

RESEARCH PAPER

Gender of the Firm Owner and Export Determinants of the Firms in India: an Empirical Analysis

Purujit Arun¹, Roopa Patavardhan^{2*} and Kshama, A.V.²

Department of Economics, Christ University, Bengaluru, Bannerghatta Road Campus, Bannerghatta Main Road, Hulimavu, Bengaluru, Karnataka, India

*Corresponding author: patavardhan.kr@gmail.com (ORCID ID: 0000-0002-6050-7343)

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ABSTRACT

This study aims to analyse the factors that influence the export decision of firms in India. These factors are unorthodox to the macroeconomic variables, for example, specific firm characteristics and resource stock variables that an enterprise in India may or may not have command over. The most significant of the firm characteristic variables is the gender of the firm owner. Given the binary identity of the explained variable (Export Status of a Firm), the paper uses Binary Logistic Regression. It reports the odds ratio for the individual variable interpretation. The study has also examined descriptive findings and model fit using the Hosmer. The study ceases a statistically significant relationship between the gender of the firm owner and the export decision of a firm. The odds of the firm being an exporter increases when the firm owner is a female. Further, the study also interprets several firm characteristics and resource stock variables that had an impact on the export decision of a firm in India.

HIGHLIGHTS

- ① The research paper examines the relationship between gender ownership of firms and export propensity in Indian micro, small, and medium enterprises (MSMEs).
- ② It analyzes various firm characteristics and external factors to understand their impact on export decisions.
- ③ Findings indicate that female-owned firms are more likely to export, highlighting the positive contribution of women's entrepreneurship to India's economy.
- ④ The paper highlights the importance of nurturing Indian female firm owners in the international business ecosystem.

Keywords: Binary Logistic Regression, Exports, Gender, Firm Characteristics, Resource Stock, and Policies

The concept of international trade has been ubiquitous for centuries. But the rich subject matter started to develop since the onset of mercantilism and their bullionist theories of the 16th century. Later the trade theories of Adam Smith, David Ricardo, Edgeworth, and Alfred Marshall deliver the importance of a nation's exports (Dominick, 2014). India has not had a first-mover advantage in terms of global participation; however, in 2020 - 2021, the manufacturing and service sector firms have been able to hand out a cumulative G.V.A. of 179.15 lakh crore to the Indian economy (Ministry of Finance, 2022). Yet, according to N.I.T.I Aayog in 2021 - 2022 India's export preparedness index isn't very promising. Existing literature from

the Import Export Federation of India in 2021 depicts that Indian domestic firms often face obstacles such as the lack of relevant knowledge, growing competition in global markets, government restrictions, export promotion by dominant nations, bargaining power, etc. These obstacles tend to influence the export behaviour of a firm and the nation. The complications faced by the firms in India can be attributed to their resource stock or the resources that allow a firm to operate and export. Domestic firms do not have control over this stock

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of resources, and if they do, it would be limited. One of the major characteristics of a firm is the gender of the firm owner. Women-led firms are driving forces of economic growth. Literature subjects Indian firms to be relatively weak when subjected to female ownership. A working paper by O.E.C.D. titled “Gender and Sustainable Development” in 2008 noted that women in developing and developed nations tend to work on a smaller scale than men. Evidence from the European nations showed that female-owned firms tend to operate in a different sector than men and have lesser growing potential (OECD, 2014). Attributable to this information, India’s manufacturing and service sector firms are relatively less prepared to export. The impact and incidence of the problem are the direct stakeholders of the firm and the Indian economy as a whole. Since female firm owners are the new drivers of economic change, the hindrances caused by the firm characteristics and the resource stock tend to shadow their attempt to gain equality in Indian Society (IBEF, 2022). A link between the gender of the firm owner and the obstacles that determine a firm’s exports will lay a microeconomic foundation for this macroeconomic subject matter. Thus, the objective of this study is to analyze the relationship between the gender of the ownership of a firm and the export propensity of a firm, thereby understanding the role of gender in trade while curating policies that will promote exports from India.

India’s current gender stance and export performance

The Export Preparedness Index of India in 2021 was relatively better than the previous years, as the firms in Gujarat, Maharashtra, and Karnataka have a combined average score of 72.57 compared to the national average of 46.13 (NITI, 2021). India’s overall merchandise exports stood at \$453.3 billion in 2022, out of which textile and electronic exports led the way. Service exports of India were estimated to be around \$235.81 billion in 2022, according to the Ministry of Trade and Commerce 2022. The trade deficit was, however, \$79.19 billion. As a result, in 2023, India witnessed a steep drop in the outbound exports of cotton, engineering goods, iron ore, and precious metals. The Indian government has thus identified the role

of female-owned firms and their role in the exports of a nation and therefore implemented several schemes. One of such schemes is the Merchandise Exports from India Scheme 2020, which focuses on promoting merchandise exports from India, specifically including female entrepreneurs. Apart from the agricultural dominance of the gender, the scheme identified products that take up a significant proportion of female entrepreneurs. Enterprises that manufacture footwear, textile, consumer electronics, electronic components, watches, etc., were recognised as special focus products and given more incentives. Yet, according to MOSPI, women in India own only 13.76% of the total firms compared to 42% in the U.S.A.

Review of Literature

The relationship between the factors that affect a firm’s exports and the explicit role of gender is backed by a series of papers and literature. (Joumard, 2020) highlighted that India is on a positive path when it comes to experiencing high exports. The study concluded that India would face higher foreign demand for ICT services, pharmaceuticals, and medical services in the nearer future. To understand the nation’s business climate, (Quer *et al.* 2010) well before time pointed out the problems India is facing regarding export preparedness and ease of doing business. The study brought the economic position of China. It stated that due to the higher degree of integration and first-mover advantage globally, the nation is able to reap higher economic benefits relative to India. There was however a need to analyze the export performance of the firms at a micro scale. To deliver distinct firm-level characteristics (Joumard, 2020) identified variables such as the tax rates and trade restrictions as factors that influence the exports of India. This laid the foundation for certain firm-level analyses. (Chaudhuri *et al.* 2020) used the loglin form of multiple linear regression model to estimate the difference in the performance and a logit model to analyze the gap in the access to finance. The study found a statistically significant difference in the size, growth, and performance of the male and female-owned firms (female-dominated industries are 47% smaller and 21% less productive). To add to the firm characteristics study (Bernard *et al.* 2000) employed plant-level statistics of the U.S. and

concludes that none of the top half of the firms in the productivity curve that export exit the market attributable to gains from trade (Bernard et al., 2000). The paper, however, ignores very evident industry-level differences in the U.S. Much micro level must be considered in the future. (Bernard *et al.* 2006) defines several sampling units based on manufacturing establishment, inputs, plant, and output. The paper elaborated on the overall costs and executed a time series analysis to evaluate the performance. The results of the paper indicate that declining trading costs in industries exhibit relatively strong productivity growth. To collate firm characteristics with resource stock (Cieřlik & Michałek, 2018) runs a logistic regression for cross-sectional data. Exports, direct exports, and indirect exports are the dependent variable, and firm characteristics and the resource base form the independent variables. Variables such as labour productivity, firm productivity, capital participation, etc., determine the firms' export intensity. A working paper by the Leibniz Institute for Economic Research written by (Sala & Yalcin, 2015) describes the relationship between the Export Experience of Managers and the Internalization of Firms. The results suggest an experienced manager's inputs are as significant as a firm's productivity to overcome the liability of operating in a foreign market. Economists, in addition to the firm characteristics, have also deliberated upon several other factors that a firm does not have control over, and in our paper, it will be referred to as the resource stock of a firm. (Sharma, 2015) uses a sample of 362 service firms and builds a structural equation model to provide a result that states that the lack of internationalisation knowledge significantly affects business and institutional knowledge, which, as a consequence, is a perceived cost on the internationalisation process. (Kapri, 2019) identified that frequent changes in the rules and regulations subject the firms to adapt to them as and when they. If a firm is less elastic to the rules and regulations, the businesses will face issues with exports. The World Bank rated India -0.65, where -2.5 is weak political stability, and 2.5 is the most stability. Furthermore (de Jong & Bogmans, 2011) stated that firms tend to export less directly when there is more corruption. (Mukherjee & Sah, 2021) additionally noted that corruption is negatively correlated to the economic growth of a nation. Previously, (Krishna, 1989) had elaborated

that India has a rigid yet very flexible foreign policy and is at a stage where it is importing more than it is exporting, but the central Government wants to reverse this cycle through its flagship "Make in India" scheme that focuses on import substitution. There is literature that focuses on the explicit performance of female-owned firms in India as well as globally. However, there persist very limited theories that converge feminist perspectives with the internalization of the firms owned by them. However, a few pieces of literature reveal a conceptual framework between these variables. A study on female entrepreneurship elucidates the rationale for business expansion to pursue growth (Sidi Ali, 2018). The investigation suggests that female entrepreneurs deliberately refrain from growing in developed nations. This meant that female business owners tended to adopt reduced growth intentions for their firms. However, varying theories bring approaches to justify this growing trend of female entrepreneurs. Liberal Feminism states that gender theories are necessary to understand this distinction, and social Feminism states that conventional ideas must be considered and must be looked into as well (Orser *et al.* 2010). Liberal Feminist theories suggest that men and women business owners are equal and the rationality differentiates between them. The theory suggests a need to bring social reforms to reduce the discriminatory and systematic barriers facing female business owners in society. Equal access to resources, education, and credit would nudge female entrepreneurs to behave similarly to men (Akter *et al.* 2019). Social Feminist theory proposes that the differences between male and female entrepreneurs are naturally different and are an outcome of deliberate socialization methods and female experiences of life. However, these differences do not assert the dominant position of men but state that approaches to socialization diverge between both genders. Taking the discussion further, the aforementioned feminist ideas have different trade paths followed by firm owners. Liberal feminist theory suggests that men and women retain the same growth intentions and have the same probability of exporting. Alternatively, social ideas tell that female-owned firms do not export as intensively as male-owned firms, attributable to their growth intentions. Having acknowledged

these feminist theories, its empirical results can be backed by literature. (Nagaraja, 2013) builds on various comparisons such as marital status, education, background, opportunity identification, risk preferences, etc. The paper concludes by validating the existing gap in all the parameters that assist a woman in starting a business. The conclusions of the paper seem to be empirically valid, but the research is not rigorous enough and lacks the realism of Indian Society. (Bardasi *et al.* 2011) evaluate the productivity difference between male and female entrepreneurs in Eastern Europe Central Asia. The productivity difference is attributable to high female employment in low-performing industries, and female entrepreneurs seek less formal credit facilities.

(Garg & Shastri, 2022) using the 2014 World Bank Enterprise Survey to estimate a logistic multiple linear regression model suggested that firms with a majority of female owners are less likely to export. The paper considers several resource stock and firm characteristic variables to draw correspondence between export propensity, diversity, and intensity of the firms in India. A large chunk of literature on international trade delivers a justification of the dominance of exchange rates in determining how a firm will export. Literature focuses on the firm's price-to-market strategies and the exchange rate pass-through mechanisms to cater to export tendencies. However, India has its own set of convolutions. The firms in India have been accustomed to serving international trade problems that are unique to the nation. The papers do not include the problems of corruption, education of the workforce, access to finance, tax administration, etc. The existing literature does not consider the case of female-led businesses in India. The most significant gap of all the literature is the access to newer data. The World Bank Enterprise Survey released the 2022 data set in the month of February 2023. This makes the results of the paper new to the subject matter and has opened doors for better policies.

METHODOLOGY

Nature of The Study

Fig. 1 summarizes the nature of the research and how the research problem is conceptualized. The export determinants of a firm in India are fragmented into

Resource stock, and *Firm controlled variables*. Both variables, as evidenced by the literature, impact the export decisions of a firm. The study has analysed the factors that assist a firm in exporting. For a long time, there has been a macroeconomic perspective on the determinants of exports in a nation. There is enough macroeconomic evidence explaining the elements that nudge a domestic firm to participate in the global market. Some of these factors include the exchange rate, interest rates, inflation rate, and ease of doing business. However, there is a pressing need to acknowledge the micro pieces on the overall macroeconomic impact on trade in India, and the paper has bridged this gap. These micro variables can be segmented into resource stock and firm characteristics. Resource stock variables cannot be controlled by the firms, for example, obstacles faced by the firms through corruption, access to finance, access to raw materials, etc. Firm characteristics include variables such as its size, location, manager's experience, etc.

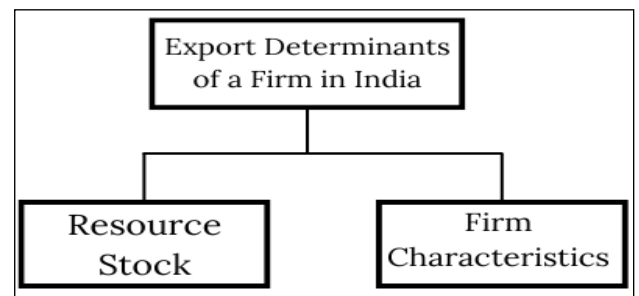


Fig. 1: Research Mindmap

The World Bank Enterprise Survey 2023 is the source of data for the study. There is a need to examine the nature of the variables that will be a part of the model. Nature can be fragmented into two, the continuous variables and the categorical variables. The base outcome for this analysis differs between the nature of the variables. Variables that measure the degree of obstacles in the raw data obtained from the World Bank Enterprise Survey fall into 5 Categories 0 stands for no obstacle, 1 stands for minor obstacle, 2 stands for moderate obstacle, 3 stands for high obstacle, 4 stands for very severe obstacle. However, the study has used the variable under 3 categories by clubbing 'no obstacle' and 'minor obstacle' and categorizing it as 0. The study has also clubbed 'high obstacle' and 'very severe obstacle' and categorized it as 2. The obstacles faced by the firms in India is taken as the base outcome of

Moderate Obstacles. The Indian business climate has long been subjected to various obstacles that limit or affect the firms' operations. Domestic firms in India face issues such as low access to finance, corruption, improper trade regulations, political instability, etc. The businesses have no hold on these factors, but they stain commerce. However, the degree to which the aforementioned factors influence trade is the crux of this paper's analysis. The Ease of Doing Business Statistics ranked India in the 63rd Position out of 190 countries. This meant that the firms in India faced obstacles, but the degree of the obstacles was not as frightening as Somalia (190th rank) and not as attractive as New Zealand (1st Rank) (Transparency Index, 2021). Consequently,

keeping the base outcome as a *moderate degree of the obstacle* is justified. For other dichotomous variables, the base outcome is "No" to obtain the odds with "Yes" of the dependent variable in each case. Additionally, the influence of the independent variable is sometimes not realised independently, and there is a need to introduce the interaction variables. The paper incorporates the effects of two combined explanatory variables on the explained variables. Table 1 lists the relationship.

The paper adopts Binary Logistic Regression Model as the dependent variable, "Does the firm export" or the export status of a firm has two categories, that is, "yes" or "no," as listed in Table 1. However, the paper is structured around the hypotheses listed

Table 1: Variables and Categories

Variable name	Categories	Classification	Labels
Independent variables	Resource Base	How Much of an Obstacle: Customs And Trade Regulations?	0 = No Obstacle 1 = Moderate Obstacle 2 = Very Severe obstacle
		How Much of an Obstacle: Access To Finance	0 = No Obstacle 1 = Moderate Obstacle 2 = Very Severe obstacle
		How Much of an Obstacle: Tax Rates	0 = No Obstacle 1 = Moderate Obstacle 2 = Very Severe obstacle
		How Much of an Obstacle: Tax Administrations	0 = No Obstacle 1 = Moderate Obstacle 2 = Very Severe obstacle
		How Much of an Obstacle: Business Licensing and Permits	0 = No Obstacle 1 = Moderate Obstacle 2 = Very Severe obstacle
		How Much of an Obstacle: Political Instability	0 = No Obstacle 1 = Moderate Obstacle 2 = Very Severe obstacle
		How Much of an Obstacle: Corruption	0 = No Obstacle 1 = Moderate Obstacle 2 = Very Severe obstacle
		How Much of an Obstacle: Labor Regulations?	0 = No Obstacle 1 = Moderate Obstacle 2 = Very Severe obstacle
Independent variables	Firm Characteristics	Amongst the Owners of the Firm, Are There Any Females?	1 = Yes 2 = No
		How much of an Obstacle: Inadequately Educated Workforce?	0 = No Obstacle 1 = Moderate Obstacle 2 = Very Severe obstacle
		Is the Top Manager Female?	1 = Yes 2 = No
		Main Business City?	1 = Yes 2 = No

Interaction Variables	How Many Years of Experience Working In this Sector Does the Top Manager Have?	Continuous
	How Many Years of Experience Working in this Sector does the Top Manager have? Is the Top Manager Female?	Interaction Variable
	Main Business City? Amongst the Owners of the Firm, are there any Females?	Interaction Variables
Dependent Variable	Does the Firm Export?	0 = No 1 = Yes

Table 2: Hypothesis of the Paper

Variable Category	Null Hypothesis	Alternative Hypothesis
Resource Stock	The Resource Stock Variables do not influence the firm’s export decision	The Resource Stock Variables statistically influence the firm’s export decision
Firm Characteristics	The Firm Characteristics Variables do not influence the firm’s export decision	The Firm Characteristics Variables statistically influence the firm’s export decision
Gender-Specific	The Firm Characteristics Gender Specific Variables do not influence the firm’s export decision	The Firm Characteristics Gender Specific Variables statistically influence the firm’s export decision

in Table 2. Each category of the variable has a null and alternative hypothesis. The gender-specific variables listed in Table 1 are implicitly part of firm characteristics. The section in the hypothesis is added to give supporting context to gender-related variables.

RESULTS

Descriptive Findings

The dependent variable is a categorical variable with two categories. The category is 1 if the firm exports, and the category to a firm is given as 0 if it does not export. A firm’s exports can be done via any direct or indirect channels. The frequency of the variable is given in Table 3.

Table 3: The Frequency Statistics of the Dependent Variable

Frequency	Numbers	Percent	Cumulative
0	8,073	86.39	86.39
1	1,272	13.61	100
Total	9,345	100	

Here we have a summary matrix of the dependent variable of the analysis, the export status of the firm, 0 and 1 are the two categories; Table 3 lists individual categories’ frequencies. The total number of firms is 9,001, of which 1,223 firms export and

7,778 do not (there is a difference in the total number of firms because of the need to adjust for the degrees of freedom).

Empirical Results

The research explores several factors and their influence on a firm’s export decisions. When a female owner leads a firm, the odds of exporting increase by 2.65 times compared to firms headed by men. This leads to the rejection of the null hypothesis, suggesting that the gender of the firm owner has an impact on export decisions. This does not tone with the existing literature. The previous attempt to acknowledge the role of gender in export decisions using 2014 data, suggested an alternative view. The study suggested that women-owned businesses are less likely to export.

Access to finance is found to have a positive relationship with export propensity. When a firm transitions from facing moderate obstacles to having no obstacles in accessing finance, the odds of exporting increase by 1.38 times. This result is statistically significant, indicating that access to finance impacts export decisions (Table 4). *Tax rates* in India, however, do not significantly affect export decisions. Regardless of higher or lower tax obstacles, domestic Indian firms are not hindered in their export decisions, leading to the acceptance

of the null hypothesis. Tax rates do not play a significant role in influencing export decisions for Indian firms. *Trade regulations* have a statistically significant impact on export behaviour. While a shift from a moderate obstacle to a very severe obstacle increases the odds of exporting, this effect is not significant.

Table 4: Results of Binary Logistic Regression

Type	Variable Name	Categories	Odds Ratio	Significance	
Independent variables	X ₁	1 = Moderate Obstacle			
		0 = No Obstacle	0.64	0	
		2 = Very Severe obstacle	1.1	0.488	
	X ₂	1 = Moderate Obstacle			
		0 = No Obstacle	1.38	0.003	
		2 = Very Severe obstacle	1.23	1.132	
	X ₃	1 = Moderate Obstacle			
		0 = No Obstacle	1.1	0.354	
		2 = Very Severe obstacle	0.90	0.445	
	X ₄	1 = Moderate Obstacle			
		0 = No Obstacle	1.04	0.712	
		2 = Very Severe obstacle	0.62	0.002	
	X ₅	1 = Moderate Obstacle			
		0 = No Obstacle	0.83	0.084	
		2 = Very Severe obstacle	0.99	0.978	
	X ₆	1 = Moderate Obstacle			
		0 = No Obstacle	1.28	0.029	
		2 = Very Severe obstacle	0.71	0.013	
X ₇	1 = Moderate Obstacle				
	0 = No Obstacle	1.17	0.135		
	2 = Very Severe obstacle	1.19	0.163		
X ₁₀	1 = Yes	2.65	0.005		
	2 = No				
X ₁₁	1 = Yes	1.5	0.052		
	2 = No				
X ₉	1 = Yes	1.36	0.007		
	2 = No				

Interaction Variables	X ₈	Continuous	1.02	0
	X ₁₂	Interaction Variable	1.01	0.062
	X ₁₃	Interaction Variable	0.65	0.235

On the other hand, when a firm faces no obstacles from trade regulations, the odds of exporting decrease by 0.64 times. We can therefore reject the null hypothesis, indicating that trade regulations influence a firm's export behaviour. Severe obstacles from the *tax administration* and system reduce the odds of a firm's exports by 0.67 times, which is statistically significant. Therefore, it can be inferred that tax administration affects a firm's export activity. The effect of *business licensing* on export decisions is not statistically significant. The available information does not provide enough evidence to reject the null hypothesis, suggesting that business licensing and permits do not significantly influence a firm's export decisions. *Political instability* has a significant impact on export decisions. When a firm faces no obstacles from political instability, the odds of exporting increase by 1.28 times, while severe obstacles reduce the odds by 0.71 times. Thus, the null hypothesis is accepted, establishing that political stability regulates a firm's export choices in India. *Corruption* and *labour regulations* do not statistically affect the decision to export. These obstacles do not significantly impact a firm's export decree, leading to the acceptance of the null hypothesis. Both variables have little to no influence on the export behaviour of domestic firms. The *gender of the firm owner* plays a role in export decisions. The presence of an *inadequately educated workforce* does not significantly affect export decisions. However, when a firm faces no obstacles from an inadequately educated workforce, the odds of exporting decrease by 0.48 times, accepting the alternative hypothesis.

The gender of the top manager has little or no influence on a firm's exports. *Female managers* do not significantly affect a firm's export decisions compared to male managers, leading to the acceptance of the null hypothesis. The plausible rationale to this result could be the principle agent problem. Since the export decisions of a firm are taken by the owner and not by the manager, the likelihood of a firm exporting reduces against the manager's will (Park, 2011). Being situated in a main business-promoting city in India increases

the odds of exporting by 1.36 times compared to firms not located in such cities. The alternative hypothesis is accepted, confirming the impact of the firm’s location on export propensity. This is attributable to the rapid rate of urbanization in cities. As a result, the capital cities and the business cities of a particular state tend to have a natural advantage on the expenditure by the Government. The expenditure by the Government is to promote local industries and exports.

The years of *experience of the top manager* have a significant influence on export decisions. With each additional year of experience, the odds of exporting increase by 1.02 times, rejecting the null hypothesis and accepting the alternative hypothesis.

Goodness of Fit

The Binary Logistic Regression Model and the variables must be tested to know its goodness of fit. The paper reports the Wald Chi-square test results and the Hosmer and Lemeshow Test of models (Table 5).

Table 5: The Goodness-of-Fit Test of the Model

Test	Chi-Square	p-value
Wald Chi-Square Test	387.66	0.001
Hosmer - Lemeshow Test	14.66	0.066

The Wald Chi-square test value of 387.66, and the significance value or the P value of 0.001. Where the Null Hypothesis H_0 : Value of at least one parameter is zero, in this case, since the model rejects the null hypothesis, it means that the model’s variables and their parameters are statistically significant. The Second Test represents the measure of goodness-of-fit of a model with 10 group cases. The null hypothesis H_0 : The model is a good fit. In this case, the specified model fails to reject the null hypothesis, thus elucidating that the model fits the data correctly.

CONCLUSION

Micro, Small, and Medium Enterprises have popularly been appraised as the vehicles of elevated growth in India (Ministry of MSME, 2018). This sector has nurtured women’s empowerment and taken female-owned enterprises to a global front. Classical, post-classical, and contemporary

economic theories have momentousness to the need for exports, especially in a developing nation. As far as the literature is concerned, a female-owned enterprise positively multiplies the economy. Thus, the objectives of the paper have been crafted to analyze the relationship between the gender of the ownership of a firm and the export propensity of a firm. Alongside the gender-specific variables, the paper acknowledges the unorthodox variables to determinants of a firm’s exports. The paper elucidates the relationship between several firm characteristics’ variables such as firm size, the experience of the manager, and the educated workforce and export decision of a firm in India. Furthermore, factors that a firm cannot control, such as political instability, corruption, business licensing, etc., that have been referred to as an enterprise’s resource stock are also regressed with the export propensity of a firm in India. The results suggest that Trade Regulations, Access to finance, Tax Administration, the Location of the firm, etc. have a statistically significant effect on the firm’s export decision. What truly separates these findings from other papers from older data sets is that the odds of a firm exporting will increase when the owner is a female. This can be appraised as a commendable feat for women’s empowerment in India. Thus, women empowerment must be achieved by directing international trade policies conducive to promote women owned enterprises.

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