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ADBI Working Paper Series

**ELIMINATING GENDER DISPARITIES
IN FIRM PERFORMANCE IN INDIA:
CAN GLOBALIZATION BRIDGE THE GAP?**

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Abstract

A growing literature is investigating the nature and size of the disparities in the performance of firms led by men and women. The extant literature in this regard is inconclusive and provides support for both the women's under-performance hypothesis and the superior performance of women-led firms. A noticeable feature of the available literature is the heterogeneity of results across regions, which provides the rationale for country-specific studies. The purpose of this study is to establish whether there is a performance gap between women- and men-led firms in the Indian context and to what extent globalization contributes to this gap. Using data from the World Bank Enterprise Survey of 9376 firms, the present study finds that firms with a female top manager exhibit higher mean labor productivity and a higher level of internationalization than firms with a male top manager. For a pooled sample of men- and women-led firms, the study finds a positive impact of export intensity, global value chain (GVC) participation, and foreign ownership on firm performance. The positive impact of export intensity and GVC participation is, however, larger for firms with female managers. The findings further reveal that having a female top manager positively moderates the relationship between exports and firm performance and GVC and firm performance. In other words, women-managed businesses are able to harness greater productivity gains from exporting and GVC participation than men-managed businesses. The Oaxaca–Blinder decomposition analysis of the labor productivity gap between women- and men-managed firms also shows that not only the levels of export intensity and GVC participation but also the returns from such participation contribute to the higher productivity of women-led firms over men-led firms.

Keywords: gender disparities, firm performance, women-managed firms, globalization

JEL Classification: F2, F6, L2

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1. INTRODUCTION

Globalization is widely seen as an engine of economic growth for developing countries. The implications of globalization for gender disparities have, however, yet to be assessed comprehensively. A segment of the empirical literature provides evidence that forces of globalization promote gender equality by augmenting employment opportunities for women (Banerjee and Virmani 2017). On the contrary, another strand of literature lends support to the idea that exports and foreign investments increase competition, which increases discriminatory behavior against women as wage earners (Yahmed 2012; Gaddis and Pieters 2017). The extant literature, however, does not shed much light on the intersection of globalization and women as business owners/managers.

There is a wide consensus that women are significantly underrepresented in entrepreneurship and business management (Guzman and Kacperczyk 2019). The disparity between female and male entrepreneurs and managers is especially large among high-growth ventures, with women representing a small share of founders achieving high-growth equity outcomes, including initial public offerings (Robb, Valerio, and Brent 2014). Female entrepreneurs/managers are also reported to operate in relatively small firms and less profitable sectors, with constrained access to inputs (Shastri, Shastri, and Pareek 2019). Conversely, a segment of the literature suggests that there are no significant differences in the performance of women-led and men-led businesses, and in many cases women-managed businesses perform better than those of their male counterparts (see, e.g., Allison et al. 2015; Martínez-Zarzoso 2023). As noted by Allison et al. (2015), female business owners face greater obstacles in their business environment and thus have to exert considerable energy to overcome them. This exaggerated effort leads businesses owned/managed by women to perform better than those of their male counterparts. The debate on the performance gap between men- and women-led businesses remains unsettled, and the results seem to vary considerably across regions. It is therefore important to understand the gender disparities in firm performance in country-specific contexts and to identify the drivers of this gap.

Among the various factors, the literature emphasizes the importance of globalization as a key driver of firm performance. Numerous studies show that firms that export tend to be larger, grow faster, and be more innovative than those that do not (Beckton and McDonald 2020). While a few studies discuss the participation of women-led enterprises in exports (see, e.g., Marques 2015; Shepherd and Stone 2017; Garg and Shastri 2022), there is no comprehensive evidence on how exports and other forms of internationalization contribute to the performance gap between men- and women-led enterprises.

From a theoretical perspective, the effect of internationalization on the gender gap in firm performance is inconclusive. Generating returns from internationalization is contingent upon the “owners’ ability to effectively undertake export as value-generating processes such as identifying right opportunities, mobilizing resources and managing risks associated with international operations. Owners, however, might fail to capitalize on their resources if they are susceptible to counterproductive perceptions (i.e. overconfidence) or actions (i.e. intensive engagement in excessively risky or difficult foreign markets)” (Sui, Morgan, and Baum 2022: 3). When this happens, the firms may not reap the benefits of internationalization or may even experience lower performance.

It is observed that female entrepreneurs are less prone to cognitive biases, such as overconfidence (Huang and Kisgen 2013). They plan market entry meticulously and enter markets that offer a beneficial profit-to-risk ratio, thereby mitigating the related risks more effectively than their male counterparts (Sui, Morgan, and Baum 2022). Furthermore, international markets for female firm owners act as avenues to “circumvent discrimination in the domestic market” (Osgood and Peters 2017). These arguments suggest that businesses led by women may make more of the international activities in terms of profitability than those led by their male counterparts. Globalization may therefore act as an instrument to drive the performance of women-led enterprises and bridge the performance gap between women- and men-owned enterprises (if any).

On the contrary, it is also claimed that female entrepreneurs face distinct challenges and barriers that prevent them from making internationalization a value-generating process. For instance, women-owned firms self-select into conventional sectors and have a smaller size and low mean productivity (Bardasi, Sabarwal, and Terrell 2011). Women also have less access to business networks and therefore end up learning less than men about foreign markets. Hence, the internationalization experience as well the outcome of internationalization may be different as well as difficult for female entrepreneurs/managers and may not result in favorable outcomes for the performance of women-led firms (Bates 2002).

The mixed theoretical predictions suggest that the linkages between globalization and the performance gap between men- and women-owned enterprises is essentially an empirical issue. The present research is an attempt to examine the relationship between globalization (proxied by the internationalization activities of firms) and the performance gap between men- and women-led enterprises in the context of the Indian economy. In particular, the study seeks to answer the following questions:

- a. Are there any performance gaps between women- and men-led firms in India?
- b. Does globalization contribute to the performance gap between men- and women-led enterprises?
- c. Does the gender of the firm’s leadership matter for the globalization and firm performance link?

In the pursuit of answers to the above questions, the study tries to document systematic evidence on the links between globalization (proxied by the internationalization activities of firms) and the gender performance gap by probing along two lines. First, using the Oaxaca–Blinder decomposition technique, the study investigates the contribution of firms’ internationalization activity to their performance. This is the first study that the author is aware of that decomposes the performance gap to investigate the impact of internationalization. The study also investigates whether the gender of the firm leader moderates the relationship between internationalization and firm performance. Contrary to the past research, which mostly focuses on exports as a proxy for internationalization, we consider export participation, participation in global value chains (GVCs), and foreign ownership as dimensions of internationalization. Second, the existing literature on women-led firms’ export behavior mainly concentrates on advanced economies (Orser et al. 2010; Garg and Shastri 2022), neglecting other contexts. Recent works in the entrepreneurship literature have a greater focus on “context.” Context is a foreground actor in the entrepreneurial process and offers deeper insights that can explain seemingly anomalous results (Welter 2011). The empirical context of the present study is a developing economy: India. In a patriarchal context such as India, women experience challenging lives due to social restrictions (Shastri et al. 2021). Gender in such contexts often serves as a barrier to

the operations and growth of a business, making the transition from a homemaker to a sophisticated businesswoman difficult.

The remainder of the article is organized as follows. In Section 2, I review the extant literature on internationalization and firm performance; the performance gap between women- and men-led firms; and the intersection of internationalization and women-owned/managed firms. In Section 3, I describe the dataset and define key variables along with the methodology. Section 4 presents the key findings from the empirical analysis. Finally, Section 5 discusses the findings and concludes the study with policy recommendations.

2. REVIEW OF THE EMPIRICAL LITERATURE

2.1 Internationalization and Firm Performance

Following the work of Bernard, Jensen, and Lawrence (1995), a large body of literature reports a correlation between exports and firm productivity. This correlation may, however, come about through two alternative mechanisms. On the one hand, the “self-selection” hypothesis, as suggested by Melitz (2003) and Helpman, Melitz, and Yeaple (2004), purports that productivity is immutable and hence more productive firms self-select into exporting. On the other hand, the advocates of “learning by exporting” suggest that, once a firm enters the global market, its productivity increases as a result of exposure to better technology, competitive pressure, and scale effects (Bernard and Jensen 1999; Sharma and Mishra 2011). Against the backdrop of these two contrasting views, the empirical literature reveals mixed findings. The majority of the evidence supporting the self-selection theory is linked to research conducted in industrialized nations. In these countries, firms use advanced technology that is similar to that of their trade partners, which offers little scope to learn from international exchange (Harrison and Rodriguez-Clare 2010). Exporting may be particularly beneficial for firms from developing economies as it involves “exposure to global technology, sophisticated inputs, and the pressure to produce quality output” (Gupta, Patnaik, and Shah 2019). The evidence for “learning by exporting” for developing countries is documented by various authors (see, e.g., Van Biesebroeck 2005; Rankin, Söderbom, and Teal 2006; Goldberg et al. 2010; Bustos 2011; Newman et al. 2016; Lesseri and Salum 2022).

Apart from exports, integration into global value chains (GVCs) has become a new form of internationalization and a driving force for economic growth in developing countries. Evidence suggests that GVCs are a conduit for technology transfer and knowledge spillovers. These advantages are particularly beneficial to local firms through pooling knowledge with foreign suppliers and using a variety of high-quality foreign services and input. A growing body of empirical research suggests that GVC participation boosts firm performance through the aforementioned channels (see, e.g., Bas and Strauss-Kahn 2014; Constantinescu, Mattoo, and Ruta 2017; De Prete, Giovannetti, and Marvasi 2017; Binh, Wingender, and Gueye 2020).

Firms’ internationalization activity may also take the form of foreign investment. Foreign ownership has long been considered a possible driver of productivity growth (Djankov and Hoekman 2000; Dimelis and Louri 2002). On account of the association of foreign investors with advanced economies, many studies find that foreign ownership contributes to firm performance through technological and managerial knowledge diffusion (Jefferson et al. 2003; Javorcik 2004; Wei, Xie, and Zhang 2005; Spencer 2008; Liu, Wang, and Wei 2009; Zhang et al. 2010; Carney et al. 2019; Teng, Chengchun, and Sailesh 2021).

2.2 Gender Disparities in Firm Performance

There is growing academic interest in the entrepreneurship and management literature in examining the gender gaps in firm performance. Though a number of studies investigate the links between business leaders' gender and business outcomes, no consensus is reached. A strand of literature suggests that businesses led by women tend to perform worse than those of their male counterparts. In this regard, the constraint-driven gaps view suggests that women face more constraints (e.g., in terms of access to finance, gender-biased legal treatment, crime and corruption, etc.), which have a disproportionately larger adverse impact on women. This view aligns with the liberal feminism view, which purports that men and women are essentially equal (Orser, Riding, and Townsend 2004) and that any differences between them are the result of discrimination or structural barriers.

Conversely, the "preference-driven gap" view purports that women tend to prefer specific activities in services and trade and choose to operate at a smaller scale. In this case, individual choices explain the lower participation and success of women in entrepreneurship. This view overlaps with the social feminist approach, which suggests that the managerial approaches of men and women differ on account of the difference in their patterns of socialization. In line with these arguments, a number of studies empirically support the female under-performance hypothesis. A number of country-level studies (see, e.g., Kilic, Palacios-Lopez, and Goldstein 2014; Aguilar et al. 2015; Palacios-Lopez and Lopez 2015; Ali et al. 2016) suggest significant productivity gaps along gender lines in the agriculture sector. A segment of literature explores performance gaps in men- and women-led enterprises in non-agricultural formal firms. Bardasi, Sabarwal, and Terrell (2011) find that women-owned enterprises have lower mean productivity than men-owned enterprises in Latin America and the Caribbean and in Europe and Central Asia. Islam et al. (2018) undertake a global analysis of gender disparities in labor productivity in the formal private sector of developing economies, revealing that women-managed firms are about 11% less productive than men-managed firms. In a similar analysis for informal firms, Islam and Amin (2022) show that labor productivity is approximately 15% lower among women-owned than men-owned informal firms. The decomposition analysis suggests that lower education, lower experience, low capital intensity, and greater exposure to crime among female owners contribute to this productivity gap.

Another strand of literature, however, refutes the hypothesis of under-performance of female entrepreneurs. For instance, Bardasi, Sabarwal, and Terrell (2011) report that women-owned firms in Africa are as productive as men-owned firms. Allison et al. (2015) find that women-owned firms exhibit higher productivity than their men-owned counterparts and that there are no significant gender differences in terms of sales growth. The findings reveal that, despite experiencing more obstacles, women-owned firms perform better. The results could be connected to the strand of literature that emphasizes that women have to perform better to achieve a similar job status to men. In a more recent work, Martínez-Zarzoso (2023), utilizing firm-level data across developed and developing countries, finds that firms exhibit greater productivity when they have a female top manager.

2.3 Gender and Firm Internationalization

The process of internationalization critically depends on the personal traits and attitudes of firm managers and owners (Marques 2015; Akter, Rahman, and Radicic 2019). On account of these observations, the intersection of internationalization and

women-led firms is gradually receiving greater attention from scholars. The previous studies in this domain are predominantly qualitative and mostly focus on advanced economies. Furthermore, the existing studies deal only with the export propensity of women-led firms. The early qualitative studies suggest that Canadian women-owned firms lack “export readiness” and exhibit a lower export likelihood (see Grondin and Grondin 1994; Grondin and Schaefer 1995). On the contrary, Reavley, Lituchy, and McClelland (2005) find that gender does not pose a challenge to women-owned firms’ export participation in Canada and Ireland. Shepherd and Stone (2017), in a global assessment using the World Bank Enterprise Survey, suggest that women-owned firms are more likely to export and import than their men-owned counterparts. A survey-based study using Canadian data does not report any direct effect of gender on exports but claims that the immigrant status of the entrepreneur, firm size, and sector (Spence et al. 2011) have a moderating effect with gender. Furthermore, a cross-country analysis by Marques (2015) for developing countries reports an indirect effect of gender on export likelihood through the channels of firm location, sector, and availability of credit. Analyzing extensive quantitative data from Korean firms, Lee, Paik, and Uygur (2016) find innovation and marketing capabilities to have mediation effects in the nexus between gender and export performance. Osgood and Peters (2017) employ a cross-country dataset of firms and show that, though there are significantly fewer women-led exporting enterprises in countries with discriminatory institutions, these firms tend to export at higher rates. Global markets thus provide an alternative to markets with poor protection of women’s rights. Garg and Shastri (2022) report a direct negative impact of the gender of the firm owner on export likelihood in India in the sense that majority women-owned enterprises are less likely to export. However, once a firm commences exporting, the choice of export mode and the export intensity are not affected by the owner’s gender. Gender of ownership, though, plays a role in export market diversification with majority women-owned firms having concentrated export markets. Audretsch et al. (2022), for 75 developing countries, suggest that the presence of a female CEO has no direct effect on a firm’s international activity.

The above review reveals that the available studies only discuss the role of the gender of firms’ owner/leader in determining the export likelihood and fail to shed light on the performance of women-led firms once they engage in internationalization. To the best of the author’s knowledge, only Sui, Morgan, and Baum (2022) provide evidence that women-owned exporting firms achieve superior financial performance when they adopt an intensive export strategy. The results hold in the Canadian context and require validity in other contexts. The present study is an attempt to bridge this gap.

3. DATA AND METHODOLOGY

3.1 Data and Main Variables

The study utilizes data from the recent wave of World Bank’s Enterprise Survey (wave December 2021–September 2022) for India. The survey provides information regarding 9376 firms located in different regions of India for various indicators, such as firm size, age, performance, ownership characteristics, internationalization status, and constraints faced during business operations.

The outcome variable in the present study is firm performance. In the extant literature, firm performance is typically measured using both financial and non-financial measures (Fowowe 2017). Financial measures are usually proxied by profit, revenue, returns on investment, returns on equity, earnings per share, and Tobin’s q (Dezső and Ross

2012; Flabbi, Piras, and Abrahams 2017; Wu, Yao, and Muhammad 2017). It is argued that, though financial measures are objective and easy to understand, they may be subject to manipulation and incompleteness (Fowowe 2017). Non-financial measures are usually proxied with employee growth, sales per employee, market share, and customer satisfaction. These measures have the limitation of being subjective (Fowowe 2017). Due to the inherent limitation in both measures, combining them is an ideal approach (Nyeadi, Kamasa, and Kpinpuo 2021). However, due to the unavailability of information on financial measures in the World Bank Enterprise Survey (WBES), I use labor productivity (defined as sales per worker) as a measure of firm performance. Labor productivity is widely used as a measure of firm performance in studies using the WBES and thus facilitates comparison with past studies on gender disparities in firm performance (Islam et al. 2018; Islam and Amin 2022; Martínez-Zarzoso 2023).

The previous studies investigating gender disparities in firm performance determine the gender variable by considering whether there is a female owner or whether the majority of ownership lies with a male or female owner. However, in view of the observations made by Martínez-Zarzoso (2023), it is crucial to distinguish between female managers and female owners. The WBES provides information on the “percent of ownership with women owner” and “whether the top manager of firm is male/female.” A number of studies employing the WBES use the ownership and management by women interchangeably in view of the high correlation between the two in the sense that firms with majority ownership by women happen to have a female top manager (e.g., in the case of Islam et al. (2018), the correlation is as high as 0.96). However, in the sample of Indian firms, this correlation is as low as 0.28. Hence, in this paper, I focus on the gender of the top manager to classify the firm as being led by a woman or a man since the decision maker and the person responsible for the performance of the firm is the firm manager (Martínez-Zarzoso 2023). The variable *Gender* is defined as a dummy taking the value one if the top manager of the firm is female and zero otherwise.

The internationalization of the firm is captured along three dimensions—participation in exports, participation in global value chains, and involvement in foreign ownership. I capture the degree of export participation through export intensity, which measures the share of direct exports in a firm’s total sales. The WBES database does not allow for measuring the extent or degree of a firm’s involvement in GVCs through the construction of a GVC participation or position index. However, the available information enables me to identify the status of a firm as a GVC participant or non-participant. Following Rigo (2021), I identify a GVC participant as a two-way trader (i.e., exporting and importing simultaneously). This definition is also consistent with the recent macro literature that emphasizes GVC involvement as production sharing between two or more countries, that is, when intermediate goods are both imported and exported (see, e.g., Koopman, Wang, and Wei 2014; Baldwin and Lopez-Gonzalez 2015; Los, Timmer, and de Vries 2016). The variable *GVC* in the model takes the value one if the firm is involved in both exports and imports simultaneously and zero otherwise. The variable *ForeignOwnership* measures the proportion of private foreign ownership in the firm.

The study accounts for several other factors that are found to be important for firm performance in the literature. *Firm size* is measured using the logarithm of the number of employees. *Firm age* refers to the number of years for which the firm has been in existence. It is calculated as the difference between the year of the survey and the year when the firm was incorporated. Access to finance (*Fin*) is captured as access to loans from financial institutions. It is a binary dummy variable that takes the value one if the firm has access to loans from financial institutions and zero otherwise. To account for human capital, the variable *Experience* captures the years of experience of the top

manager and whether the firm offers formal training (captured through the dummy *Training*). The dummy *Website* (equal to one if the firm has a website and zero otherwise) is used as a proxy for the firm's access to telecommunications infrastructure, which is key in explaining firm growth across many studies (Harrison et al. 2014). The variable *Sector* is another dummy that indicates whether the firm belongs to the manufacturing sector or to retail and services. Finally, to account for the effect of the institutional environment on firm performance, two dummies are introduced—*Corruption* takes the value one if the firm has expectations of providing gifts to public officials to achieve things and zero otherwise. *CrimeLosses* captures the effect of law and order. It takes the value one if the firm has witnessed any losses due to the incidence of crime and zero otherwise.

Summary statistics of all the variables used are provided in Appendix Table A1. Table A2 reports the correlation matrix. The gender variable is positively correlated with firm performance as well as the internationalization variables. We observe no correlation coefficients greater than 0.50 between any two independent variables, suggesting that multicollinearity is not an issue.

3.2 Methodology

The present study seeks to investigate the link between internationalization and firm performance and to examine the moderating effect of the gender of firm leaders on the internationalization–performance link. To this end, the following linear regression is estimated:

$$P = \alpha + \beta_1 X + \beta_2 G + \beta_3 Int + \beta_4 Int.G + \epsilon \quad (1)$$

In the above equation, firm performance (P) is regressed on the gender of the firm's top manager (G), the internationalization activity (Int), and the vector of various firm-specific and business environment-related factors (X). The interaction term between the gender of the firm's top manager and its internationalization status ($Int.G$) captures the moderating effect of the manager's gender on the firm performance and internationalization nexus. A positive coefficient of the interaction term indicates that internationalization results in higher returns to the firms managed by women. This suggests the role of globalization as a potential contributor to the superior performance of women-led firms.

To explain the performance gap between women- and men-led firms, the study employs Oaxaca–Blinder decompositions. The decomposition analysis allows me to illuminate the contributions of various factors to the gender gap in firm performance. The factors can be decomposed into endowment and structural effects. “Endowment effects refers to the attributes or incidence of certain factors experienced by the firm, whereas the structural effect refers to the returns to these attributes or factors” (Islam and Amin 2022: 15).

The decomposition approach can be briefly summarized by first defining the performance measure of women- and men-owned formal firms as follows:

$$P_G = \beta_{G0} + \sum_{j=1}^J \beta_{Gj} X_{Gj} + \epsilon_j \quad (2)$$

where P_G is the measure of firm performance with a manager of gender G . The firm performance is measured using labor productivity growth. X_{Gj} is a vector of j observable factors, comprising the status of international activity (export participation, GVC participation, and foreign ownership), firm-level characteristics (firm size, firm age,

top manager's experience, sector of operation, etc.), and business environment elements (access to finance, law and order of the region, corruption, etc.), which can influence the performance of firms. The subscript G denotes gender, which is a categorical variable taking the value one if the top manager of a firm is a woman and zero otherwise. Regional characteristics are captured by within-country fixed effects. Taking the difference in the expected value of the log performance of women- and men-managed firms, we obtain the gender performance gap (D) as follows:

$$D = \underbrace{\sum_{j=1}^J [E(X_{Fj}) - E(X_{Mj})] \beta_{Fj} + \beta_{F0} - \beta_{M0}}_{\text{Endowment Effect}} + \underbrace{\sum_{j=1}^J [(\beta_{Fj} - \beta_{Mj}) E(X_{Mj})]}_{\text{Structural Effect}} \quad (3)$$

Endowment Effect

Structural Effect

The goal of the analysis is to estimate the two components shown in equation (3) for each determinant (X) of firm performance.

4. EMPIRICAL RESULTS

4.1 Mean Differences between Female- and Male-Managed Firms

Table 1 reports the descriptive statistics and means tests of key variables between women-managed and men-managed firms.

Table 1: Descriptive Statistics and Test of Mean Difference by Gender of the Top Manager

	Firms with a Female Top Manager	Firms with a Male Top Manager	p Val.
Log(Labor Productivity)	14.477	14.356	0.030
Log(FirmSize)	3.945	3.617	0.000
Log(FirmAge)	2.859	2.854	0.976
Finance	0.283	0.104	0.000
Experience	18.593	17.832	0.000
Training	0.176	0.132	0.000
Website	0.684	0.600	0.000
Export Intensity	11.520	5.470	0.000
GVC	0.185	0.095	0.000
Foreign Ownership	1.238	0.409	0.000
Sector	0.517	0.594	0.000
Corruption	0.588	0.512	0.000
Crime Losses	0.020	0.022	0.756

Note: The total number of firms in the sample is 9376, out of which 7% have a woman as their top manager.

Source: Author's calculation using data from the World Bank Enterprise Survey.

The averages of various firm characteristics measured over the gender of the top manager refute the women's under-performance hypothesis. In the present sample, women-managed firms are more productive than men-managed firms. There is a statistically significant (at the 5% level) unconditional gender productivity gap, with labor productivity being approximately 12% higher among women-managed firms than among men-managed firms. This finding is in contrast to those of Islam et al.

(2018) and Islam and Amin (2022), who report that the gender–labor productivity gap favors men-managed firms. The finding is, however, in alignment with that of Martínez-Zarzoso (2023), who reports higher productivity of women-managed firms than men-managed firms in South Asia. From the table, it is evident that women-managed firms perform better on various characteristics, including size, age, access to finance and telecommunications infrastructure, and human capital. The mean difference is statistically significant for all these variables except for the age of the firm. With regard to the internationalization variables, female-managed firms exhibit higher export intensity, foreign ownership of the firm, and GVC participation. The differences between women- and men-managed firms across the internationalization variables are also statistically significant at the 1% level. Women-managed firms, however, witness greater incidence of corruption than their men-managed counterparts. The difference in corruption incidence is statistically significant at the 1% level. Furthermore, men-managed firms have higher representation in the manufacturing sector than women-managed firms. There is no statistically significant difference regarding the incidence of crime-related losses between the men- and the women-managed firms in the sample.

4.2 Base Regressions and Moderating Effects of Gender on the Internationalization and Firm Performance Nexus

The firm-level regressions of the determinants of firm performance are presented in Table 2. The first model is the basic regression with no interaction terms. In the second model, the interaction terms between gender and internationalization variables are added to investigate the moderating effect of the gender of the top manager on the internationalization and firm performance link.

Regressing the firm performance on the internationalization activity of a firm is fraught with the endogeneity problem; that is, reverse causality from firm performance to internationalization could be present. One solution to this problem that is suggested in the broader literature is to use the average level of exports (or any other internationalization variable) of all the other firms in the same location–industry cell as a proxy for a given firm’s exports (or any other internationalization variable). Since the cell average excludes the firm in question, the usage of cell averages to address the endogeneity problem is popular in the literature (see, e.g., Fisman and Svensson 2007; Aterido, Hallward-Driemeier, and Pages 2011; Amin and Soh 2020). Model 3 in Table 2 reports the regression results in which the cell averages of internationalization variables are used instead of the firm’s own internationalization variables. Model 4 introduces interaction effects while controlling for endogeneity.

The regression results contained in Table 2 suggest that firms’ performance improves when they have a female top manager, when they have a larger size, and when they are led by an experienced manager. Firms’ performance is also positively affected by their access to finance and telecommunications infrastructure (proxied by the firm having a website). In addition, a positive coefficient associated with the *sector* implies that firms belonging to the manufacturing sector have higher labor productivity. Furthermore, the incidences of corruption and losses due to crime exert a negative impact on firms’ performance. Firms’ age and training of employees do not exert any significant impact on their performance.

Table 2: Regression Results

Variable	Model 1	Model 2	Model 3	Model 4
Gender	0.118** (0.054)	0.128*** (0.052)	0.108** (0.054)	0.119** (0.054)
Log(FirmSize)	0.179*** (0.010)	0.179*** (0.010)	0.179*** (0.010)	0.178*** (0.010)
Log(FirmAge)	0.015 (0.019)	0.017 (0.019)	0.016 (0.019)	0.018 (0.019)
Finance	0.380*** (0.040)	0.379*** (0.040)	0.381*** (0.040)	0.372*** (0.040)
Experience	0.002** (0.001)	0.002** (0.001)	0.002** (0.001)	0.002** (0.001)
Training	-0.030 (0.036)	-0.024 (0.036)	-0.034 (0.036)	-0.028 (0.036)
Website	0.388*** (0.026)	0.387*** (0.026)	0.385*** (0.026)	0.385*** (0.026)
ExportIntensity	0.004*** (0.000)	0.004*** (0.000)	0.010*** (0.003)	0.010*** (0.003)
GVC	0.234*** (0.055)	0.154*** (0.058)	0.367*** (0.046)	0.367*** (0.046)
ForeignOwnership	0.005*** (0.002)	0.006** (0.002)	0.078** (0.031)	0.061** (0.029)
ExportIntensity*Gender		0.005** (0.002)		0.348*** (0.093)
GVC*Gender		0.737*** (0.168)		0.635*** (0.124)
ForeignOwnership*Gender		-0.007 (0.006)		0.091 (0.986)
Sector	0.190*** (0.025)	0.190*** (0.025)	0.207*** (0.025)	0.209*** (0.025)
Corruption	-0.113*** (0.024)	-0.112*** (0.024)	-0.116*** (0.024)	-0.115*** (0.024)
CrimeLosses	-0.338*** (0.083)	-0.326*** (0.082)	-0.358*** (0.083)	-0.346*** (0.083)
Location Fixed Effects	Yes	Yes	Yes	Yes
R ²	0.120	0.127	0.122	0.125
Adjusted R ²	0.119	0.125	0.121	0.123

Note: Standard errors in parentheses. *** and ** show significance at the 1% and 5% levels.

Source: Author's calculation using data from the World Bank Enterprise Survey.

It can be observed that all three variables of internationalization, namely export intensity, GVC participation, and share of foreign ownership of the firm, have a positive impact on firms' performance. The sign and significance of the coefficients remain consistent even after controlling for endogeneity (as shown in the results of Model 3). To determine whether the effect of internationalization on firm performance depends on the gender of the top manager, in Models 2 and 4, the interaction of the internationalization variables with the gender of the top manager is introduced. It may be observed that the interaction between export intensity and GVC participation and the gender term is positive and statistically significant. This implies that women's leadership positively moderates the relationship between export intensity and firm performance. Women's leadership also positively moderates the relationship between GVC participation and firm performance. However, there is no moderating effect of gender in the case of the relationship between foreign ownership and firm

performance. To ensure that the results are not biased toward large firms due to their possible overrepresentation in the sample, I estimate separate regressions for small, medium, and large firms (following Islam et al. 2018). The regression results are reported in Table A3 in the appendix.

The results show that, similar to the full-sample results, women's leadership positively moderates the relationship between firm performance and export intensity and GVC participation across all firm sizes. There is no moderation effect of gender in the case of the relationship between foreign ownership and firm performance.

Table 3 reports the results of the separate regressions for women-managed and men-managed firms.

Table 3: Regression Results for Female-Managed and Male-Managed Firms

Variable	Female-Managed Firms	Male-Managed Firms
Log(FirmSize)	0.130*** (0.037)	0.180*** (0.010)
Log(FirmAge)	0.139** (0.031)	0.029 (0.019)
Finance	0.781*** (0.109)	0.285*** (0.043)
Experience	0.021*** (0.004)	0.000 (0.001)
Training	-0.182 (0.119)	-0.009 (0.038)
Website	0.598*** (0.107)	0.371*** (0.026)
ExportIntensity	0.023*** (0.005)	0.009*** (0.003)
GVC	0.372*** (0.119)	0.011*** (0.003)
ForeignOwnership	0.179* (0.096)	0.059* (0.033)
Sector	0.399*** (0.094)	0.184*** (0.026)
Corruption	-0.192** (0.096)	-0.108*** (0.025)
CrimeLosses	-0.091 (0.306)	-0.325*** (0.086)
Location Fixed Effects	Yes	Yes
R ²	0.352	0.109
Adjusted R ²	0.340	0.108

Note: Standard errors in parentheses. ***, **, and * show significance at the 1%, 5%, and 10% levels, respectively.

Source: Author's calculation using data from the World Bank Enterprise Survey.

The estimates of the two regressions indicate that firm size, access to finance, owning a website, and belonging to the manufacturing sector positively affect the performance of both women- and men-managed firms. Generally speaking, the coefficients associated with women-managed firms are higher than those of men-managed firms. The incidence of corruption also matters for both women- and men-managed firms and exerts a negative impact on the firm performance. However, losses due to crime only matter for men-managed firms. In the case of women-managed firms, the experience of the manager in the sector and the age of the firm positively influence firm

performance. The coefficients of these two parameters are, however, insignificant in the case of men-managed firms. Comparing the coefficients associated with the internationalization variables, it is evident that export intensity and GVC participation exert positive impacts on firm performance. It is interesting to see that the coefficients of both export intensity and GVC participation are larger for women-managed firms. This lends additional support to the finding that women's leadership produces larger productivity gains from exporting and GVC participation. While the coefficient associated with foreign ownership is significant for the combined sample, it exhibits weak statistical significance under both individual regressions.

4.3 Decomposition Analysis

To explain the performance gap between women- and men-led firms, the study employs Oaxaca-Blinder decomposition.

Table 4: Decomposition Results

	Differential	Endowment Effect	Structural Effect
Log(productivity) of female-managed firms	14.477*** (0.053)		
Log(productivity) of male-managed firms	14.356*** (0.013)		
Difference	0.121** (0.055)		
Log(FirmSize)		0.059*** (0.010)	−0.236* (0.140)
Log(FirmAge)		−0.054 (0.337)	−0.144 (0.210)
Finance		0.050*** (0.009)	0.56*** (0.012)
Experience		0.000 (0.001)	0.372*** (0.080)
Training		−0.004 (0.017)	−0.018 (0.016)
Website		0.031*** (0.004)	0.149** (0.065)
ExportIntensity		0.027*** (0.007)	0.112** (0.055)
GVC		0.015*** (0.005)	0.042*** (0.016)
Foreign Ownership		0.005* (0.003)	−0.002 (0.002)
Sector		−0.013 (0.081)	−0.007 (0.013)
Corruption		−0.009*** (0.003)	0.037 (0.051)
Crime Losses		0.000 (0.005)	0.002 (0.007)
Constant		—	−0.480** (0.200)
Total		0.112*** (0.020)	−0.1156** (0.050)

Note: Standard errors in parentheses. *** and ** show significance at the 1% and 5% levels.

Source: Author's calculation using data from the World Bank Enterprise Survey.

The decomposition output is reported in Table 4. The mean of labor productivity in women-managed firms is 14.477 and that of men-managed firms is 14.356, yielding a productivity gap of 0.121 (statistically significant at the 5% level). The productivity gap is divided into the “endowment effect” and the “structural effect.” As discussed earlier, the endowment effect shows the effect of the incidence of certain factors witnessed by the firm, while the structural effect indicates the returns to those factors. To put it differently, the endowment effect reflects the mean increase in men-led firms’ productivity if they had the same characteristics as women-led firms. The statistical significance of the coefficients associated with firm size, access to finance and telecommunications infrastructure, and incidence of corruption suggests that these characteristics explain the productivity gap between women- and men-led firms. Firm size and access to finance appear to be the biggest contributors to the productivity gap under endowment effects. Amongst the internationalization variables, export intensity contributes 22.3% (0.027/0.121) and GVC participation contributes around 12% (0.015/0.121) to the productivity gap. Looking at the structural effects, it may be noted that the differential effects associated with export intensity and GVC participation are also significant and contribute to the productivity gap. Apart from export intensity and GVC engagement, significant structural contributions to the gap come from access to finance, experience of the top manager, and owning a website. To sum up, the decomposition analysis reveals that women-managed firms’ higher participation in exports and GVCs as well as their returns to the participation both contribute to the productivity gap.

5. DISCUSSION AND CONCLUSION

Both efficiency and human rights arguments state that there must be no disparities between men and women. A growing literature therefore investigates the nature and size of the disparities in performance between men- and women-led firms. The extant literature in this regard is inconclusive and provides support for both the women’s under-performance hypothesis and the superior performance of women-led firms. A noticeable feature of the available literature is the heterogeneity of results across regions, which provides a rationale for performing country-specific studies. The purpose of this study is to determine whether there is a performance gap between women- and men-led firms in the Indian context and to what extent globalization contributes to this gap. To this end, the study utilizes firm-level data from the World Bank Enterprise Survey. The study finds that women-led firms exhibit superior performance in terms of higher mean labor productivity than men-led firms. The study considers three dimensions of internationalization, namely export intensity, GVC participation, and foreign ownership. Women-led firms also exhibit a higher level of participation in internationalization, as reflected in their higher mean export intensity and foreign ownership. For a pooled sample of male- and female-led firms, the study finds a positive impact of export intensity, GVC participation, and foreign ownership on firm performance. The positive impact of export intensity and GVC participation is also larger for female-managed firms. The findings further reveal that having a female top manager positively moderates the relationships between exports and firm performance and between GVC and firm performance. In other words, women-managed businesses are able to harness greater productivity gains from exporting and GVC participation than men-managed businesses. A decomposition analysis of the labor productivity gap between women-led and men-led businesses also shows that not only the levels of export intensity and GVC participation but also the returns from these dimensions of internationalization contribute to the higher productivity of women-led firms.

The findings of the present study refute the hypothesis of under-performance of female-led firms. Our findings are in alignment with those of Allison et al. (2015) and Martínez-Zarzoso (2023), who also report a productivity gap favoring women-led firms. A possible reason for this result could be that patriarchal cultural values in India do not position women as financial providers. As a result, women view entrepreneurship and business leadership as their individual choice rather than a means to make money (Shastri et al. 2021). Women in such contexts are usually motivated and driven by strong intrinsic pull factors, such as to create one's identity, independence, patriotic consciousness, and a sense of giving back to the nation rather than to earn money. A higher sense of purpose and motivation may result in superior performance to that of their male counterparts. Furthermore, women in patriarchal contexts face greater obstacles in the commencement and operation of business. These obstacles often take the form of unfavorable social norms, such as gender stereotyping, which do not view women as business leaders (Shastri, Shastri, and Pareek 2019). Under such circumstances, they develop themselves as highly agentic and proactive in dealing with business-related challenges. Women in such contexts exert considerable energy to overcome these higher obstacles. This exaggerated effort leads women-owned/managed businesses to perform better than those of their male counterparts.

The findings of the present study refute the hypothesis that women-led firms fail to make internationalization a value-generating process. Their superior performance in internationalization may also be a reflection of female leaders' highly agentic behavior in tackling challenges pertaining to internationalization. Moreover, foreign markets happen to be less judgmental and free from the biases that are very much present in the domestic market in patriarchal societies. This implies that exporting may offer female managers an alternative and smoother path to expand and grow. The higher productivity gains from exporting and GVC participation may also come from the fact that female managers are less prone to cognitive biases, such as overconfidence (Huang and Kisgen 2013). They plan their market entry more carefully and move into markets that promise a beneficial profit-to-risk ratio, thereby mitigating the related risks more effectively than their male counterparts. The results of the present study are consistent with those of Sui et al. (2022), who also find a positive moderating effect of gender on export intensity and financial returns to the firm in the context of Canada. The present study also establishes a positive moderating effect on the GVC engagement and firm performance nexus.

The findings of the study have implications for the literature, the government, and female managers. For the literature, the study underscores the importance of internationalization variables as predictors of the productivity gap between men- and women-led firms. From the perspective of policy making, the findings suggest that the promotion and growth of women-led enterprises constitute another normative rationale for India's push toward greater global integration. Policymakers must consider internationalization as an important ingredient of policies to promote women-led businesses. The findings of the study, showing that women operate financially successful export businesses, strongly justify government-sponsored programs, such as export promotion programs, which aim to raise the participation of women in international trade. The efficiency argument also suggests that diverting funds to support the internationalization of women-led businesses would produce higher productivity gains for the economy.

The findings also have implications for female managers. It is often argued that firms started and managed by women are less likely to internationalize than ones owned and managed by men. According to the International Trade Centre (2017), while 40% of small and medium enterprises worldwide are women-owned businesses, only 15% of exporting firms are led by female entrepreneurs. The findings of the present study offer an optimistic perspective on successful internationalization for female entrepreneurs who are willing to internationalize but hesitant to do so.

The limitations of the present study offer scope for future research. First, the results are specific to the Indian context. As noted by Martínez-Zarzoso (2023), the productivity gaps and other differentials in firm characteristics exhibit significant variations across different regions of the world. Hence, the validity of the results requires verification in other contexts. Second, while the present study sheds light on the role of export intensity, GVC participation, and foreign ownership in firm performance gaps, future research may consider other dimensions of internationalization, such as the mode of exports (direct versus indirect), nature of export markets, and export diversification, in the firm performance gaps between men- and women-led firms.

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APPENDIX

Table A1: Summary Statistics

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Gender	9,376	0.071	0.257	0	1
Labor Productivity (Sales per Worker)	9,375	14.339	1.357	0	19.664
Firm Size (No. of Employees)	9,376	3.639	1.360	0.693	11.002
Firm Age (Years)	9,376	2.855	0.735	0	7.615
Export Intensity (Share of Direct Exports in the Firm's Total Sales in %)	9,376	5.942	19.904	0	100
Foreign Ownership (Y/N)	9,376	0.473	4.895	0	100
GVC (Y/N)	9,376	0.101	0.302	0	1
Experience (Years)	9,376	17.833	10.362	0	35
Finance (Y/N)	9,376	0.116	0.320	0	1
Training (Y/N)	9,376	0.134	0.341	0	1
Website (Y/N)	9,376	0.604	0.489	0	1
Crime Losses (Y/N)	9,376	0.226	0.148	0	1
Corruption (Y/N)	9,376	0.517	0.499	0	1
Sector (Y/N)	9,376	0.589	0.492	0	1

Source: Author's calculation using data from the World Bank Enterprise Survey.

Table A2: Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Gender (1)	1						
Log(Labor Productivity) (2)	0.022	1					
Log(Firm Size)(3)	0.061	0.284	1				
Log(Firm Age)(4)	0.000	0.072	0.291	1			
Export Intensity (5)	0.088	0.024	0.090	-0.001	1		
Foreign Ownership (6)	0.063	0.060	0.108	0.045	0.128	1	
GVC (7)	0.075	0.082	0.166	0.013	0.401	0.084	1
Experience (8)	0.016	0.107	0.159	0.453	0.044	0.064	0.050
Finance (9)	0.140	0.108	0.058	0.047	0.174	0.063	0.205
Training (10)	0.034	0.071	0.225	0.076	0.138	0.120	0.138
Website (11)	0.045	0.229	0.319	0.090	0.105	-0.053	0.141
Crime Losses (12)	-0.003	-0.009	-0.024	0.005	-0.079	-0.020	-0.053
Corruption (13)	0.039	-0.022	-0.099	0.017	-0.074		-0.070
	(8)	(9)	(10)	(11)	(12)	(13)	
Gender (1)							
Log(Labor Productivity) (2)							
Log(Firm Size)(3)							
Log(Firm Age)(4)							
Export Intensity (5)							
Foreign Ownership (6)							
GVC (7)							
Experience (8)	1						
Finance (9)	0.086	1					
Training (10)	-0.007	0.203	1				
Website (11)	0.185	0.113	0.185	1			
Crime Losses (12)	-0.160	-0.036	0.016	-0.035	1		
Corruption (13)	-0.025	-0.131	0.231	0.304	0.070	1	

Note: Values in bold are significant at the 5% level.

Table A3: Regression Results by Firm Size

Variable	Small (5–19 Workers)	Medium (20–99 Workers)	Large (100+ Workers)
Gender	0.002** (0.000)	0.128** (0.052)	0.004** (0.002)
Log(FirmSize)	0.249*** (0.042)	0.179*** (0.010)	–0.102** (0.043)
Log(FirmAge)	0.098*** (0.020)	0.017 (0.019)	–0.049 (0.039)
Finance	0.387*** (0.065)	0.379*** (0.040)	0.384*** (0.070)
Experience	0.000 (0.002)	0.002** (0.001)	0.003* (0.002)
Training	0.091 (0.080)	–0.024 (0.036)	–0.032 (0.053)
Website	0.451*** (0.038)	0.387*** (0.026)	0.187*** (0.053)
Export Intensity	0.003** (0.001)	0.004*** (0.000)	0.006*** (0.001)
GVC	0.154*** (0.058)	0.262** (0.138)	0.436*** (0.083)
Foreign Ownership	0.019 (0.013)	0.006** (0.002)	0.002** (0.001)
Export Intensity*Gender	0.001*** (0.000)	0.005** (0.002)	0.05*** (0.008)
GVC*Gender	0.521*** (0.082)	0.737*** (0.168)	0.881*** (0.208)
Foreign Ownership*Gender	–0.002 (0.007)	–0.007 (0.006)	–0.015 (0.018)
Sector	0.073** (0.037)	0.190*** (0.025)	0.325*** (0.053)
Corruption	–0.114*** (0.020)	–0.112*** (0.024)	–0.125*** (0.046)
Crime Losses	–0.338*** (0.083)	–0.326*** (0.082)	–0.619*** (0.142)
Location Fixed Effects	Yes	Yes	Yes
R ²	0.090	0.127	0.096
Adjusted R ²	0.086	0.125	0.090

Note: Standard errors in parentheses. *** and ** show significance at the 1% and 5% levels.

Source: Author's calculation using data from the World Bank Enterprise Survey.