From Margins to Mainstream? Gender Discrimination in Digital Marketplaces

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Digital marketplaces hold the promise of reducing traditional barriers to firm growth in developing economies by lowering search costs, expanding access to geographically dispersed buyers, and reducing dependence on face-to-face interactions (Goldfarb and Tucker, 2019; Alhorr, 2024). These features are particularly important for women, who often face mobility restrictions and social norms that limit their participation in brick-and-mortar markets (Cheema et al., 2019; Barbanchon et al., 2021; Field and Vyborny, 2022; Bursztyn et al., 2020). Yet women's entrepreneurial presence online remains limited, often confined to small-scale, subsistence-oriented activity, and digital platforms expose them to new risks, including harassment and discrimination by customers (Schoar, 2010; Asad et al., 2025). Whether these marketplaces expand or constrain opportunities for women entrepreneurs therefore depends critically on the behavior of buyers. If customers systematically treat women-led firms differently from men-led firms, this can translate into lower revenues, higher exit, and missed opportunities for firm growth.

This project investigates customer-driven gender discrimination in Pakistan's largest social commerce platform, Facebook Marketplace. While most studies of customer discrimination focus on workers, this project shifts attention to entrepreneurs, who set their own terms of trade but remain dependent on buyers' willingness to engage. We examine whether women entrepreneurs face pecuniary penalties, such as fewer inquiries, lower offers, or lower transaction completion rates, as well as non-pecuniary costs, including unsolicited advances and harassment. By analyzing these frictions, we seek to understand how gender interacts with market access and competition.

The study combines marketplace data with a large-scale randomized audit experiment to provide comprehensive evidence on barriers to women's participation in digital commerce. We construct a nationwide dataset of listings on Facebook Marketplace in Pakistan. We collect data on sellers—including gender, responsiveness badges, and ratings—as well as on product details such as titles, descriptions, prices, discounted prices, and images. We process millions of product listings, applying large language models (LLMs) to reclassify products into harmonized categories and to extract standardized product attributes and construct indices of quality

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and marketability from listing descriptions and images. The resulting dataset provides novel evidence on pricing and engagement in a large informal social commerce market that is central to firm growth in low-income settings. We document gender differences in digital market participation, with a focus on product selection, pricing strategies, and credibility and reputation signals. Findings from this dataset also inform the audit experiment.

The audit experiment lists identical products under male and female seller profiles, varying only the gender signaled by names and pictures. For profile pictures, we create twin profile pairs that vary only in gender-specific attributes while holding constant age, facial expression, camera angle, skin tone, hair color, and clothing colors. These image pairs are validated by independent raters to ensure that they appear realistic, comparable in attractiveness, and identical along all non-gender dimensions. To separate mechanisms of customer discrimination, we experimentally vary the information included in listings. Some listings provide minimal information, while others include standardized, detailed descriptions that eliminate ambiguity about product quality and transaction terms. If gender gaps narrow when full information is provided, this pattern is consistent with statistical discrimination. Distinguishing between statistical and taste-based discrimination is critical for intervention design: informational remedies may address belief-based gaps but are unlikely to mitigate discrimination rooted in preferences. In addition, by tracking variation in listing visibility and engagement conditional on identical products and randomized gender signals, we examine whether platform ranking and recommendation systems systematically amplify or attenuate gender-based disparities. These mechanisms are particularly salient in low-income settings, where digital marketplaces are becoming an important margin of entry into non-farm self-employment for women.

The project also explores heterogeneity in discrimination across markets of varying thickness. Economic theory suggests that competitive pressure in thicker markets should reduce the scope for discrimination, since biased buyers risk losing out to others who prioritize price and quality. Yet if some buyers derive utility from engaging with female sellers in non-serious or harassing ways, market thickness may not reduce—and could even exacerbate—the effective costs faced by women. By mapping activity across Pakistan's 38 divisional markets and leveraging the platform's local radius and shipping features, we examine how discrimination interacts with local competition.

At present, the project is in an intensive phase of administrative data collection and analysis. We are documenting the distribution of listings, seller composition, market thickness, and entry–exit dynamics. This work establishes the baseline needed to stratify the experimental randomization and to measure how outcomes vary with market structure. We have created and tested experimental seller profiles, developed standardized templates for product descriptions and photos, and finalized protocols for interacting with buyers. Pilot listings are being used to refine bargaining scripts, shipping logistics, and message-handling rules, as well as to validate the coding of harassment and other non-pecuniary outcomes.

The study anticipates to contributes to a growing body of literature on discrimination in

digital economics, extending insights from ridesharing, retail, and service platforms to social commerce platforms, where informal market norms may amplify inequities (Edelman and Luca, 2014; Ge et al., 2016; Doleac and Stein, 2013; Hannák et al., 2017). While much of the existing literature on customer discrimination has focused on the treatment of workers (Leonard et al., 2010; Bar and Zussman, 2017), relatively little research has examined discrimination against entrepreneurs, particularly with respect to gender. Most prior work has focused on racial discrimination (List, 2004; Doleac and Stein, 2013), leaving gender-based discrimination largely unexplored. Building on this gap, we focus on customer-driven discrimination against entrepreneurs and examine how these dynamics affect female micro-entrepreneurs in digital marketplaces. Our design builds on recent innovations in identity revelation in online settings (Evsyukova et al., 2025) and allows us to distinguish taste-based from statistical discrimination, drawing on foundational theories of biased behavior (Becker, 1957; Phelps, 1972). We also examine how market thickness shapes discriminatory interactions, building on predictions that competition can alter the prevalence and incentives for discrimination (Becker, 1957; Arrow, 1973; Coate and Loury, 1993; Levine and Modica, 2016). Finally, the study contributes to concerns about algorithmic discrimination by examining whether platform ranking and visibility mechanisms differentially affect male and female sellers (Sandvig et al., 2014; Lambrecht and Tucker, 2019; Goldfarb and Tucker, 2019; Imana et al., 2021).

The policy relevance of this study is immediate. The analysis identifies concrete frictions—such as discriminatory buyer behavior or algorithmic bias—that limit women's market participation. If discrimination is belief-based, interventions that reduce ambiguity—through standardized listings, trusted-seller badges, or enhanced reputation systems—may help level the playing field. If discrimination is taste-based, broader competition opportunities may be more important, but additional safeguards against harassment may also be necessary to reduce participation costs. If disadvantages arise in part from algorithmic discrimination, the evidence would guide changes to platform design, such as adjusting ranking weights to avoid systematically penalizing female-led sellers. These findings inform both platform design and public policy aimed at supporting female-led micro and small enterprises in digital markets.

By documenting the extent, nature, and sources of customer-driven discrimination, this project provides evidence on how digital platforms can either reinforce or relax long-standing gender gaps in firm outcomes. As digital commerce continues to expand across the developing world, understanding these demand-side constraints is critical for realizing the promise of online markets to democratize entrepreneurial opportunities and to support broader processes of development.

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