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The Weight of Expectation: Behavioral Evidence on Gender Norm Enforcement

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Abstract

This study examines how gender norms are enforced through social sanctions using an online experiment in the Sierra Nororiental of Puebla, Mexico. Combining norm elicitation tasks and a dictator game, it analyzes how participants react to norm compliance and deviation in the division of unpaid domestic labor. Results indicate that sanctioning behavior varies by the gender of both the evaluator and the norm violator, revealing a hierarchical and gendered enforcement structure. The study also identified a discrepancy between self-declared attitudes and behavioral responses: although many participants claimed to support gender equality, they penalized behaviors aligned with that position when those behaviors were perceived as norm violations. These insights have implications for policy interventions aimed at promoting gender equality, suggesting that effective change requires shifting the social expectations and sanctioning logics that underpin persistent inequalities.

Keywords:
gender norms, social expectations, punishment, experimental economics, unpaid care and domestic work

JEL Classification:
C91, J16, Z13

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1 Introduction

Social norms, understood as shared expectations about appropriate behavior, play a crucial role in coordinating social interactions by prescribing what individuals ought to do in specific contexts. Within economics, they have gained increasing attention as informal institutions that guide behavior in the presence of multiple equilibria and incomplete contracts (Bicchieri, 2006; Elster, 2000; Gintis, 2010). Among these, gender social norms are particularly salient: they dictate differentiated roles, responsibilities, and behaviors for men and women, often reinforcing systemic inequalities in access to resources, opportunities, and even the ability to exercise one's voice (Benería, 2006; Federici, 2013).

Despite substantial progress in women's educational attainment and labor force participation over the past decades, gender norms continue to constrain individual decisions and perpetuate unequal outcomes. These norms not only shape self-perception and aspirations, but also influence how others evaluate and respond to behavior—particularly when it deviates from traditional expectations. As such, understanding the enforcement mechanisms of gender norms is critical to explaining the persistence of inequalities even in contexts where formal barriers have been reduced.

While the impact of gender norms on women's economic empowerment, political participation, and social standing is well documented (Agarwal, 1997; Kabeer, 1999), most existing studies focus on stated attitudes or broad cultural frameworks. Less attention has been given to the microlevel mechanisms that sustain normative conformity through behavioral reinforcement. In particular, empirical research on the social sanctions or rewards that individuals apply to those who do not comply with the social norm remains limited. This study addresses that gap by analyzing how individuals respond to gender norm compliance and deviation, using an experimental framework that makes such reactions observable. In doing so, it contributes to a deeper understanding of the behavioral foundations of norm enforcement and the gendered asymmetries embedded in these processes.

Specifically, the paper analyzes the behavioral enforcement of gender norms through a novel online experiment conducted in the Sierra Nororiental region of Puebla, Mexico. This region was strategically selected for its structural characteristics—strong community cohesion, a pronounced gendered division of labor, and notably, gender equality advances within its main cooperative that coexist with the marked gender roles of the broader region. This offers an ideal environment for observing the nuanced dynamics of norm compliance and sanctioning behavior. The experiment was designed to explicitly measure both individual normative beliefs and collective normative expectations (or perceived social norms), leveraging incentivized elicitation methods and dictator game variants to capture behavioral responses to norm conformity and deviation.

Specifically, the study addresses three core questions. First, it asks about the prevailing social norms regarding the gendered division of domestic labor and their relationship to individual beliefs. Building on this, the research then investigates the strength of social sanctions for norm deviation, analyzing how

these sanctions differ based on the gender of the transgressor and the direction of the deviation. Lastly, the study explores how beliefs about gender equality impact both conformity to gender norms and the willingness to sanction or reward behaviors that deviate from those norms.

To address these questions, the experiment involved multiple stages: eliciting participants' normative beliefs about gender roles, measuring collective normative expectations through incentivized tasks, and observing sanctioning behavior in controlled experimental scenarios. Participants allocated rewards to virtual counterparts who either conformed to or deviated from established gender norms, enabling direct observation of sanctioning patterns. By randomizing both norm compliance and the sex of the participant, the study provides robust empirical evidence of asymmetrical norm enforcement, revealing that deviations are sanctioned differently based on gender dynamics. Additionally, explicit gender biases were measured through self-reported attitudes to enable comparison with implicit normative behaviors.

The results of this study reveal the intricate nature of gender norm enforcement, extending beyond simple reward-and-punishment mechanisms. Findings indicate that women not only internalize more stringent, traditional domestic roles for themselves but also sanction deviations that challenge the prevailing symbolic order, even when such deviations could foster more equitable domestic labor distribution. Furthermore, the severity of sanctions is notably gender-dependent, since women more intensely penalize men who advocate for egalitarian domestic task sharing, while showing a degree of leniency toward women who deviate in the same direction. This highlights that sanctions are influenced by the gender of both the enforcer and the transgressor, underscoring that who acts matters as much as what is done. Furthermore, individual normative beliefs toward domestic labor distribution significantly modulate sanction intensity; women with stronger adherence to traditional norms punish more severely any perceived deviation, demonstrating that social sanctioning is not uniform but deeply tied to personal and normative dispositions. Ultimately, these results confirm that gender social norms in this context are not simple or linear structures, but rather hierarchical, relational, and highly internalized mechanisms.

The contributions of this study are threefold. First, it enhances the theoretical understanding of gender norms by providing direct behavioral evidence of norm enforcement mechanisms, bridging a critical gap between stated beliefs and actual behaviors. Second, the experimental design innovatively combines incentivized norm elicitation methods with dictator game scenarios, offering a rigorous approach to studying implicit normative pressures based on gender. Third, by explicitly comparing implicit behavioral biases with explicitly stated attitudes, the study provides critical insights into the nuanced relationship between conscious beliefs and subconscious normative enforcement.

The remainder of the paper is structured as follows: Section 2 situates the study within the existing literature on gender norms, sanctions, and methodological approaches. Section 3 develops a theoretical framework that models how social norms—particularly gendered expectations—affect individual decision-

making and sanctioning behavior. Section 4 describes the experimental design, including the norm elicitation procedures and the behavioral tasks used to identify normative enforcement. Section 5 outlines the sampling strategy, data collection process, and descriptive characteristics of the participant pool. Section 6 presents the empirical results, including both summary measures and regression analyses of sanctioning behavior. Finally, Section 7 concludes by summarizing the main findings, theoretical contributions, and implications for future research and policy design.

2 Framing the Study: Norms, Sanctions, and Experimental Evidence

Gender social norms are increasingly recognized as crucial in perpetuating gender gaps, shaping societal expectations for each sex, and defining sanctions for non-conformity. These norms dictate everything from household responsibilities to career paths and public behavior, with deviations often leading to social disapproval, stigmatization, or tangible punishments, thereby reinforcing inequalities (Lundberg, 2023). The notion that gender norms profoundly influence economic decisions has moved from the periphery to widespread acceptance within the economic field (Lundberg, 2025; Lundberg, 2023). This section reviews the latest research on social norms, gender expectations, and sanctions from an economic perspective, focusing on key findings and debates over the last decade.

2.1 Defining Gender Social Norms and Sanctions for Noncompliance

Gender social norms refer to shared beliefs about appropriate behaviors for men and women, deeply rooted in historical processes of gender differentiation (Cislaghi & Heise, 2020). These norms are upheld not only through internalized expectations but also through mechanisms of social approval and informal sanctions. Their study has evolved from two disciplinary traditions—general theories of social norms from sociology and psychology, and feminist analyses of power and inequality—now converging into a more integrated analytical framework (Cislaghi & Heise, 2020).

In economics, a key step toward integrating social norms into formal models came with the inclusion of identity in utility functions (Akerlof & Kranton, 2000). Under this approach, utility is partially derived from alignment with the behaviors expected of one's social category, such as gender. When individuals deviate from these expectations, they incur both psychological costs (e.g., anxiety or discomfort) and social costs (e.g., disapproval or exclusion). Thus, gender norms are maintained through a combination of internal discipline and external reinforcement, ranging from subtle cues to overt forms of sanction such as ostracism or violence.

A growing body of empirical literature demonstrates that gender norms significantly influence individual preferences and behaviors, contributing to persistent inequalities in education, employment, and income (Lundberg, 2025). This evidence challenges the traditional dichotomy in neoclassical economics between free choice and discrimination, highlighting instead how preferences are shaped long before market participation (Lundberg, 2025; Lundberg, 2023). From early childhood, gendered socialization—transmitted through families, schools, and peers—shapes aspirations, risk preferences, and labor market behavior (Goldin, 1990, 2024). Consequently, many decisions commonly interpreted as individual choices are, in fact, responses to internalized expectations and anticipated social feedback.

Building on this insight, Bertrand (2020) identifies two persistent domains where gender norms exert powerful effects: women's underrepresentation in STEM and their disproportionate caregiving responsibilities. These are not merely the result of choice or structural constraints, but outcomes shaped by normative expectations and associated sanctions. For instance, Ferdous and Mallick (2019) show how local norms restrict women's economic agency, reinforcing structural vulnerabilities. In this light, social norms function as regulatory systems, guiding behavior through incentives and punishments rather than through formal constraints alone.

Recent contributions such as Litchfield et al. (2024) and Ambassa and Bidiasse (2024) demonstrate how economic frameworks are increasingly being applied to study gender norms, a field traditionally dominated by other social sciences. These studies examine how social expectations influence both individual decisions and third-party evaluations, relying on mechanisms of sanction, reward, and social learning.

Central to the operation of social norms is the threat of sanction. Defined as rewards or punishments that sustain compliance, sanctions are essential to maintaining normative order (Coleman, 1990). Particularly effective are informal, group-based sanctions, often enacted by third parties (Coleman, 1990; Hechter, 2018). These become more frequent and severe as the perceived magnitude of the norm violation increases (Abbink et al., 2017; Fehr & Fischbacher, 2004), consistent with theories of strong reciprocity.

Emotional responses, such as indignation or moral outrage, play a key role in motivating punitive behavior (Elster, 2000; Fehr & Fischbacher, 2004), which can be altruistic when driven by the perceived benefit to others rather than personal gain (Bicchieri et al., 2022). Importantly, sanctioning may not always be conscious; individuals can enforce norms without full awareness, enhancing their societal effectiveness (Elster, 2007). Nonetheless, imposing sanctions often entails social, emotional, or material costs, which may be outweighed by the anticipated benefits of behavioral correction or reputational rewards (Coleman, 1990; Horne & Mollborn, 2020; Yaman et al., 2023).

Beyond their deterrent effect, sanctions also serve an expressive function: they communicate what behaviors are socially acceptable (Chen et al., 2020). When combined with normative information, their influence can extend to shaping collective perceptions and strengthening norm adherence (Bicchieri et al.,

2022). The efficacy of sanctions further depends on group cohesion and social structure (Coleman, 1990; Hechter, 2018). Research also shows that people apply norms more rigidly within their own groups and more flexibly to outsiders, reflecting distinct moral logics (Carpenter & Matthews, 2009).

From an economic standpoint, sanctions alter expected payoffs and thus influence behavior, consistent with models of utility maximization (Xiao, 2018). Yet they can also backfire, increasing norm violations under certain conditions (Bicchieri, Dimant, Gelfand, et al., 2021). Although the economics literature on sanctions for gender norm transgressions remains limited, there is increasing interest in identifying the conditions under which punitive mechanisms are triggered and how they operate in practice.

Emerging studies shed light on these dynamics. Schunk and Wagner (2021) show that the willingness to sanction varies by perceived consensus and norm type. Bicchieri et al. (2022) find that social proximity between the observer and the violator diminishes the likelihood of enforcement. Similarly, experiments by Riehm et al. (2022) demonstrate that the mere threat of exclusion is often sufficient to promote compliance. As O'Brien (2019) suggests, declining institutional trust may fuel the rise of informal sanctions aimed at restoring social justice.

Interdisciplinary research further illustrates how these sanctions manifest. Reich and Bachl (2023) and Decker et al. (2019) document both symbolic and physical punishments for violating gender norms. Studies by Barakat (2022) and Morrow et al. (2023) reveal how such norms are enforced in religious and youth contexts, often through community surveillance. Eaton et al. (2021) shows how institutions perpetuate gender norms by rendering female non-conformity politically invisible.

Taken together, this body of literature underscores the complexity and multilevel nature of gender norm enforcement. While economics has yet to fully integrate these insights, interdisciplinary evidence has advanced our understanding of the social costs and regulatory functions of gender norms. This growing body of work highlights the importance of studying sanctions not only as deterrents but also as social signals embedded in broader structures of power and belonging.

2.2 Economic Experiments on Norm Enforcement

A central reference for this study is the economics literature on norm enforcement through altruistic punishment. Seminal experiments by Fehr and Gächter (2002) showed that individuals are willing to incur costs to punish non-cooperators in public goods games, a finding that gave rise to the concept of "strong reciprocity." Subsequent contributions, such as Herrmann et al. (2008), documented cross-cultural variation in the severity of such sanctions, while Falk et al. (2005) and Charness and Rabin (2002) emphasized the role of fairness concerns and third-party punishment. More recent studies have refined these insights by analyzing conditions under which norm enforcement is influenced by social expectations, identity, and context, as discussed in the works of Bicchieri,

Dimant, and Xiao (2021) and Xiao (2018).

What these studies share is a focus on cooperation and fairness norms in relatively neutral domains. By contrast, little experimental work has examined sanctioning behavior in gendered contexts, where the content of the norm is itself contested and the identity of both enforcer and violator may condition outcomes. This paper extends the economics of norm enforcement into this domain, providing evidence on whether the asymmetric and relational patterns observed in gender settings mirror, depart from, or even invert the logics observed in cooperation games. In doing so, it connects the broader interdisciplinary literature on gender norms with the experimental economics tradition on norm enforcement.

2.3 Methodological Characterization in the Study of Gender Social Norms in Economics

The study of gender social norms in economics employs a wide array of methodological approaches, each responding to the inherently implicit, relational, and context-dependent nature of the phenomenon. Four main methodological strategies stand out in the literature: surveys, experiments, qualitative approaches, and mixed methods. Together, they provide complementary insights into how gender norms are formed, maintained, and enforced.

Surveys have been instrumental in identifying patterns of attitudes and self-reported behaviors across diverse populations. They allow for statistical analysis and comparability across time and context. However, their reliance on stated preferences makes them vulnerable to social desirability bias and limits their ability to capture implicit beliefs or observe norm enforcement mechanisms. Some examples of relevant studies using surveys are found in Deshpande and Kabeer (2024) and Kim (2023), who use large-scale and time-use surveys to show how internalized norms and community-level expectations shape women's participation in the labor force and their allocation of time. In the field of behavioral economics, Baldursdottir et al. (2024) estimate the monetary value individuals assign to body image changes, revealing gender-differentiated impacts of social norms, while Aad et al. (2024) investigate how gendered cultural socialization influences interactions with AI technologies like ChatGPT. Similarly, Haj-Salem and Chetioui (2024) finds that ethical consumption intentions are driven by social norms, with significant gender-specific effects. These examples demonstrate the diagnostic power of surveys, but also point to their limitations in capturing the dynamic processes through which norms are reinforced or contested.

Experimental methods have increasingly gained relevance for their ability to identify causal effects by manipulating normative scenarios in controlled settings. In household contexts, studies such as Couprie et al. (2020), Cochard et al. (2018), Mani (2020), and Dasgupta and Mani (2015) examine how gender stereotypes shape task division, spending decisions, and strategic behavior. Expanding to institutional and public domains, Arceo-Gómez et al. (2018) and Booth et al. (2019) reveal how gender norms influence negotiation strategies and competitiveness, while Gangadharan et al. (2016) shows that resistance

to female leadership can diminish with repeated exposure. Corporate dynamics are also explored in studies by Ren et al. (2022) and Chang et al. (2019), which assess how public scrutiny and descriptive norms affect decision-making in high-visibility environments.

Experimental work also explores cultural variation and norm salience. Adriani et al. (2022) finds that gendered behavior in strategic games differs depending on country context and education levels. Rhodes et al. (2024) highlights how normative messages influence willingness to act against sexual harassment, while Yoon et al. (2017) shows that proximity to reference groups mediates the effects of norm-based marketing. Intervention studies such as those by Croke et al. (2023) and Angerer et al. (2024) further demonstrate that norm-sensitive training and messaging can modify gendered behaviors, even among individuals with entrenched implicit biases.

Qualitative methods are essential for exploring in depth and understanding the nuances in how gender norms are experienced, negotiated, and resisted. Using interviews and ethnographic tools, studies such as Arthur-Holmes and Abrefa Busia (2020), Bozchelouie (2019), Stern et al. (2023), Mohsin and Syed (2020), and Lambrecht (2016) document how domestic roles and bargaining power are shaped by normative expectations. Further contributions by Basu (2023), Ao et al. (2019), Thorpe et al. (2014), and Ojong (2017) illustrate how women navigate norm-constrained informal economies across sectors and regions. Meanwhile, identity construction and adaptation in professional spheres are explored by Zhao and Jones (2017), Sritanyarat and Sakdiyakorn (2020), and Weidhaas (2018), showing how women respond to conflicting gendered expectations through concealment, negotiation, or redefinition of roles.

Finally, mixed methods approaches have proven particularly effective in capturing the multidimensional character of gender norms. By combining the statistical power of quantitative tools with the contextual depth of qualitative data, these studies offer a more holistic understanding of norm dynamics. For example, Pedroza-Gutiérrez (2019), Pickbourn (2016), and Dey (2015) analyze how gender norms influence division of labor, remittance allocation, migration patterns, and labor segmentation. In entrepreneurship research, Karim et al. (2023) and Pueyo et al. (2020) show how normative barriers persist even when structural conditions improve, limiting women's economic agency. Mixed-method analyses by Gerold and Nocker (2018) and Barua et al. (2024) document how time-use decisions and climate vulnerabilities are mediated by gender expectations, while Oxford (2024) explores how gendered norms shape asylum decisions in the U.S. legal system. These studies confirm the methodological value of integrating multiple lenses to uncover how gender norms operate simultaneously at individual, household, institutional, and societal levels.

2.4 Research Gaps and Contribution of This Study

The review of recent literature reveals important conceptual, methodological, and empirical gaps in the study of gender social norms. Topics such as women's labor force participation, economic empowerment, and gender-based violence

are well-documented, but the mechanisms of social sanction, particularly how women are penalized for violating normative expectations, have received comparatively little systematic attention. This study addresses that gap by shifting the analytical lens from norm adherence to the penalties imposed for transgression. It investigates how individuals respond to noncomplying with social norms in gendered contexts, using an experimental design that isolates the effect of deviation from group expectations in unpaid domestic labor.

Conceptually, the research advances the field by treating social norms not only as internalized expectations but also as regulatory systems upheld through informal sanctions. Theoretically, it contributes a framework that integrates identity economics with gender analysis, showing how sanctions are not merely material costs but can involve social stigma and exclusion. Methodologically, it introduces a novel set of experimental instruments tailored to capture gendered responses to norm compliance and deviation. Unlike many existing studies that rely on indirect proxies or attitudinal surveys, this study offers a direct, behaviorally grounded measurement of normative enforcement.

In doing so, it opens new paths for rethinking normative change strategies beyond individual attitude shifts, foregrounding the importance of intervening in the social enforcement mechanisms that reproduce inequality. This contribution positions the study at the intersection of economics, gender studies, and behavioral research, offering a context-sensitive, theoretically grounded, and empirically rigorous approach to one of the most persistent drivers of gender inequality.

3 Theoretical Framework

To analyze the role of social norms in individual decision-making, this research employs a theoretical framework drawn from economic theory, building specifically upon the models presented by Hernani-Limarino (2025), Ray (2006), Genicot and Ray (2017), Ferrara (2019), and Dalton et al. (2016). The theoretical framework operationalizes how social norms influence individual behaviors, with particular attention to norms governing gender-specific roles, especially related to unpaid domestic and care work.

The analysis begins with a baseline model in which decisions are made independently, without the influence of social norms, in order to clearly identify behavioral changes introduced by normative pressures. This approach facilitates structured comparisons across scenarios: one without social norms, one influenced by gender-neutral norms, and one explicitly shaped by gender-specific norms.

To define the scope of the model, it is necessary to establish an action for which social norms exist. For this study, the specific action selected was unpaid work related to reproductive and care tasks, following the criteria established by Krupka and Weber (2013) and Fallucchi and Nosenzo (2021), who point out that the actions should be salient and relatively homogeneous in the context of interest. Unpaid work or reproductive work refers to care activities performed

at home, including family domestic work, caring for children, the elderly, and the sick (Benería, 2006; Federici, 2013). This variable is considered salient in the understanding that there is a clear difference in its distribution by sex in the context of the study.

3.1 Maximization without social norms

In a purely individualist environment, without social norms, each person i chooses how much effort to invest in performing unpaid domestic tasks, comparing the benefit obtained with the cost that such effort represents. Let:

- $h_i \in \{0, 1\}$: level of effort (0 = low, 1 = high)
- k_i: endowment of human capital and/or resources
- $y_i = (1 + h_i)k_i$: amount of domestic tasks performed, as a function of effort (h_i) and endowment (k_i)
- $B(y_i)$: benefit derived from domestic tasks
- $C(h_i)$: physical, emotional, or opportunity cost of effort

Then, the utility function is given by:

$$U_i = B(y_i) - C(h_i) \tag{1}$$

The decision about the level of effort will depend solely on whether the additional benefit outweighs the marginal cost of the effort:

$$h_i^* = \arg \max_{h_i \in \{0,1\}} \{B((1 + h_i)k_i) - C(h_i)\} \tag{2}$$

3.2 Introduction of Gender-Neutral Social Norms

Building on the empirical and theoretical insights discussed in the previous section, what matters for decision-making are not only the individual benefits and costs, but also social expectations. Social norms generate sanctions when an individual's behavior deviates from what is expected within their group. Therefore, there exists an expected amount of domestic tasks that society expects each person to perform. A key aspect is that this expectation is not universal, but depends on the social group G to which individuals belong. The following formulation represents the social sanction for deviating from the social norm:

$$S(y_{iG}, \bar{y}_G) = \kappa_G \cdot \pi_G \cdot \frac{(y_{iG} - \bar{y}_G)}{y_{iG}} \tag{3}$$

Where:

- $\bar{y}_G$: amount of domestic tasks that group G expects from a certain individual; represents the group's social norm (group's average expectation)

- π_G: proportion of individuals in group G who comply with the social norm (observable conformity)
- κ_G: rigidity parameter that scales the intensity of sanctioning within group G (the rigidity of the norms)

Thus, the more individuals follow the social norm (π_G), and the more socially important conformity is (κ_G), the greater the penalty for nonconformity.

Now, individuals incorporate the social sanction into their utility calculation. That is, they no longer decide solely based on their economic benefit, but also consider the risk of being judged, excluded, or criticized if they deviate from the norm.

$$U_{iG} = B(y_{iG}) - C(h_{iG}) - S(y_{iG}, \bar{y}_G) \tag{4}$$

$$h^*_{iG} = \arg \max_{h_{iG} \in \{0,1\}} \left\{ B((1+h_{iG})k_{iG}) - C(h_{iG}) - \kappa_G \cdot \pi_G \cdot \frac{(1+h_{iG})k_{iG} - \bar{y}_G}{(1+h_{iG})k_{iG}} \right\} \tag{5}$$

Thus, social cost may lead individuals to act not according to their individual interest but to modify their behavior due to group pressure. This pressure can cause individuals with a low preference for unpaid domestic tasks to perform more than what would be individually optimal (or vice versa).

It is important to note that $S(\cdot)$ is defined at the theoretical level as a latent sanction function. In the empirical implementation we will not observe $S(\cdot)$ directly, but rather an approximation derived from participants' behavior in the experimental tasks. The operationalization of this measure is described in the Identification Strategy (Section 4.5).

3.3 Introduction of Gender-Specific Social Norms

Building on the previous discussion, it can be assumed that social norms regarding domestic work are often differentiated by gender: women are expected to dedicate more time to domestic tasks, while men are expected to dedicate less. Here, this differentiation is introduced, where deviations are penalized asymmetrically. Let s_i be the sex of individual i, then the social sanction under gender norms is modified as follows:

$$S(y_{iG}, \bar{y}_G, s_i) = \begin{cases} \kappa_G \cdot \pi_G \cdot \dfrac{\bar{y}_G - y_{iG}}{y_{iG}} & \text{if } s_i = \text{woman} \\ \\ \kappa_G \cdot \pi_G \cdot \dfrac{y_{iG} - \bar{y}_G}{y_{iG}} & \text{if } s_i = \text{man} \end{cases} \tag{6}$$

$$U_{iG} = B(y_{iG}) - C(h_{iG}) - S(y_{iG}, \bar{y}_G, s_i) \tag{7}$$

$$h_{iG}^{*} = \arg \max_{h_{iG} \in \{0,1\}} \{B((1+h_{iG})k_{iG}) - C(h_{iG}) - S((1+h_{iG})k_{iG}, \bar{y}_G, s_i)\} \quad (8)$$

Thus, women face sanctions if they perform less domestic work than expected. Men, in contrast, are sanctioned if they perform more than what is socially prescribed. This leads to decisions shaped not only by preferences and constraints, but also by gender-specific normative pressures, giving rise to multiple equilibria:

- **Low-effort equilibrium with resistance to the norm** (infrequent in conservative settings): A woman with high endowment may choose low domestic effort (i.e., dedicate less time to household tasks) if the expected sanction for not meeting the norm is low (e.g., when κ_G or π_G are low). In this case, the woman prioritizes her individual benefit, even if this implies transgressing a social norm of high female dedication to domestic labor.
- **High-effort equilibrium with conformity to the gender norm:** A woman with high endowment may choose high domestic effort, even if it is not optimal in terms of individual utility, simply to avoid the sanction for failing to meet gendered expectations. The loss from sanction may be greater than the marginal gain from freeing time for other activities (such as paid employment).

Analogously:

- A man with low endowment may opt for low domestic effort solely to avoid sanctions for exceeding what is socially expected for men, even if dedicating more time to the household would improve his overall well-being.

The presence of multiple equilibria reflects that internalized social norms can lead individuals to make decisions that do not maximize individual utility in the absence of such norms. Decisions do not necessarily converge toward a single pattern, and gender social norms may create persistent traps of overinvestment or underinvestment in domestic labor, differentiated by sex. This contributes to the structural reproduction of inequalities in the distribution of time, affecting both the economic opportunities and general well-being of women and men.

4 Experimental Design

To empirically test the theoretical predictions, an online experiment was implemented to elicit individual normative beliefs, social norms, and normative sanctions regarding the gendered distribution of unpaid domestic labor. The experimental design aligns with recent developments in behavioral economics that employ incentivized tasks to measure normative expectations and prosocial behavior (Fallucchi & Nosenzo, 2021; Krupka & Weber, 2013).

The experiment consisted of four sequential components: (1) a demographic questionnaire, (2) elicitation of individual normative beliefs and collective normative expectations (social norms), (3) a dictator game with randomized normative compliance treatments, and (4) a set of questions on self-declared attitudes in four domains: politics, education, economic participation, and domestic violence.

4.1 Eliciting individual normative beliefs and social norms

Participants were presented with a hypothetical scenario (vignette) of a household composed of a heterosexual couple and their two young children. They were first asked how the domestic work should be divided between the man and the woman, under the constraint that time spent on domestic tasks reduces time available for paid work. This measure captures individual normative beliefs toward the gendered division of labor.

Subsequently, participants were asked to predict how the majority of people in their community believe domestic tasks should be distributed between men and women in the same hypothetical situation. This question was incentivized using a coordination game mechanism: participants were told they could earn tickets for a smartphone lottery if their answer matched the modal response of other participants. This approach follows the design of Krupka and Weber (2013), enabling the empirical identification of the social norms.

4.2 Norm Enforcement: Dictator Game Treatments

The third stage implemented a two-round version of the dictator game. In the baseline round, participants were asked to allocate ten tickets—valid for another smartphone lottery—between themselves and a virtual opponent, whose only known characteristic was their sex.[1] The sex of the opponent was randomly assigned at the start of the first round and remained fixed for the second. This design ensured internal consistency and controlled for potential gender-based framing effects. The baseline round served as a control condition to measure altruistic behavior, independent of normative content. By comparing allocations in this round with those in the subsequent treatment round—where norm compliance was experimentally manipulated—the design isolates the effect of normative sanctions from general prosocial behavior.

In the second round, participants were again asked to allocate ten lottery tickets between themselves and a virtual opponent. This time, however, they received additional information about the recipient, including their sex, household composition (which matched the vignette used during the norm elicitation and was kept constant for all participants), and their declared share of unpaid domestic work. Crucially, this share was randomly varied to reflect different degrees of conformity to the social norm identified in the previous stage. This

[1] In line with standard practices in experimental economics, the design did not involve deception. Participants were explicitly informed that their opponent was a simulated player, and no misleading information was provided regarding the nature of the interaction.

allowed us to assess whether participants reward or penalize others based on their adherence to normative expectations around domestic labor.

To operationalize this, three experimental treatments were introduced:

1. **Treatment 1 – Conformity with the social norm:** the recipient's share of domestic work matches the group-level expectation elicited previously.

2. **Treatment 2 – Non-conformity (more domestic work):** the recipient performs 20% more domestic work than the amount prescribed by the norm.[2]

3. **Treatment 3 – Non-conformity (less domestic work):** the recipient performs 20% less domestic work than what is prescribed by the previously identified norm.

This design enables the identification of normative sanctions by comparing the difference in ticket allocations between the baseline round and the treatment round, where the virtual recipient either conforms to or deviates from the gendered social norm reported by the participant. By randomizing the sex of the recipient, the design also allows for the analysis of heterogeneous sanctioning patterns based on both norm compliance and the sex of the norm violator.

4.3 Gender Equality Attitudes

In the final phase, participants responded to statements adapted from the UNDP Gender Social Norms Index (United Nations Development Programme (UNDP), 2023), which assess explicit gender biases in four domains: politics, education, economic participation, and domestic violence. Responses were recorded on a four-point Likert scale and serve as control variables and an explicit measure of stated normative beliefs.

4.4 Mapping Experimental Tasks to Theoretical Constructs

Table 1 outlines the correspondence between each phase of the experimental design and the components of the theoretical framework. It details how core constructs—such as individual normative beliefs, perceived social norms, and sanctioning behavior—are empirically captured through specific tasks and response formats. This mapping clarifies how the study transitions from abstract modeling to behavioral measurement, enabling a structured analysis of how gender norms are perceived, enforced, and internalized.

It is worth noting that, in the empirical design we cannot observe the sanction function $S(\cdot)$ directly. Instead, we approximate it with θ_{iG}, defined as the difference in tickets allocated to the virtual counterpart between the treatment

[2] The 20 percentage point deviation was based on the average gender gap in unpaid domestic and care work observed in the study context (the Sierra Nororiental region of Puebla, Mexico). This value reflects the difference in hours typically reported by men and women and was selected to represent a realistic but detectable deviation in the experimental design.

and baseline rounds. By construction, $\theta_{iG} < 0$ denotes punishment and $\theta_{iG} > 0$ denotes reward. Thus, θ_{iG} serves as the operationalization of the theoretical sanction function $S(\cdot)$.

The multi-stage design allows for a meaningful comparison between declared attitudes and actual behavioral responses. While Phase 4 relies on direct survey questions to measure explicit attitudes, the experimental tasks in Phases 2 and 3 uncover normative expectations and sanctioning patterns that may remain unspoken. This dual approach reveals potential gaps between what individuals say they believe and how they act when faced with norm violations, offering new insights into the social enforcement of gender roles.

4.5 Identification Strategy

The identification of causal effects in this study rests on three design features. First, treatment assignment is fully exogenous. Each participant is randomly matched with a virtual opponent whose declared share of women's domestic work either aligns with the previously elicited social norm (Treatment 1), exceeds it by 20 percentage points (Treatment 2), or falls short by 20 percentage points (Treatment 3). In addition, the sex of the virtual opponent is randomized at the start of the baseline round and kept constant in the treatment round. This double randomization ensures that the observed variation in sanctions is not confounded by participants' preexisting characteristics or by systematic differences in counterpart assignment.

Second, the sanction is measured using a within-subject design. For each participant i belonging to group G, we define:

$$\theta_{iG} = \text{tickets}_{iG}^{\text{treat}} - \text{tickets}_{iG}^{\text{base}}.$$

By construction, $\theta_{iG} < 0$ represents punishment and $\theta_{iG} > 0$ represents reward. This differencing nets out each participant's baseline altruistic disposition and isolates the incremental effect attributable to the counterpart's normative statement. Thus, θ_{iG} serves as the empirical operationalization of the theoretical sanction function $S(\cdot)$ introduced in Section 3.

Third, heterogeneity in enforcement is modeled by incorporating the evaluator's own individual normative belief, y_{iG}, and its interactions with treatment and opponent sex.

This specification allows us to test whether more traditional participants punish egalitarian deviations more harshly, and whether the sex of the norm-bearer modifies the severity of sanctions. The estimating equation can be written as:

$$\theta_{iG} = \sum_{g \in \{\text{Opp} \times T1, \ldots, \text{Same} \times T3\}} (\alpha_g + \beta_g \, y_{iG}) D_{g,i} + \varepsilon_i,$$

where $D_{g,i}$ are indicators for each treatment–sex group, α_g measures the baseline sanction at a neutral normative belief, and β_g captures how the sanction varies with the evaluator's normative stance.

Table 1: Experimental Phases and Correspondence with Analytical Model

Phase	**Task Description**	**Information Presented to Participants**	**Analytical Construct Captured**
Phase 1: Sociodemographic Questionnaire	Elicits baseline characteristics of participants.	Questions on age, sex, education, occupation, etc.	Group identity (G)
Phase 2.1: Individual Normative Belief Question	Participants state how they think domestic work should be divided by sex.	Vignette describing a household with two adults and two children	Individual normative belief (y_{iG})
Phase 2.2: Incentivized Expectation (Social Norm)	Participants guess what others in their group believe is appropriate regarding the distribution by sex of domestic labor.	Same vignette; incentivized coordination mechanism	Perceived social norm of group ($\bar{y}_G$)
Phase 3.1: Dictator Game (Baseline)	Participants allocate lottery tickets to a virtual player without norm-related cues.	Only the sex of the virtual opponent (randomized)	Altruistic disposition (baseline sharing behavior)
Phase 3.2: Dictator Game (Treatment)	Participants allocate tickets after observing the opponent's (randomized) norm compliance.	Opponent's sex (that is the same as in phase 3.1) and household composition (identical to the vignette and held constant across all participants), and declared domestic work share (aligned, above, or below norm)	Behavioral sanctioning: punishment or reward for norm deviation (θ_i)
Phase 4: Explicit Gender Attitudes	Participants respond to declarative items on gender roles and rights.	Survey questions on politics, education, work, and violence	Explicit gender attitudes (external benchmark)

Together, these elements ensure that the estimated coefficients can be interpreted as the causal effect of norm conformity or deviation—conditional on recipient sex and evaluator beliefs—on observed sanctioning behavior.

5 Participants and Data Collection

The experimental data were collected between August and September 2024 in the Sierra Nororiental of Puebla, a rural and agriculturally diverse region in eastern Mexico. The area is inhabited predominantly by indigenous communities—such as Nahua, Totonac, Otomí, and Tepehua—whose cultural and governance structures contribute to strong collective identities and well-defined gender roles (Bernkopfová, 2012, 2014; Vázquez García et al., 2023). In this context, diverse cooperatives, but mainly the Unión de Cooperativas Tosepan play a central role in community organization (Cobo et al., 2018). Although traditional norms still confine women primarily to unpaid domestic and caregiving tasks, recent leadership by women within the cooperative movement reflects emerging contestations of gender roles. These characteristics make the region a strategically relevant setting for analyzing how gender norms are perceived, enforced, and potentially transformed.

The study used a modified version of respondent-driven sampling (RDS), a chain-referral method developed by Heckathorn (1997) to access populations that are difficult to reach through conventional sampling strategies. RDS is often used due to its analytical relevance in tracking the patterns of social recruitment and relational diffusion, which are particularly meaningful in the context of norm transmission (Avery et al., 2021; Lee et al., 2020). In this study, local cooperative promoters from the Unión de Cooperativas Tosepan acted as initial seeds and distributed the online questionnaire through their networks, encouraging participants to further share the invitation within their communities. The recruitment strategy aimed to reach both cooperative members and individuals outside the formal cooperative network to ensure diversity in perspectives and social positioning.

The target sample size was established a priori to ensure sufficient power to detect medium-sized effects in pairwise comparisons of sanctioning behavior across treatment groups, with a two-tailed $\alpha = 0.05$ and power $1 - \beta = 0.80$, yielding a minimum of 128 completed observations per group.

Participants were able to access the questionnaire using their mobile phones or any device with an internet connection at any time during the data collection period. This flexible format facilitated high accessibility and allowed individuals to complete the entire instrument at their own pace. While the online format may have limited participation among individuals with low digital access, the study prioritized analytical relevance over statistical representativeness. In addition, the study took advantage of the widespread use of mobile technology and community connectivity in the region.[3]

[3] According to the 2023 National Survey on Availability and Use of Information Technologies in Households (ENDUTIH), 81.4% of the Mexican population aged six years or older uses

Table 2: Descriptive Statistics of Participants

Variable	**Mean / Proportion**	**Standard Deviation**
Gender		
Female	0.69	0.46
Male	0.31	0.46
Age	38.00	12.92
Educational Attainment		
Secondary or High School	0.33	0.47
Technical Studies	0.13	0.34
University Degree	0.54	0.50
Maseual Identification		
Yes	0.69	0.46
No	0.31	0.46
Tosepan Cooperative Member		
Yes	0.53	0.50
No	0.47	0.50
Number of Children	2.00	1.27
Household Composition		
Lives alone	0.11	0.31
With partner and/or children	0.60	0.49
With other family members	0.28	0.45
With other people	0.02	0.13

A total of 564 people accessed the digital questionnaire. However, only 239 completed all phases of the instrument and were retained for analysis. The final sample is not statistically representative of the regional population but is analytically robust for exploring normative beliefs and sanctioning behavior within the experimental context.

Table 2 presents summary statistics for key demographic variables. The sample is predominantly female (69%), with an average age of 38 years (range: 18 to 78). Educational attainment is relatively high, with 54% of participants holding a university degree. Additionally, 53% reported membership in one of the Tosepan cooperatives, and 69% self-identified as part of the Maseual indigenous group. Household structures vary, with 60% living with partners and/or children, and 28% living with other family members.

The fact that the sample is predominantly composed of women did not result from the experimental design but rather from the voluntary nature of participation and the diffusion strategy used during recruitment. The questionnaire was distributed by community promoters through personal and cooperative net-

mobile phones, and within this percentage of users, 95.5% use smartphones. Additionally, the Unión de Cooperativas Tosepan operates its own community-based mobile and Internet network, Wiki Katat, which enhances connectivity in the Sierra Nororiental of Puebla, particularly among speakers of Nahuatl and Totonac. These conditions suggest relatively high digital penetration in the region and support the feasibility of the online format. See INEGI (2024) and Economista (2022).

works, where women, often more active in collective spaces for gender reflection, showed greater interest and availability to participate. This gender imbalance enriched the analysis of normative practices and beliefs among women but limited the possibility of conducting systematic comparisons with men or of identifying how men apply or resist social sanctions for norm transgressions. As a result, the analysis focuses primarily on the female subsample, where the larger number of observations allows for robust estimations. This limitation points to a promising direction for future research that seeks to explore the normative role of men in greater depth.

6 Results

The results presented in Table 3 reveal distinct patterns in how men and women evaluate conformity to gender social norms regarding the distribution of domestic labor. It is important to note that all measures of individual beliefs and social norms were transformed to consistently express the proportion of domestic labor expected to be performed by women. This transformation allows for direct comparisons across treatments, regardless of the gender of the virtual player presented in the experiment. As for the penalty for non-conformity, it is calculated as the difference in the number of tickets assigned to the virtual player in the treatment round relative to the baseline round; thus, a negative value indicates a punishment or penalty, while a positive value suggests a form of reward.

Overall, the findings indicate that women report both individual beliefs and perceived social norms that are more demanding in terms of the proportion of domestic labor expected from women, relative to their male counterparts. Specifically, female participants believe that a larger share of domestic tasks should be undertaken by women and perceive this expectation as more widely shared within their reference group. This gender gap in both individual beliefs and perceived social norms aligns with the assumptions of the analytical model and is consistent with existing literature on the differential internalization of gender norms by sex.

The most salient differences, however, emerge in the core experimental variable: the penalty for non-conformity. Male participants in the sample tend to penalize less or even reward those who deviate from the perceived gender norm. While this finding should be interpreted with caution due to the limited size of the male subsample, it nonetheless suggests a non-punitive or even permissive response to normative transgressions. In contrast, female participants on average penalize those who fail to comply with the social norm concerning the appropriate share of domestic labor assigned to women. This pattern is particularly revealing of the underlying normative dynamics, as it indicates that it is women themselves who enforce compliance with gender norms. These results resonate with prior literature that highlights mechanisms of intragroup norm enforcement.

When disaggregated by experimental treatment, the analysis reveals impor-

Table 3: Empirical Measures of Gender Norms, Individual Normative Beliefs, and Penalty for Non-Conformity: Overall and by Treatment

Group	**N**	Individual Normative Belief (y_{iG})	Norm ($\bar{y}_G$)	Baseline Altruism	Treatment Round	Sanction (θ_{iG})
Men	73	52.33	58.08	4.82	5.10	0.27
		(16.48)	(17.65)	(1.34)	(1.25)	(1.42)
Women	166	56.14	62.47	4.85	4.76	-0.09
		(14.98)	(18.81)	(1.17)	(1.36)	(1.41)
T1: Same norm	56	57.41	62.14	5.05	4.91	-0.14
		(16.62)	(17.19)	(1.23)	(1.43)	(1.49)
T2: More domestic work	53	56.98	65.19	4.60	4.85	0.25
		(13.17)	(17.84)	(1.57)	(1.36)	(1.45)
T3: Less domestic work	57	54.12	60.26	4.88	4.53	-0.35
		(14.91)	(21.10)	(0.38)	(1.28)	(1.23)
Opposite sex	88	54.26	62.67	4.83	4.55	-0.28
		(13.27)	(18.40)	(1.05)	(1.22)	(1.44)
Same sex	78	58.27	62.24	4.87	5.00	0.13
		(16.53)	(19.38)	(1.29)	(1.48)	1.35)

tant nuances. Due to the limited number of male observations, the treatment-level results discussed below refer exclusively to the female subsample.

In the control treatment, where the virtual player's reported distribution of domestic labor matched the group norm previously elicited, ticket allocations remained close to the baseline level, as anticipated. However, when there was a deviation in a direction that would reduce the domestic burden on women, participants tended to penalize this deviation. On the contrary, when the deviation from the gender norm allocated a higher burden of domestic work for women, participants rewarded this behavior. This result is striking in that it suggests conformity is valued over content: non-compliance is sanctioned even when the deviation would benefit women. Such a response underscores the strength of internalized norms and reveals that what is reinforced is not necessarily the norm's prescriptive content but the act of conformity itself.

Variation in responses are also shaped by the sex of the virtual opponent. When female participants are paired with a same-sex virtual player, penalties for non-conformity tend to diminish or reverse. In contrast, interactions with male opponents elicit stronger punitive responses to norm violations. This asymmetry may reflect a greater tolerance for deviation within the in-group or, conversely, heightened normative expectations when the violator belongs to the opposite sex. It may also be driven by perceptions of accountability or anticipated reciprocity, particularly in cases where male players deviate from norms that sustain structural inequality in the domestic sphere.

Taken together, the results presented in Table 3 provide a preliminary look at how participants respond to different configurations of normative content and gender identity, suggesting that penalties are more severe when a male counterpart adopts egalitarian positions. While the patterns uncovered are suggestive, they cannot be interpreted causally nor can the marginal effects of each experimental dimension be isolated without a multivariate framework. To address this limitation, a series of regression models were estimated that allow for systematic assessment of the marginal effects of treatment, opponent sex, and individual normative beliefs on the observed sanctioning behavior, as well as their interactions. The results of these models are presented in the following section.

6.1 Regression Analysis: Determinants of Normative Sanctions

Table 4 reports the regression models that systematically assess how sanctions vary with norm content, the sex of the opponent, and the evaluator's own normative beliefs. In all cases, the dependent variable is the difference in tickets allocated between the treatment and baseline rounds, θ_{iG}. By construction, negative values indicate punishment and positive values indicate reward. The analysis is restricted to the female subsample.

The results across models paint a consistent picture: egalitarian deviations tend to be punished more than regressive ones, and men are sanctioned more harshly than women for expressing the same normative content. Importantly, the estimates allow us to distinguish between two dimensions of sanctioning behavior. The intercepts represent the sanction imposed when the evaluator holds a neutral normative belief—thus capturing the baseline response to different treatments and opponent sexes. The slopes, in turn, show how sanctions vary with the evaluator's own orientation toward traditional gender norms. Together, these components reveal not only whether a given deviation is punished or rewarded on average, but also how that punishment intensifies or diminishes depending on the normative stance of the evaluator.

Starting with the models that include only treatments (Model 1), participants reward those who assign women more domestic work than the norm prescribes (T2) and punish those who assign less (T3), though the coefficients are not statistically significant. This already suggests a conservative tendency: sanctioning is oriented against deviations that would reduce the burden on women, while tolerating or even rewarding those that reinforce it. Introducing the sex of the opponent (Model 2) highlights that men are sanctioned more severely: the coefficient for opposite sex is negative and significant, indicating that even when the normative content is the same, the sex of the person expressing it matters. This asymmetry points to a relational logic of enforcement, where women are more willing to punish men than other women for the same deviation.

Adding the evaluator's own normative belief (Model 3) shows that women with more traditional views tend to penalize more strongly, though the effect is modest and not always significant. This negative slope is nonetheless consistent with the analytical model, which predicted that higher attachment to traditional norms increases willingness to sanction. The joint inclusion of treatments, opponent sex, and normative beliefs (Model 5) confirms these patterns: regressive deviations do not trigger punishment, egalitarian ones do, and men remain more heavily sanctioned. The positive constant suggests a baseline tendency toward generosity in the absence of normative conflict, which is overridden when evaluators face deviations.

The models with interactions (Models 4 and 7) clarify how these effects differ across sex–treatment combinations. Men who endorse egalitarian norms (opposite sex $\times$ T3) are punished more than conforming men, while women expressing the same position are not. Conversely, women who endorse regressive norms (same sex $\times$ T2) are sometimes even rewarded, while men with regressive

norms are not more penalized than baseline. These results confirm that sanctioning is not neutral with respect to content, but conditioned by who voices the expectation. The same egalitarian statement receives opposite treatment depending on whether it is voiced by a man or a woman.

Models 6 through 9 delve into the interaction between intercepts and slopes. Model 6 reaffirms that men are punished more severely even after controlling for evaluator beliefs, underscoring that gender asymmetry cannot be explained solely by content. Model 8, which decomposes the slopes across all treatment–sex combinations, shows that evaluator traditionalism matters most when the opponent is a man supporting egalitarian expectations: the more traditional the evaluator, the harsher the sanction in this case. By contrast, when egalitarian norms are voiced by women, slopes are flat and insignificant, indicating that traditional evaluators do not increase their punishment in those scenarios. Over-conforming profiles (T2) also show no slope effects, revealing that excessive demands on women are tolerated regardless of the evaluator's normative disposition.

Finally, Model 9 provides the most comprehensive decomposition of intercepts and slopes, and is illustrated in Figure 1. The figure shows clearly how baseline sanctions vary across groups (intercepts) and how they are moderated by evaluator beliefs (slopes). Men with regressive norms are sanctioned more than conforming men, women with regressive norms also face penalties, but women with egalitarian norms are not significantly punished. Evaluators with traditional beliefs intensify punishment particularly against men with egalitarian views and, to a lesser extent, against women with egalitarian views. This asymmetry reveals that punishment is targeted not simply at non-conformity, but at specific combinations of gender and deviation.

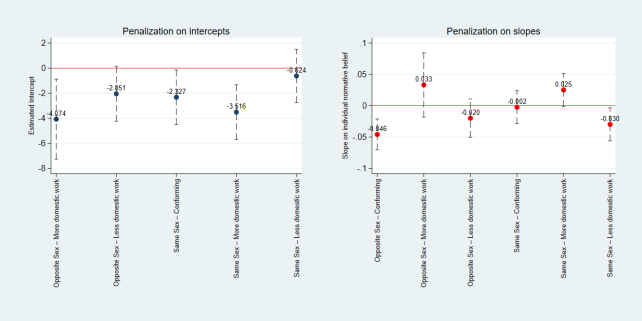
Taken together, the results in Table 4 and Figure 1 show that sanctions are relational and asymmetric. Intercepts reveal the baseline asymmetry: egalitarian deviations are penalized more than regressive ones, and men are sanctioned more than women for the same position. Slopes show that evaluator heterogeneity matters: the more traditional the evaluator, the harsher the sanction against egalitarian statements, particularly when voiced by men. These findings confirm that gender norms are not enforced uniformly but through a complex and hierarchical system of sanctions, where the identity of both the violator and the evaluator is decisive in determining whether a deviation is punished or tolerated.

Table 4: Regression Results: Penalization for Non-Conformity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Excluded category: T1 (Same norm)									
T2: More domestic work performed by women	0.388				0.384				
	(0.27)				(0.27)				
T3: Less domestic work performed by women	-0.208				-0.243				
	(0.26)				(0.26)				
Excluded category: Same sex									
Opposite sex		-0.412*				-0.459**			
		(0.22)				(0.22)			
Individual Normative Belief (y_{iG})			-0.010		-0.011	-0.012	-0.013*		
			(0.01)		(0.01)	(0.01)	(0.01)		
Excluded category: Opposite sex×T1 (Same norm)									
Opposite sex×T2 (More domestic work performed by women)				0.308			0.288		-4.074**
				(0.37)			(0.37)		(1.93)
Opposite sex×T3 (Less domestic work performed by women)				-0.522			-0.573		-2.051
				(0.35)			(0.35)		(1.32)
Same sex×T1 (Same norm)				0.104			0.144		-2.327*
				(0.37)			(0.37)		(1.31)
Same sex×T2 (More domestic work performed by women)				0.545			0.583		-3.516***
				(0.36)			(0.36)		(1.32)
Same sex×T3 (Less domestic work performed by women)				0.264			0.270		-0.624
				(0.37)			(0.36)		(1.28)
Opposite sex×T1×(y_{iG})								-0.017**	-0.046***
								(0.01)	(0.01)
Opposite sex×T2×(y_{iG})								-0.009	0.033
								(0.01)	(0.03)
Opposite sex×T3×(y_{iG})								-0.026***	-0.020
								(0.01)	(0.02)
Same sex×T1×(y_{iG})								-0.012	-0.002
								(0.01)	(0.02)
Same sex×T2×(y_{iG})								-0.003	0.025
								(0.01)	(0.02)
Same sex×T3×(y_{iG})								-0.012	-0.030*
								(0.01)	(0.02)
Constant	-0.143	0.128	0.445	-0.188	0.474	0.803*	0.532	0.647	2.384***
	(0.19)	(0.16)	(0.42)	(0.25)	(0.46)	(0.45)	(0.47)	(0.42)	(0.87)
R2	0.031	0.021	0.010	0.060	0.043	0.036	0.078	0.097	0.156
N	166	166	166	166	166	166	166	166	166

Notes: Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01.

Figure 1: Decomposition of penalization on the Intercept and the Slope (Model 9)



Source: Author's calculation.
Notes: The left panel graph omits the reference category (the opposite-sex group conforming to the social norm). Confidence intervals are displayed at the 90 percent level in both panels.

6.2 Gender Bias Analysis

This section delves into the analysis of gender bias as a broader normative structure, which not only conditions individual behaviors but also shapes perceptions of legitimacy and desirability. Through various analytical exercises, both the individual dispositions that reproduce gender norms—such as normative beliefs toward domestic labor—and the discourses supporting or questioning these

norms in terms of rights and capabilities were explored. The main objective is to dissect the explicit and implicit components of gender bias and to connect these dimensions with the logic of normative sanctions identified experimentally.

Implicit bias is measured through participants' normative beliefs regarding the proportion of domestic work women should undertake in a typical household scenario, elicited in the second stage of the experiment. Explicit bias, on the other hand, is assessed through questions related to differentiated rights and capabilities by gender across four domains: education, politics, economics, and violence.

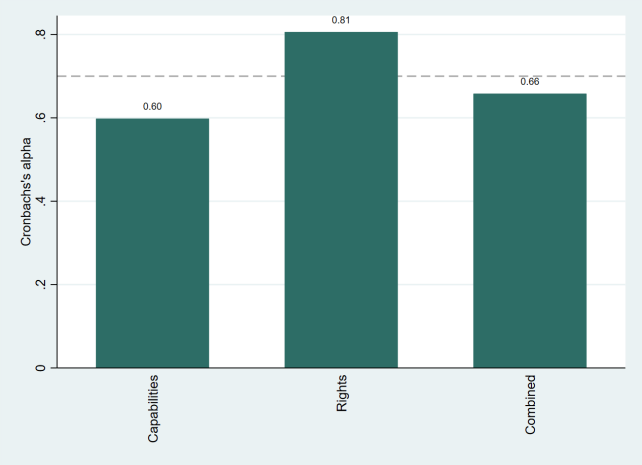
Initially, the internal consistency of the explicit gender bias items to determine whether these items reflect a cohesive underlying concept was evaluated. Cronbach's alpha coefficient was computed separately for each block of statements: capabilities, recognition of rights, and the combined index of both dimensions. For consistency in interpretation, all items were recoded such that higher values represent stronger gender bias, corresponding to less egalitarian positions.

As shown in Figure 2, the Cronbach's alpha for the capabilities block (assessing differentiated expectations regarding men and women's capacities in politics, education, economics, and violence) was 0.60, below the conventional threshold of 0.70. This suggests participants did not hold a unified, consistent view across different domains. For instance, perceptions of women's suitability for political roles may differ notably from expectations about their roles in demanding economic sectors or violence-related contexts, implying that gender stereotypes function as fragmented and context-dependent rules.

Conversely, the rights block (statements emphasizing women's equal access to political, educational, economic, and protective rights) demonstrated high internal consistency, with an alpha of 0.81. Participants consistently viewed these rights as part of a single normative principle—gender equality—likely reflecting institutionalized language from public policies and widely accepted discourses.

When combining both blocks into a global explicit bias scale, the resulting alpha was 0.66. While acceptable for exploratory research, this indicates that participants distinguish between rights and capabilities. Conceptually, this highlights that although equality in rights is broadly accepted, expectations about what women should or can do remain influenced by diffuse and sometimes contradictory stereotypes. This gap between formal equality and practical expectations may partially explain why traditional gender roles persist despite widespread support for equality discourses.

Figure 2: Internal Consistency of Explicit Gender Bias



Source: Author's calculation.

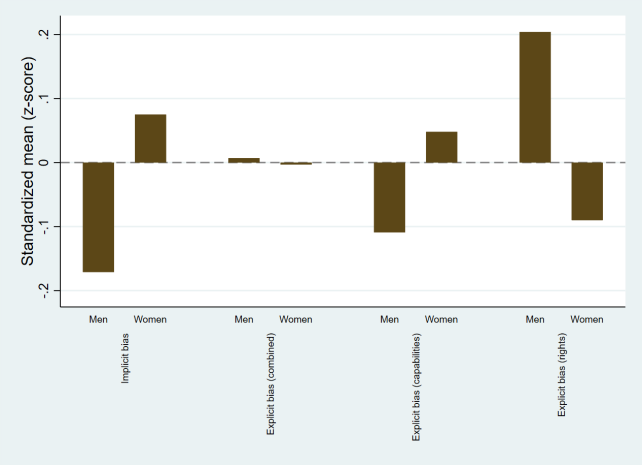
Considering this complexity, three separate indices for comparative analysis were constructed: a combined explicit bias index, a capabilities-specific index, and a rights-specific index. Each was standardized (z-scores) based on the average responses to relevant questions. Similarly, the implicit bias index was directly derived from participants' responses about the proportion of domestic labor women should undertake, also transformed into standardized scores.

Upon constructing these standardized implicit and explicit indices, their average values between male and female participants were compared to identify differential patterns in normative internalization and declaration. Figure 3 and Table 5 show these comparisons.

With respect to implicit bias, a statistically significant difference emerges: women exhibit higher levels of implicit bias than men. This significant and theoretically important difference suggests that women more strongly internalize and adhere to traditional norms regarding the distribution of domestic labor. This normative 'overadaptation' aligns with the intragroup reproduction hypothesis posited in the analytical framework, where women not only comply with but also actively reinforce traditional gender norms, as part of structural conformity.

In contrast, explicit bias—assessed through statements about gender-differentiated rights and capabilities—presents a less clear structure. The combined explicit bias index, encompassing both types of statements, does not show statistically significant gender differences, suggesting convergence in formal gender declarations. However, upon disaggregating this index, important contrasts appear: women express significantly more egalitarian positions regarding formal rights but no significant gender differences emerge in perceptions of capabilities. This indicates that both groups hold similar views regarding what women "can" or "should" do, but diverge in their beliefs about what women "should have the right" to do.

Figure 3: Internal Consistency of Explicit Gender Bias



Source: Author's calculation.
Notes: Higher index values indicate less egalitarian positions, hence stronger gender bias against women.

Table 5: Gender Bias Comparison by Gender

Index	Mean - Men	Mean - Women	Difference	p-value (ranksum)
Implicit Bias	-0.171	0.075	-0.246*	0.0766
Explicit Bias (Combined)	0.007	-0.003	0.010	0.9975
Explicit Bias (Capabilities)	-0.109	0.048	-0.157	0.3055
Explicit Bias (Rights)	0.204	-0.090	0.294**	0.0399

Significance levels: *p $<$ 0.1, **p $<$ 0.05, ***p $<$ 0.01.

These differences carry substantial implications. The fact that women express stronger support for egalitarian rights may reflect growing legitimacy of equality discourses, while what women "can" or "should" do remains subject to stereotypes operating diffusely or selectively. This gap between formal equality and practical expectations helps explain the persistence of traditional gender norms, even in contexts where egalitarian discourses have gained traction.

Following these analyses, ordinary least squares regression models were estimated to systematically explore associations between sociodemographic characteristics and implicit and explicit bias levels. Consistent with previous experimental analyzes that focused on women due to sample imbalance, these regressions were limited to female participants. Table 6 summarizes these findings, indicating that cooperative membership is significantly correlated with lower implicit and explicit bias, suggesting that organizational participation might facilitate distancing from traditional gender norms. Age correlates positively with explicit bias, suggesting that older participants might hold more traditional views, although both associations are correlational rather than causal.

These insights collectively underscore the complex interplay between explicit declarations and implicit normative pressures, highlighting the critical role of social and organizational structures in shaping gender biases.

Table 6: Regression of Implicit and Explicit Bias on Sociodemographic Variables

	Implicit Bias	Explicit (Combined)	Explicit (Capabilities)	Explicit (Rights)
Age	0.008	0.014**	0.013**	0.010*
	(0.01)	(0.01)	(0.01)	(0.01)
Technical Education	-0.133	0.195	0.294	-0.082
	(0.25)	(0.24)	(0.25)	(0.23)
Professional Education	0.043	-0.215	-0.165	-0.187
	(0.17)	(0.16)	(0.17)	(0.16)
Tosepan Cooperative Membership	-0.374**	-0.564***	-0.457**	-0.448***
	(0.18)	(0.17)	(0.18)	(0.17)
Maseual Identification	0.408**	0.212	0.118	0.261
	(0.20)	(0.20)	(0.21)	(0.19)
Constant	-0.305	-0.332	-0.237	-0.320
R-squared	0.040	0.130	0.098	0.069
N	166	166	166	166

Source: Author's calculation.
Notes: Significance levels: *p $<$ 0.1, **p $<$ 0.05, ***p $<$ 0.01.

7 Conclusion

This paper investigates the behavioral enforcement mechanisms of gendered social norms in the Sierra Nororiental of Puebla, with three primary aims: to elicit prevailing collective expectations regarding the division of unpaid domestic labor, to measure the strength and asymmetry of social sanctions for norm deviations by gender, and to assess how individual beliefs about gender equality shape both conformity and sanctioning behavior. By employing a multi-stage online experiment—combining incentivized norm elicitation, a dictator-game treatment varying norm compliance, and attitudinal measures drawn from the UNDP Gender Social Norms Index—we designed a framework capable of capturing both implicit and explicit dimensions of gender bias and normative enforcement in a highly gendered context.

The empirical findings confirm that the social norms surrounding domestic labor are prescriptive in nature and disproportionately assign responsibility to women over men. However, beyond the normative content itself, the central contribution of this study lies in the identification of a relational and hierarchical sanctioning system that applies the same rule unevenly, depending on the sex of the norm violator, the direction of the deviation (whether toward a more egalitarian or more traditional arrangement), and the normative profile of the person imposing the sanction.

One of the most revealing findings is that women, including those who express egalitarian normative beliefs, tend to impose harsher sanctions on men who advocate for a more equitable distribution of domestic labor than on women expressing similar views. This asymmetrical enforcement suggests that it is not only what is said that matters, but who says it, reinforcing the notion that normative authority is gendered. The study also identified a disjunction between self-declared attitudes and behavioral responses, since, even when many participants claimed to support gender equality, they penalized behaviors aligned with that position when those behaviors were perceived as norm violations.

Sanctions were especially severe when the deviation involved men doing a significant share of household tasks, indicating a deep internalization of tradi-

tional norms. In other words, participants were not only sanctioning the failure to meet traditional expectations, but also the act of surpassing them. This reveals a logic of normative reproduction that persists even when it contradicts the immediate practical interests of the sanctioning group. Such a paradox underscores the symbolic and collective dimension of social norms, which transcends individual cost-benefit calculations.

Theoretically, the findings bridge identity-based models of utility with social-norm enforcement by demonstrating that sanctions function not only as deterrents but also as expressive signals reinforcing gender hierarchies. By contrasting implicit behavioral penalties with declared egalitarian beliefs, economic models that treat norms as homogeneous constraints were challenged, instead highlighting their relational and hierarchical nature. Empirically, the novel combination of incentivized coordination and dictator-game treatments in gendered issues provides a rigorous approach to disentangling prosocial motives from normative punishments, offering a template for future experimental investigations in similar settings.

Nonetheless, the study bears limitations. The reliance on an online respondent-driven sampling strategy yielded a predominantly female sample, constraining the robustness of male-focused comparisons and the generalizability of gender-interaction effects. Moreover, while the experimental design isolates sanctioning mechanisms in a stylized setting, it does not capture long-term dynamics of normative change or the potential role of repeated interactions. Finally, digital access constraints may have excluded the most marginalized community members, potentially biasing the measurements of collective expectations.

Building on these insights, future research should pursue longitudinal designs to observe how sanctions evolve as norms shift, extend experimental treatments to include network-based interactions and reputation effects, and incorporate qualitative methods to contextualize sanctioning motives. Comparative studies across regions with varying degrees of market integration and community cohesion would also elucidate the external validity of the behavioral findings.

To conclude, this study underscores that gender norms endure not merely through internal beliefs but through active enforcement by community members—often women themselves—thereby perpetuating inequalities even in the absence of formal barriers. Recognizing and targeting these enforcement mechanisms is thus indispensable for any policy aiming to foster genuine gender equity. Only by illuminating how and why individuals punish deviation can we design interventions that loosen the invisible chains of expectation and open pathways toward a more just distribution of both paid and unpaid labor.

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