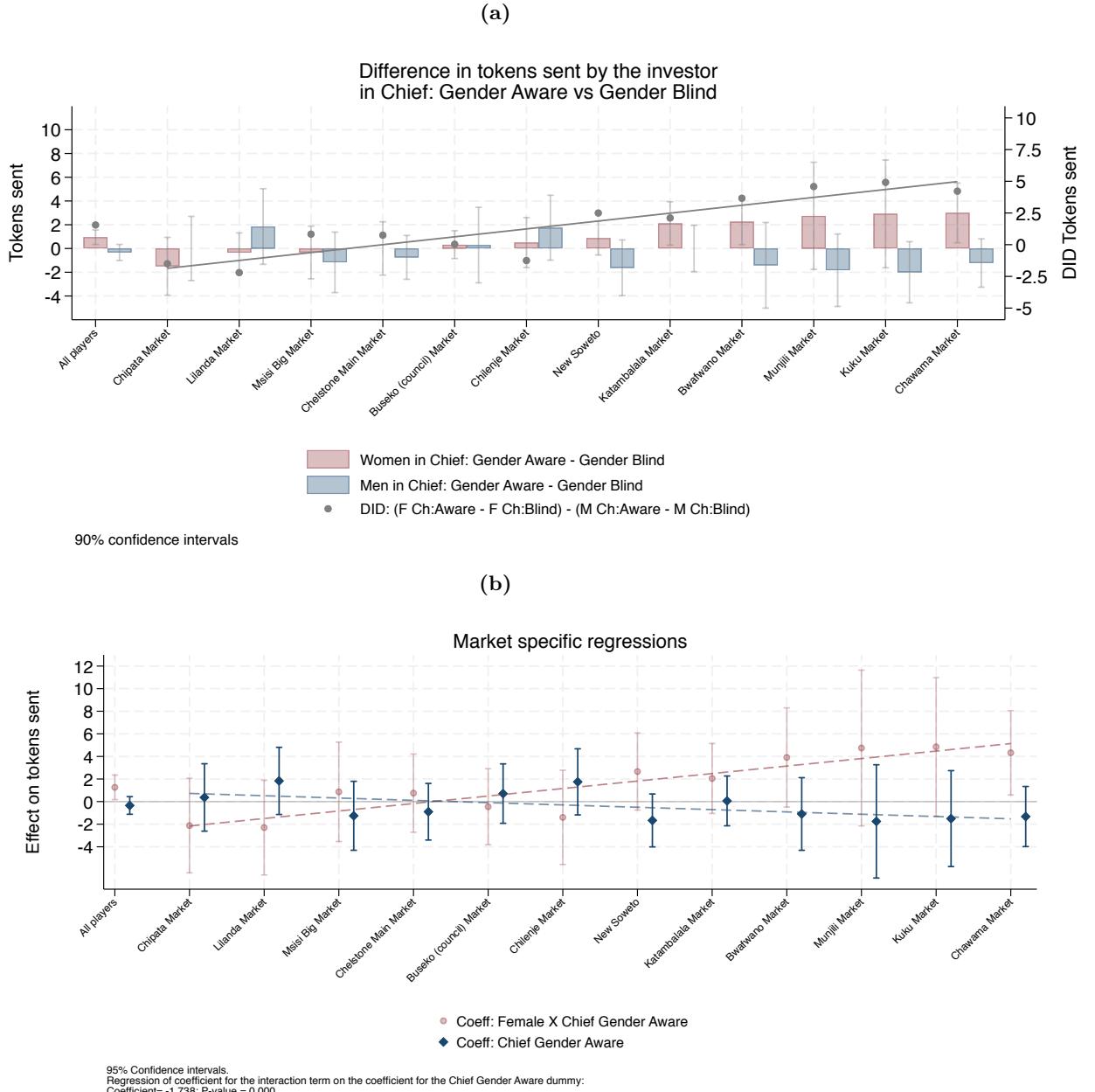
This figure shows the number of tokens sent by women (left) and men (right), splitting the sample by markets with better - or worse - than median market chief's gender bias. Chief's gender bias is an index constructed from the following survey variables: whether the chief follows subjective rules to arbitrate disputes, whether the chief thinks that a woman does not usually win in inter-gender disputes, whether the chief is more effective at catching perpetrators of thefts against men, World Value Survey (WVS) and World Justice Project (WJP) gender attitudes. More details on the index construction are reported in Appendix D. The control group includes both businesses located inside markets and outside markets. Data are from the experimental games (N=477) and the market chief survey.

Figure 11: Experiment 1: Distribution of Total Earnings between Investor and Trustee by Investor's Gender: Control vs Gender Blind Chief



This figure shows the distribution of total final earnings in rounds with a female Investor (Panel a) and male investor (Panel b). The control group includes both businesses located inside markets and outside markets. Data are from the experimental games ($N=477$).

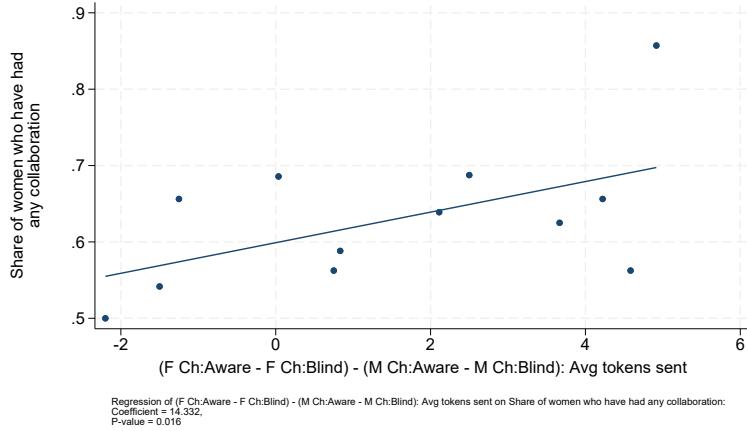
Figure 12: Experiment 2: Market Specific Treatment Effects by Gender - Gender Aware vs Gender Blind Chief



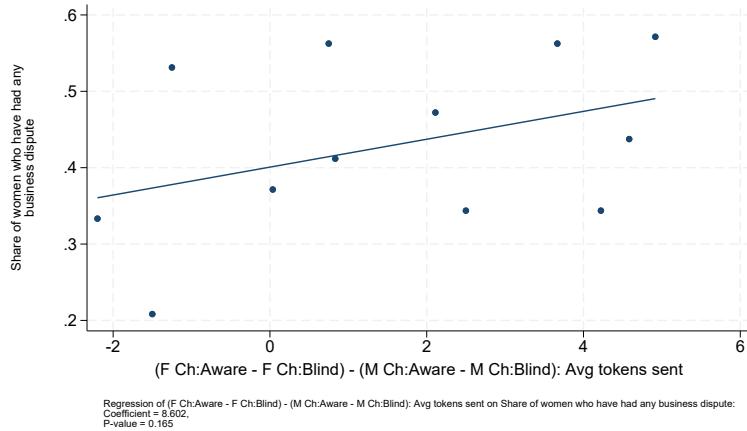
Panel (a) plots the difference in tokens sent by Investors between the Chief: Gender Aware and Chief: Gender Blind treatments, separately by gender. The first set of bars shows the average differences; the remaining twelve show market-specific differences, with markets ordered by the size of the Gender Aware–Gender Blind difference for female investors. The solid grey line and dots indicate the difference-in-differences. Panel (b) reports coefficients from a regression of tokens sent on a Chief: Gender Aware dummy (blue), a female dummy and its interaction with a female dummy (pink). The first two coefficients show average effects; the remaining twelve show market-specific effects, with markets ordered as in Panel (a). Data are from Experiment 2 ($N = 153$ women, $N = 144$ men).

Figure 13: Experiment 2: Market Heterogeneity in Treatment Effects and Key Market Features

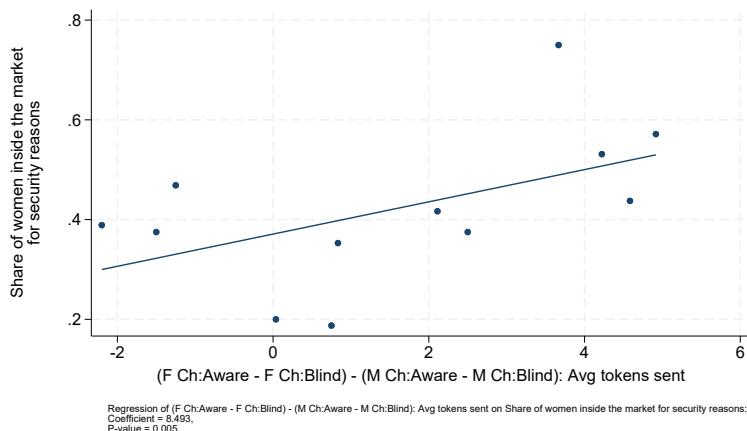
(a). Revelation Trust Premium and Female collaboration



(b). Revelation Trust Premium and Female Disputes



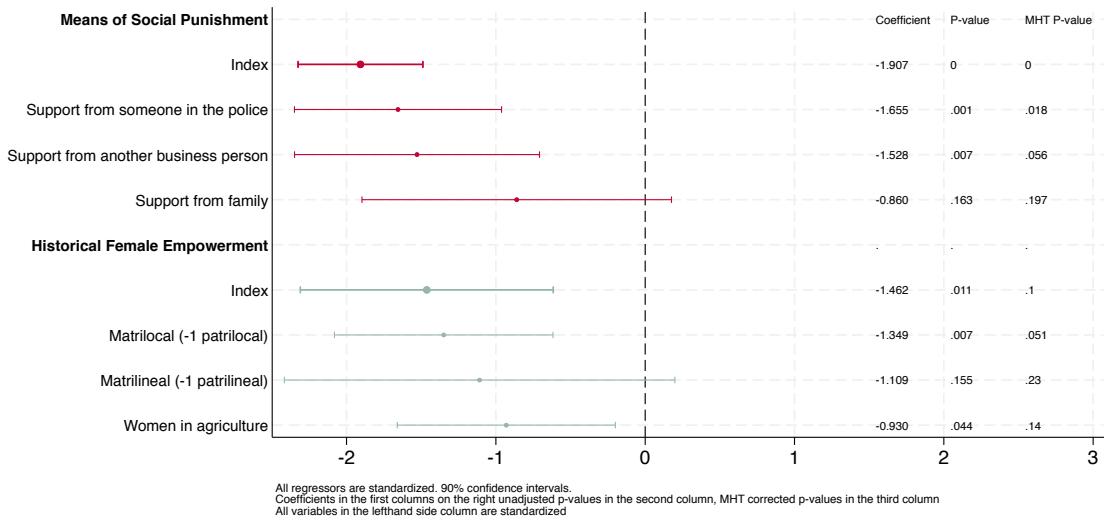
(c). Revelation Trust Premium and Female Demand for Security



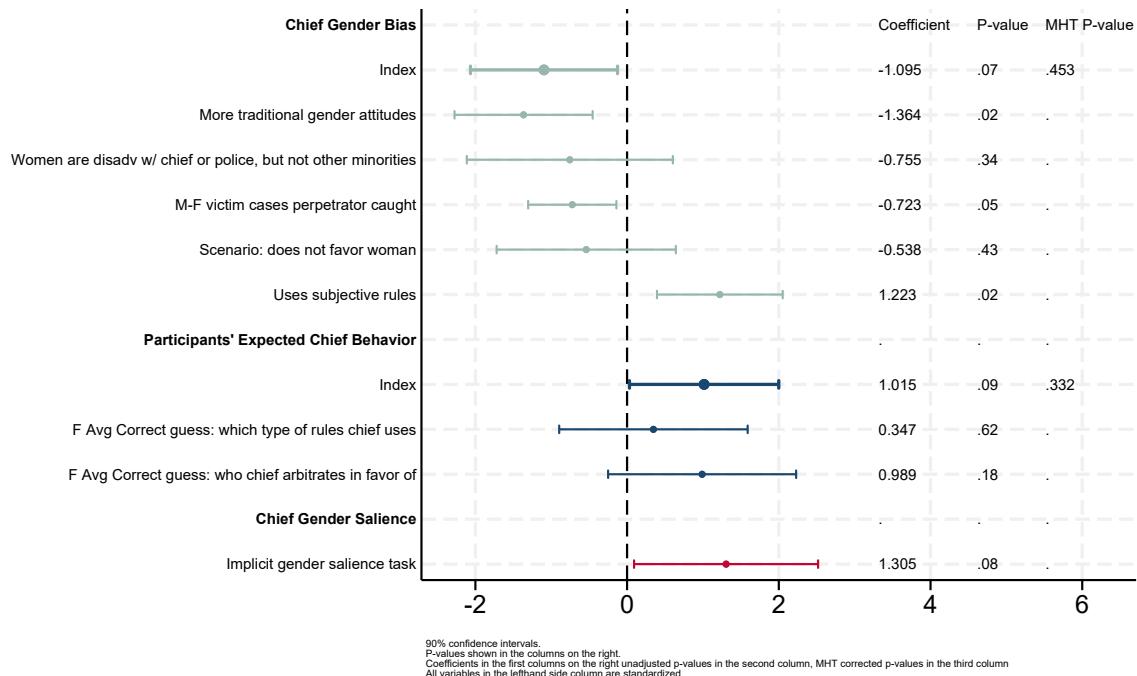
The graphs show the relationship between the difference in difference in tokens sent ((Female Chief:Aware - Female Chief:Blind) - (Male Chief:Aware - Male Chief:Blind)) on some features of the markets: share of women who have collaborated in the past 12 months (Panel (a)), share of women who have had a dispute in the past 12 months (Panel (b)) and share of women who report being inside a market for security and safety reasons (Panel (c)). All variables are at the market level (N=12).

Figure 14: Experiment 2: Female Power and Chief Gender Bias Predict Market Heterogeneity in Revelation Trust Premium

(a). Female Power

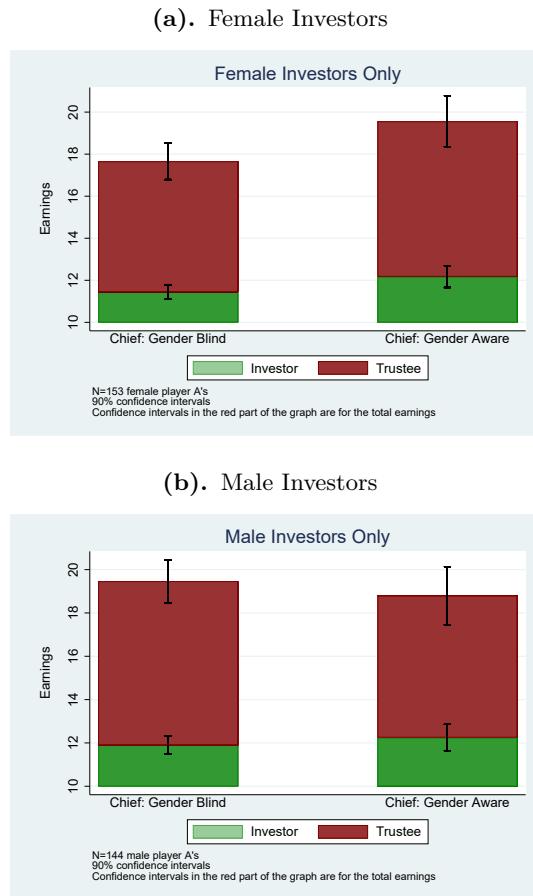


(b). Chief's bias, gender salience and participants' expectations



The graphs show the coefficients of several market-level regressions of the difference-in-difference (DID) in trust (i.e. tokens sent by women in (Chief:Aware - Chief:Blind) - men in (Chief:Aware - Chief:Blind)) with female marketeers' or chief's features. Panel (a) shows correlations of the DID on proxies for female power and Panel (b) for chief gender bias, salience as well as expectations about the chief's behavior. The construction of the indices is described in Appendix D. All regressors are standardized, and all variables are at the market level (N=12).

Figure 15: Experiment 2: Distribution of Total Earnings between Investor and Trustee by Investor's Gender



This figure shows the distribution of total final earnings in rounds with a female Investor (Panel a) and male investor (Panel b). Data are from the experimental games (N=594).