

# Women Entrepreneurship & Economic Development: Evidence from Developed and Developing Countries

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## Abstract:

This article intends to investigate the immense and beneficial involvement of female entrepreneurs in economic development across the world. The world economy consisting of both developed and developing countries escalates at quite different paces due to the changes occurring at micro, macro, and cultural levels. This study has been conducted in two dimensions: one study encompasses a panel dataset constituting country-across variables on research-specific indices of a total of 63 countries for 3 years (2019-2021). The Human Development Index (HDI) is taken as a proxy for measuring Economic development across the world. Applying the Ordinary Least Square (OLS) regression model, we found that Gender Inequality (GII), Globalization (GI), and Female Entrepreneurs (FEI) leave a major impact on sustainable, social and economic development at length. The second dimension of the study evaluates female entrepreneurs' contribution to the development of Bangladesh's economy using a time-series dataset for 16 years (2006-2021). Aside from these variables, the Gender Development Index (GDI) brings upon a great deal of impact on Bangladeshi female entrepreneurs at rise. The GDI and the GI of the model show that gender development and globalization assist the female community to grow professionally in Bangladesh which is the important policy implication of this study. The study found that Globalization assists women in bringing something new to the table by generating more demand in the market. A comprehensive comparison between pre-COVID and post-COVID economies dealing with global female entrepreneurs shows women's contribution to boosting the economy during the recent pandemic.

**Keywords:** Women Empowerment, Economic Development, HDI, GII, GI, WLF, GDP, GDI

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## 1.0 Introduction

Entrepreneurship is considered to enhance the economy's productivity, capacity, and magnitude with the help of creativity and competitiveness (Acs et al. 2008; Zanjirchi et al. 2019). The contribution of women to building up a society and nation is still

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invisible and requires thorough investigation. Initially, the entrepreneurial activities of women were considered as a means of supporting their family income only but today the scenario has changed. All talented and hardworking women have made society think differently. Now it is recognized that these activities of women play a crucial role in the economic development and societal prosperity of a country.

Women entrepreneurs play a significant role in the area of health and education; like producing jobs, the creation of wealth, health, and development of the nation, especially in developing countries. Women are different from their male counterparts as they are more inclined to share their achievements with others, say for example, with their family members for both economic and non-economic gains. They are much more likely to share their gains in food, education, health, and other resources with family and also with communities; which is crucial for the sustainable development of the country (Gonzalez-Sanchez, 2012).

The scenarios in developed and developing countries are different. In developed nations, the main aspects that propelled the enhanced women entrepreneurship are self-fulfilment, innovative skills or originality, desire for independence, desire for power, wealth, and social status, desire to be recognized by society etc.; conversely, studies show that in developing countries, self-employed women are pushed by economic and social barriers such as meager income, impoverishment, high unemployment rate, widowhood, divorce problems etc. So, they start their own business to fulfil their own basic needs or to support the family. Consequently, the success rate of Women Entrepreneurs is very low because of a deficiency of sufficient required skills, training and education, relevant experience, access to necessary funding, logistic support, etc. (Sajjad et al. 2020).

The contribution of women entrepreneurs to the GDP of a country around the globe is still considered very challenging, as there is no information about the total output of Women Entrepreneurship (WE) in terms of say, new enterprise setup or ongoing established business- whatever it is. If we consider the report of the Female Entrepreneurship Index (FEI) of the Global Entrepreneurship Development Institute (GEDI), we see, that several macro-level indicators around the globe have shown improvement such as the risk for doing business have decreased, resource availability has been enhanced by 13 per cent, technology transfer rate has been improved by 18 per cent but unfortunately, Female Entrepreneurship rate increases only by 7 per cent. Thus, it is time to figure out the reason why the Women Entrepreneurs' growth rate is not congruent with other Economic Development indicators, especially in developing countries.

The concept of Entrepreneurship and its contribution to economic development is not new in economic literature. But the linkage between economic development (ED) and the contribution of women entrepreneurship (WE) is yet to be explored in detail and the present study focuses on this issue. So far some studies have already been

conducted at the micro level but their scope was confined to some specific regions of the world. But this study uniquely focuses on a global level and also explores the situation in Bangladesh.

It can be demonstrated that globally women are not able to participate professionally in the field as much as men can. Even though they carry the potential, support is drawn from investors, government and family members are quite little to reciprocate. The goal of this paper is to uncover the potential of a woman to nourish their entrepreneurial nature and to achieve social status by creating job opportunities for themselves and other disadvantaged women in the community. By fostering the growth of female entrepreneurs, the global economy can taste an equal pace of advancement in this modern age of globalization.

The major objective of the study is to figure out the impact of women entrepreneurship on economic development around the world and to find out the impact of Globalization which is directly measured through the Globalization Index (GI); and finally, to check the impact of Gender Inequality which is directly measured through Gender Inequality Index (GII). The study also attempts to show female entrepreneurs' contribution to the development of Bangladesh's economy.

This paper follows a dataset of 63 countries with 756 observations in total. Comparisons are drawn among the women entrepreneurs of developed (27 countries) and developing (36 countries) regions explaining their efforts and effects on the global economy. There is another addition to the picture of bringing the COVID-19 situation. It critically analyzed how women entrepreneurs put an impact before COVID (2019), during COVID (2020), and post-COVID (2021).

The findings of the regression model suggest that Gender Inequality (GII), Globalization (GI), and Female Entrepreneurs (FEI) leave a major impact on sustainable, social and economic development at length. With an additional one-point rise in the number of female entrepreneurs, the development of the economy refurbishes by .063 units. At the same time, with a one-unit increase in globalization, the economy develops by 0.353 units, and with a one-unit decline in gender disparity, society will progress better by 0.086 units. In finding female entrepreneurs' contribution to the development of Bangladesh's economy, the Gender Development Index (GDI) brings upon a great deal of impact on Bangladeshi female entrepreneurs at rise. The GDI and the GI of the model show that gender development and globalization assist the female community to grow professionally in Bangladesh.

The rest of this study is arranged as follows: Section 2 presents a literature review on the contribution of female entrepreneurs to the economic development of countries. Section 3 outlines the research methodology deployed in this study. The results of the regression analysis are illustrated in Section 4. Finally, Section 5 concludes the study and provides policy implications.

## **2.0 Literature Review**

### **2.1 Women Entrepreneurship**

Women entrepreneurship infers a method where females are empowered with their constructive initiatives to solve a particular demand and supply gap in a particular community in a specific economy. Women's entrepreneurship yields and evolves through centuries to make women financially, economically, and intellectually independent of their male counterparts and create a robust platform for an unemployed yet excelled community (Chhabra et. al. 2020). Women have been tallying their contributions to the working sector from the ancient age even though most of their stories are untold and unnoticed.

However, with the changing times of globalization, the incorporation of women in almost every productive sector is inevitable and notable. It was later realized that the economy grew through privatization and liberalization so did the global women's labor force. Overall, after the 1990s, there has been enormous change in the global economy and different countries by the government (Chhabra et al. 2020).

An economy strengthens with equal contribution of male-owned businesses and female-owned businesses to its varied range of industries. Women entrepreneurs are presumed to initiate a potential human resource capital keeping pace with modern globalization in the 21<sup>st</sup> century. It is pertinent to comment on the off-putting nature of the Gender Inequality Index on the potential growth of women entrepreneurs in any particular community (Ahmed et al. 2020). Besides, women entrepreneurs in Bangladesh set examples for stimulating employment growth for a large number of unemployed communities. Evidently, females of any country happen to be potential change makers if they dictate themselves in the right and productive path with an emergent economy.

It is elaborately explained how women entrepreneurs can be a dynamic part of production being the 4<sup>th</sup> factor along with land, labor, and capital as it begets hundreds of fresh job opportunities for a vast segment of the unemployed community (Mahajan, 2013).

### **2.2 Entrepreneurial Inclusion of Women**

An Indian powerful female persona, Hina Shah founded ICECD (International Center for Entrepreneurship and Career Development) in the early 2100s and paved a productive way for a hundred 21<sup>st</sup>-century well-read, and knowledgeable women of India (Mahajan, 2013). Hina Shah took an independent part in the women's inclusion movement for that particular economy and spread motivational energy around the globe. ICECD believes and promises to build an environment filled with equal rights and opportunities for men and women where they fathom a successful journey of

human endeavor and value each other equally. The community assists women contributing directly towards economic development and empowering them with self-assurance (Mahajan, 2013).

In 2013, the global female entrepreneurship sector was on the verge of rising from an unfavorable condition to an encouraging one. Other than Hina Shah, Debbie Fields of Mrs. Fields Bakeries, Larry Page of Google, and Sara Blakely of Spanx are some eminent names that pop up first in this entrepreneurial field establishing a sense of emancipation for all the financially dependent women out there around the globe. Albeit entrepreneurship has been a male-dominant ground from the early centuries of economic history, women included in this particular discipline have proved that a social-eco system functions magnificently having two of them steering the wheels (Tambunan, 2009).

### **2.3 Technology Boom and Women Entrepreneurs**

Technological evolution is one of those many mentionable achievements of globalization that has provided mankind with more wealth, time, and effortless energy. The females obtain a great deal of edge from technological evolution in the entrepreneurial field while excelling in their skills in information and communication industries around the world. Middle-income groups of society are establishing their appetite for the consumption of technological goods for their daily use and that provides the market with more demands resulting in more space for women to initiate. The study introduces a vision that with enhanced social capital participation, women's partaking in global entrepreneurship can be the most dynamic in this age of powerful social media (Ajjan et al. 2014).

The technological sector is a vast ground to analyze but breaking even its factors such as individual, organizational, and societal and exploring them judiciously help to focus on women's empowerment in the automation field. It is articulated that a multidimensional framework is employed to understand certain practices that might be in use for building a solid communication network and resources that might otherwise be unreachable for women technology entrepreneurs and to promote them accordingly (Ozkazanc-Pan & Clark 2018). It has been represented how the information or technology boom is affecting women in entrepreneurial roles. Empowerment comes from this new era of digitalization to women globally (Ajjan et al 2014). Women being the half percentile of the whole population are yet to be actively incorporated into the workforce with the same percentile. If the resources and other valuable assets become more reachable to women likewise men, their basic rights are exerted by being more empowered in the work sector. Henceforth, the authors of the paper have suggested intensifying women's participation in the

workplace by generating and implementing their business ideas with reasonable financing and required strategic management counseling.

## **2.4 Financial Accessibility to Women Entrepreneurs**

Microfinance schemes are getting popular and compelling among the women of the lower-middle class and working in a strong drive to put their contribution to the global economy (Bhatt & Shastri, 2018). This particular study displays that in two approaches, microfinance loans can be sanctioned which are: through SHG-Bank credit portfolios and MFIs or microfinance institutions. Business finance demonstrates that debt capital or external financing is a less costly option than all equity financing for constructing an optimum level of capital structure and women are rarely found to have a formal financial arrangement at the early stages of business. Whenever development in rural areas takes place, microfinance programs are the leading reason behind that. It appears in the research study that appropriate utilization of funding for these microfinance programs enhances women's empowerment level. When women are provided with a broad range of financial facilities such as deposits, loans, insurance, money transfers, etc., it becomes easy and operative for them to generate profit in their business arena. If the government comes forward to foster female contribution to the socio-economic platform, the whole economy will grow lavishly (Aruna & Jyothirmayi, 2011).

Nonetheless, later it is argued that women are more inclined to use their internal funding or undistributed profits rather than looking for debt capital from external sources (Menzies et al 2004). Female entrepreneurs are deemed to have a reduced amount of technological and intellectual resources than their male counterparts making female-owned businesses less spurious to venture capital investors. It is justified that traditionally earmarked sectors for male entrepreneurs must be opened for female entrepreneurs as well to facilitate their business opportunities. Predominantly, women make themselves representative of their empowerment and help themselves reduce the household's poverty at the micro and macro levels (Beqo & Gehrels, 2014).

A new business calls for adequate and available funding for the primary investment regardless of any sector. It is prudently discerned that male-owned businesses get an advantage in the collection of external funding such as from angel investors, bank loans, or crowdfunding over female-owned businesses (Orser et al. 2006). It is observed judiciously in the study that despite having fantastic and feasible ideas for new businesses, women undertake a great deal while financing the business projects leading to enormous gender disparity issues in the investment process. Debt capital is mostly accessible to male business entrepreneurs creating gender inequality to a global extent. There are two elemental issues raised through the research which are: if there is any denoting difference exists between men and women while making capital

accessible to them in the workplace. And if there is a disparity, how do strategic choices or plans of the entrepreneurs play a role here? There is a specific study conducted in Kenya that displays the factors and influences of women's entrepreneurship and female empowerment. The researcher intended to know whether the women of Kenya have easy access to funding, training, and market development (Njoroge, 2018).

## **2.5 Socio-cultural and Economic Status**

Research on women's entrepreneurship exhibits the effect of economic and socio-cultural on female empowerment. The study emphasizes the age of the female entrepreneurs or the tenure at what they thrive to be (Shastri & Sinha, 2010). Middle-aged women mostly enter into their businesses as this is the time they take themselves as financially independent individuals in their families which adds another edge for women to be entrepreneurs at that age. They complete their graduation or other formal education by that time and therefore, their knowledge can be applied extensively in the workplace. Nevertheless, reinforcements coming from friends, families and the government are compelling indeed for these female entrepreneurs.

## **2.6 Women Empowerment**

There is a strong impact of female entrepreneurs on economic development and this contribution is necessitated to be assessed and recognized. It seems that in the age of globalization, there are diversified business opportunities that go overlooked. When eager and well-educated females come forward to join the industry with robust business solutions, the economy evolves. The supplement that women entrepreneurs bring into today's economy is inevitable yet unfortunately invisible. Women bring their monetary success not only to their families but also to contribute financially to society (Sajjad et al. 2020).

It is justified that women's contribution to the economy is different from men's. When a female grows professionally, she is keener to share her financial or non-financial achievements more than her male counterparts (Sajjad et al. 2020). Besides, in sustainable development, women prefer to share their progress in the health and education sector by creating job opportunities for everyone.

UN has undertaken a global goal named MDG3 (third Millennium Development Goal) to eradicate gender inequality and empower women entrepreneurs. The tourism industry plays a central role in endorsing the goal by ensuring sector-specific revenues in female employment and thus increasing women's empowerment (Ferguson, 2011).

There is an explicit affiliation between women's entrepreneurship and the tourism industry but certain policies are required to be reformulated regarding the

advancement to a global extent. To reform the policies regarding the development of this sector analyzing this affiliation is very much required (Turkcan, 2021).

## 2.7 Women Entrepreneurship and Economic Development of Bangladesh

<p><b><i>SME (Small and Medium Enterprise) Industry &amp; Female Entrepreneurs</i></b></p> <p>It is seen in Bangladesh that over the past few decades, female entrepreneurs have arisen from their underprivileged state and have incorporated themselves in four different central businesses of SME sectors: Beauty and makeup, Boutique, Fashion, and Clothing. It was not smooth for the females to have a recognizable profit in the industry at first as financial barriers were there. By ensuring entrepreneurial activities in this sector, sustainable growth of the women's labor force is also ensured (Mehta et al. 2022).</p>	<p><b><i>Microcredit Industry &amp; Female Entrepreneurs</i></b></p> <p>In the sector of microcredit, Bangladesh observes a lot of potential in the rural women's labor force more than in the urban ones. This is the reason why development banks, specialized banks, and the government are comprehensively establishing micro-credit programs to provide financial support to rural women. External finances and entrepreneurial acquaintance are encouraged further with changing times in this industry. Financial management and leadership skills are delivered to them to achieve their full growth potential (Chowdhury, 2008).</p>
<p><b><i>Social Capital Industry &amp; Female Entrepreneurs</i></b></p> <p>In the theory of social capital, it is understood that with the enforcement and accumulation of human intellect, some strong social relationships are established in the community to provide credentials in the business. Many female entrepreneurs are given the opportunity of equity funding through social businesses such as fair-trade businesses and eco-friendly businesses by guaranteeing sustainable growth for the economy. For a developing country like Bangladesh, social capital is an incipient factor to study (Ferdousi &amp; Mahmud, 2019).</p>	<p><b><i>RMG (ready-made garment) Industry &amp; Female Entrepreneurs</i></b></p> <p>Whenever we talk about women entrepreneurs or the women labor force, even from the global perspective, barriers are proven clear in many steps for them. Glass ceiling issues are an extreme reason for females to find barriers to their managerial growth, especially in the entrepreneurial arena. In Bangladesh, the RMG sector is more prone to glass ceiling issues for women entrepreneurs and if minimized reasonably, the emerging pace of growth can be safeguarded (Islam &amp; Jantan, 2017).</p>

### 3.0 Methodology

#### 3.1 Data Source and Sample

The study encompasses a panel dataset constituting country-across variables on research-specific indices of a total of 63 countries for the last 3 years (2019-2021). The country list is sectored into developed (27) and developing (36) countries. We exercise four composite variables while forming the study samples and those are the Human Development Index (HDI), Female Entrepreneurship Index (FEI), Gender Inequality Index (GII), and Globalization Index (GI). The secondary dataset employed in the research is retrieved from The Female Entrepreneurship Index (FEI) Report, The KOF (Konjunkturforschungsstelle) Index Report, The Human Development Report of UNDP, and The Annual Report of “The World Bank”.

#### 3.2 Research Design

The study is directed at global women empowerment based on women’s entrepreneurship segregated into developed and developing country regions. The independent factors inducing the result of the research are represented through some globally recognized indices. It investigates whether female entrepreneurship, globalization, and gender inequality have an impression on the development of women in the workplace.

##### 3.2.1 Regression Model

The Ordinary Least Square (OLS) regression equation analyzing the impact is drafted as follows:

$$HDI_{it} = \beta_1 FEI_{it} + \beta_2 GI_{it} + \beta_3 GII_{it} + e_{it} \quad (1)$$

where,

$HDI_{it}$  = Human Development Index

$FEI_{it}$  = Female Entrepreneurship Index

$GI_{it}$  = Globalization Index

$GII_{it}$  = Gender Inequality Index

##### 3.2.2 Variables Description

This research takes up 4 indices to represent variables used to analyze related measures of women’s entrepreneurship and economic stability. The conceptual background of these variables and the relationships established in our analysis from these are presented as follows:

Human Development Index (HDI): HDI is the index that represents the “Economic Development” of the World. This is the dependent variable of our study covering economic stability and advancement in regard to women entrepreneurs from developed and developing countries.

Female Entrepreneurship Index (FEI): The first independent variable is FEI or Female Entrepreneurship Index indicating women’s empowerment or the “Women’s Entrepreneurship” picture.

Globalization Index (GI): This index refers to another explanatory variable which is Globalization. GI signifies the expanding “*Globalization*” cycle of the world.

Gender Inequality Index (GII): GII designates worldwide “*Gender Disparity*”. Women entrepreneurship holds a major focus on the equality of men and women in the workplace built by the latter. The effect of this aspect is studied thoroughly all over the world on women’s empowerment at large.

### 3.3 Hypothesis Development

Three different hypotheses have been developed to assess the growth of the modern global economy. Those are drafted as follows:

***H1: There exists a positive relationship between HDI and FEI.***

In this age of digitalization, fresh business opportunities or concepts are paving the way for female entrepreneurs to start their businesses leading to economic advancement.

***H2: There exists a positive relationship between HDI and GI.***

Most of the new business ideas evolve from being small or medium-sized capital states and females are contributing to these sectors not only locally but also at a global scale with acute challenges.

***H3: There exists an inverse relationship between HDI and GII.***

Even though there is a bright prospect for female entrepreneurs in expanding the global economy, fewer opportunities for education, political motivation, and government supports hinder the advancement.

## 4.0 Empirical Findings

### 4.1 Descriptive Statistics

**Table-1 : Summary Statistics**

	<i>Mean</i>	<i>Min</i>	<i>Max</i>	<i>Range</i>	<i>Std. Dev.</i>	<i>Median</i>	<i>N</i>
<i>HDI</i>	.803	.498	0.962	.464	.126	.822	189
<i>FEI</i>	54.648	32.5	71.800	39.3	10.023	57.2	189
<i>GII</i>	.27	.013	0.680	.667	.179	.256	189
<i>GI</i>	72.762	41	91.000	50	11.895	73	189

*Source: Authors’ calculations*

Table-1 presents that the median value of the ‘Human Development Index’ of selected countries for the period of 2019-2021 is 0.822, which refers to the trend of transitional business functions of developing countries over developed countries. The overall performance measures for HDI have improved over the year. Albeit the mean value of HDI is 0.803 seems higher, the developing countries are still going through the economic development process and the disparity against the developed countries is lessening over time. The median value (57.2) and mean value (54.648) of the ‘Female Empowerment Index’ indicate that very few countries are able to ensure significant participation of women in entrepreneurial activities. Gender inequalities are high among developing countries rather than in developed countries with a standard deviation of 17.9%. Though the mean value of the ‘Globalization Index’ is high (72.762), the dispersion is very wide among selected countries indicated by a higher range of 50. The disparity of HDI ( $\sigma = 12.63\%$ ) shows that the developed and developing countries face a moderate deviation in their economic growth. However, standard deviations ( $\sigma$ ) of other variables are recognized as moderate keeping in pace with economic rationality.

#### 4.2 Multicollinearity, Heteroskedasticity, and Autocorrelation Tests

To diagnose the presence of any multicollinearity issue (inter-association among FEI, GII, or GI) in the model, the multicollinearity test is incorporated. Both Pearson’s correlation matrix and VIF (Variance inflation factor) are used to check the multicollinearity. If the correlation between two variables is close to  $\pm 0.90$ , multicollinearity exists. Again, if the VIF value is greater than 10, there exists multicollinearity. From Table-2, we observed no serious multicollinearity issue. Since a VIF of three or below is not a cause for concern, the mean VIF (2.855) from the model shows no multicollinearity issue.

**Table-2 : Pearson’s Correlation Matrix**

Variables	FEI	GI	GII
FEI	1.000		
GI	0.656	1.000	
GII	-0.717	-0.806	1.000

*Source: Authors’ calculations*

*Breusch-Pagan Test* is applied to the model to check whether heteroscedasticity is present or not. The null hypothesis refers the homoscedasticity. If the p-value is less than the significance level (5%), we reject the null, and that indicates the presence of heteroscedasticity. To test for the heteroscedasticity in the dataset, the Breusch Pagan Test has been run and the presence of heteroscedasticity is there. This problem is solved by the robust standard error in the model.

To address the possibility of an autocorrelation issue in the model, the *Wooldridge test* is conducted on the dataset. The null hypothesis indicates no autocorrelation. If the *p*-value is greater than the significance level (5%), we reject the null and it signals the presence of autocorrelation in the model. As  $\text{Prob} > F = 0.0004$ ; the dataset has no autocorrelation.

### 4.3 Global Status

#### 4.3.1: Comprehensive Impact

**Table-3 : Summary Statistics of FE and RE Model**

	FE	RE
	HDI	HDI
FEI	-.024 (.026)	.063* (.035)
GI	-.03 (.095)	.353*** (.093)
GII	.064 (.044)	-.086 (.056)
_cons	1.011*** (.378)	-.93*** (.33)
Observations	189	189
Overall R <sup>2</sup>	0.049	0.700
<i>Robust standard errors are in parentheses</i>		
*** $p < 0.01$ , ** $p < 0.05$ , * $p < 0.10$		

*Source: Authors' calculations*

In this paper, fixed effect models are conducted assuming the FEI, GI, and GII have a fixed or constant relationship with HDI across all observations. Random Effect models are applied on the dataset as well that stimulates observed estimates of treatment effect can vary across this study of women empowerment on the economic development. Since the model has a heteroscedasticity issue, “robust standard error” is applied to solve the problem. The Hausman test is used to distinguish between the fixed effect model and the random effects model; it was observed from the test that the *P value* remains 0.1303, not rejecting the null hypothesis. Therefore, the random effects model is well-suited for the study in this regard. It is seen from Table-3 that with a 1 unit increase of the female entrepreneurs, the development of the economy refurbishes by .063 units. At the same time, with a 1(one) unit increase in

globalization, the economy develops by .353 units, and with a 1(one) unit decline in the gender disparity, society will progress better by .086 units. Overall R<sup>2</sup> clarifies that 70% of the variation in the HDI can be explained by the variation of FEI, GI, and GII in the random effect model.

#### 4.3.2 A Comparison Between Developed and Developing Country's Economy

After an inclusive global economic scenario, a thorough economic comparison is sketched between developed and developing countries' female entrepreneurs. The motive is to find out the better prospects for the women from these two economies.

**Table-4 : Comparison between Developed and Developing Countries**

	Developed countries		Developing countries	
	FE	RE	FE	RE
	HDI	HDI	HDI	HDI
FEI	-.088*** (.029)	-.035* (.04)	.02 (.036)	.064* (.038)
GI	-.009 (.113)	.373*** (.125)	-.05 (.121)	.259** (.115)
GII	.086*** (.029)	-.036 (.058)	.043 (.07)	-.118 (.073)
_cons	1.272* (.486)	-.597 (.562)	.86* (.45)	-.551 (.436)
Observations	81	81	108	108
Overall R <sup>2</sup>	0.234	0.526	0.022	0.620

*Robust standard errors are in parentheses.*  
 \*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

*Source: Authors' calculations*

After running the Hausman Test on the Developed economy's panel data, it is rather observed that the random effect model is suited best here. From Table-4 it is found that with a 1 unit decrease of the female entrepreneurs, the developed economy grows by .035 units. This result seems irrational at the off sight but statistical results explain that in Canada, the USA, the UK, and Australia contributions of women entrepreneurs are less in the community. However, gender disparity is discouraged in developed countries as with a 1 unit decrease of GII, the economy develops by .036 units. Globalization brings a positive cause for advancement by increasing .373 units against it. Overall R<sup>2</sup> clarifies that 53% of the variation in the HDI can be explained

by the variation of FEI, GI, and GII in the random effect model in the case of a developed country's economy.

For developing countries' economies, the random effects model is suitable rather than the fixed effect model in the panel data. Compared to different developed economies, Bangladesh, Ecuador, Denmark, and Colombia are generating a workable female force in the entrepreneurship arena observing from the study that with a 1 unit increase of female entrepreneurs, the financial ability of the society develops by 0.064 unit. Globalization and gender inequality bring a rational result statistically and economically. Overall  $R^2$  clarifies that 62% of the variation in the HDI can be explained by the variation of FEI, GI, and GII in the random effect model for developing economy.

#### 4.3.2 Comprehensive Analysis: Pre-COVID, During-COVID, and post-COVID scenario

**Table-5 : Comprehensive Analysis (Pre-COVID, During-COVID, and post-COVID)**

HDI	Pre-COVID	During-COVID	Post-COVID
FEI	.041 (.042)	.053 (.047)	.013 (.047)
GI	.036 (.12)	.028 (.117)	.026 (.11)
GII	-.585*** (.104)	-.59*** (.095)	-.627*** (.097)
Constant	.651 (.498)	.626 (.482)	.802 (.496)
R-squared	0.848	0.860	0.868
F-test	101.971	106.240	111.898
Prob > F	0.000	0.000	0.000
Observations	63	63	63

*Robust standard errors are in parentheses.*

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

*Source: Authors' calculations*

Table-5 shows thorough reasoning of economic development by the female entrepreneurs about the COVID-19 situation. The dataset has been prepared for

2019, 2020, and 2021. The pre-COVID scenario has been analyzed. The data is cross-sectional here in nature. From the table, it is visible that only gender inequality has an inverse coefficient (-.585) with economic development and the other two variables have a positive coefficient. This explains before COVID-19, the global economy was functioning well. FEI has a positive coefficient (.041) defining that more female entrepreneurs can create a positive difference in economic flourishing at the global scale.

When COVID-19 hit the world, the economy went through a recession for a while. New business ideas started building up in people's minds and females were not at the back of this as well. Although female entrepreneurs had a minimal impression all over, it was noticeable. Gender inequality plays a larger role in this study since by the *p-value* it is calculated that GII is significant (less than .01). If we compare the globalization picture from 2019 to 2021, it indicates fewer market participants and fewer demands after the pandemic in the global economy. More importantly, the coefficient of FEI demonstrates during the pandemic women engaged themselves more in newly appreciated businesses by using online platforms effectively.

#### 4.4 Scenario in Bangladesh

##### 4.4.1 Methods of Analysis

###### ◆ *Data Source, Sample Design and variables*

The financial and economic status quo of Bangladeshi women entrepreneurs is also examined through 16 years (2006-2021) period data to find out a comparative picture of them with globally empowered women remaining all other factors unchanged. The dataset is time series in nature integrating 6 variables in this model. In this particular analysis, 2 regression models have been employed to scrutinize the competitive picture of Bangladesh to know where she stands in the female entrepreneurship region. The dependent variables are the Human Development Index (HDI<sub>B</sub>) and Gross Domestic Product (GDP) for two regression equations. And independent variables are the Women Labor Force (WLF), Gender Development Index (GDI), Gender Disparity (GII) and Globalization Index (GI). The secondary dataset employed in the research is retrieved from The Human Development Report of UNDP, The World Bank Data and The Global Economy.com.

###### ◆ *Variables Description*

Gross Domestic Product (GDP): GDP is the proxy variable that represents the "Economic Development" of Bangladesh.

Women Labor Force (WLF): WLF is indicating women's labor force aka women empowerment for Bangladeshi "*Women's Entrepreneurship*" picture.

Gender Development Index (GDI): GDI represents the “*Gender Development Index*” to measure gender inequalities in the achievement of human development in Bangladesh.

#### ◆ Regression Models & Hypothesis Development

This study focuses on 2 specific regression models to analyze the compared picture of Bangladesh in the arena of female entrepreneurs and economic growth at large. These models are generated from 8 different hypotheses consisting of 4 for each. Those are drafted as follows:

$$HDI_{Bt} = \beta_1 WLF_t + \beta_2 GDI_t + \beta_3 GII_t + \beta_4 GI_t + e_t \dots \dots \dots \text{Model 01}$$

where,

$HDI_{Bt}$  = Human Development Index of Bangladesh

$GDP_t$  = Gross Domestic Product

$WLF_t$  = Women Labor Force

$GDI_t$  = Gender Development Index

$GI_t$  = Globalization Index

*H1: There exists a positive relationship between  $HDI_B$  and WLF.*

*H2: There exists a positive relationship between  $HDI_B$  and GDI.*

*H3: There exists an inverse relationship between  $HDI_B$  and GII.*

*H4: There exists a positive relationship between  $HDI_B$  and GI.*

And the second model is:

$$GDP_t = \beta_1 WLF_t + \beta_2 GDI_t + \beta_3 GII_t + \beta_4 GI_t + e_t \dots \dots \dots \text{Model 02}$$

Here, GDP is used as a proxy for economic development.

*H5: There exists a positive relationship between GDP and WLF.*

*H6: There exists a positive relationship between GDP and GDI.*

*H7: There exists an inverse relationship between GDP and GII.*

*H8: There exists an inverse relationship between GDP and GI.*

#### 4.4.2 Empirical Findings

##### ◆ Descriptive Statistics

**Table-6 : Descriptive Statistics**

	<i>Mean</i>	<i>Min</i>	<i>Max</i>	<i>Range</i>	<i>Std. Dev.</i>	<i>Median</i>	<i>N</i>
<b><i>HDI<sub>B</sub></i></b>	.587	.524	0.661	.137	.047	.579	16
<b><i>GDP</i></b>	.063	.034	0.079	.044	.01	.065	16
<b><i>WLF</i></b>	.324	.289	0.363	.074	.026	.319	16
<b><i>GDI</i></b>	.863	.812	0.902	.09	.033	.872	16
<b><i>GII</i></b>	.578	.53	0.665	.135	.044	.575	16
<b><i>GI</i></b>	3.896	3.751	3.956	.205	.06	3.917	16

*Source: Authors' calculations*

Table-6 displays a broad statistical discussion on the variables used in studying the impression of Bangladeshi female entrepreneurs on the country's economic growth. From the table, it is clear that the development of Bangladesh's economy lies between 52.4% and 66.1% with an average value of 58.7%. However, the disparity ( $\sigma = 4.7\%$ ) of the variable stays far from the average value of it. Another measured variable, the GDP of Bangladesh, ranges from 3.4% to 7.9% by being affected by female entrepreneurs, gender advancement and inequality in Bangladesh, and Globalization. However, standard deviations ( $\sigma$ ) of the variables are recognized as low representing the country's economic growth sustainable at present.

◆ ***Augmented Dickey-Fuller, the Jarque-Bera, Heteroscedasticity and Autocorrelation Tests***

Augmented Dickey-Fuller or ADF test has been run on the study's variable under Bangladesh perspective analysis. By employing the unit root test, it is justified whether the variables are stationary or non-stationary. Since the p-value of the ADF test is lower than the significance level, we can conclude that the variables are stationary at level intercept.

The Jarque-Bera test is an asymptotic test that is applied to large samples of dataset. Thus, on our 16 years of data, Jarque-Bera is run as a statistical tool to check whether the returns follow the assumptions of normal distribution and also measure the deviations from the normal distribution. It is used to check the normality of each variable and if the value of Jarque-Bera is higher than zero, then that variables deviate significantly from normal distributions. Here for every variable, *chi*<sup>2</sup> values are greater than 0 indicating each variable is normally distributed.

After that, it is checked in the study if is there any heteroscedasticity issue in the models. To remove the heteroscedasticity from the regression models, robust tests are added to each OLS model. However, the p-value from the result indicates that the heteroscedasticity issue remains in the model.

<b>Model 01</b>	<b>White's test for Ho:</b> <b>homoscedasticity</b> <b>Against Ha: unrestricted</b> <b>heteroscedasticity</b> <b>chi2 (14) = 15.95</b> <b>Prob &gt; chi 2 = 0.3165</b>	<b>Model 02</b>
	<b>White's test for Ho:</b> <b>homoscedasticity</b> <b>Against Ha: unrestricted</b> <b>heteroscedasticity</b> <b>chi2 (14) = 15.98</b> <b>Prob &gt; chi 2 = 0.3145</b>	

The Durbin Watson (DW) test is conducted to check autocorrelation. If the residual terms of the DW test are statistically different from zero, it indicates that the models are free from autocorrelation. Besides, the robust standard error is also added to the regression model.

*Durbin-Watson d-statistic (5, 16) = 2.308689 ..... Model 01*

*Durbin-Watson d-statistic (5, 16) = 1.065381 ..... Model 02*

◆ *Performance Comparison on Both Regression Models*

**Table-7 : Regression Results of Bangladesh**

	Model 01	Model 02
Independent Variables	Dependent Variables	
	<i>HDI<sub>B</sub></i>	GDP
WLF	.045 (.415)	.376 (.417)
GDI	.805* (.384)	-.065 (.386)
GII	-.611** (.256)	.154 (.257)
GI	-.181* (.092)	.021 (.092)
Constant	.937* (.937)	-.172 (.506)
R-squared	0.957	0.100
F-test	60.985	0.307
Prob > F	0.000	0.867
<i>Robust standard errors are in parentheses.</i>		
<i>*** p&lt;.01, ** p&lt;.05, * p&lt;.1</i>		

*Source: Authors' calculations*

In Table-7, the result of Model 1 indicates that gender inequality affects the progression of female entrepreneurs compared to other explanatory variables of the study. Secondly, the GDI and the GI of the model show that gender development

and globalization assist the female community to grow professionally to some extent considering the development of the country's economy. Even though women's labor force is not statistically significant input here, this factor uplifts overall growth for the female entrepreneurs of our society. Besides, 95.7% variation in the  $HDI_B$  can be explained by the variation in the WLF, GDI, GII, and GI. The *p-value* here suggests that statistically, the model is significant.

Model 2 shows the GDP growth rate of Bangladesh as the dependent variable of the linear regression model. Statistically, there seems no significant explanatory variable related to the GDP of Bangladesh. Additionally, the *p-value* here indicates that the model is not statistically significant. Besides, a 10% variation in the covariate can be explained by the variation of the WLF, GDI, GII, and GI.

## 5.0 Conclusion

Entrepreneurship seems to play a fundamental role in accelerating economic development irrespective of the gender of the entrepreneurs though around 42% of them were women till 2010. In the late 1970s, gender factor issues in this particular arena came into view for academic research. Developed countries have been incorporating women's contributions in international journals to pen down notable impacts and promote those accordingly (GEM, 2010). Henceforth, it was a timely need to check on the situation of female entrepreneurs in developing countries as well. This study summons a conclusive remark on the developed and developing nations based on their sustainable economic growth from female entrepreneurs including the economic situation analysis of Bangladesh in a different segment. Females hold the half percentile of the whole population and have equal responsibility towards society's long-term upward mobility and constructive growth. Successful women pave the way for hundreds many future female entrepreneurs in the locality. Thus, it is essential to make the floor open for women of Bangladesh as well as the whole world by requiring them with inspirational, intellectual, and financial sustenance.

Even though in both countries' categories the growth brings more or less the same result, entrepreneurs' intentions might follow differently in the developed and developing countries. Women around the globe but mostly in developing countries are found to be in trouble with financial and technological support. Different nations impose their cultural ethics and values on the society's women differently as well. Despite these barriers, women tend to thrive in getting better in the industry with the resources they have. Thus, globalization has a significant relationship with economic development regarding female entrepreneurs in society. Gender inequality on the other hand has an inverse relationship with economic development for female business entrepreneurs. After analyzing female entrepreneurs' significant addition to overall economic development through the pre-COVID and post-COVID periods, it

can be said that there is a notable impression on society by their newly introduced businesses. With the results of the models, the research demonstrates that there are many unexplored sectors where women can initiate a business and generate employment. As a whole, it is judged in the paper that women's inclusion in the entrepreneurial sector can bring constructive global change in the world economy mostly after the pandemic.

Bangladesh is a developing country where women are starting their professional lives as independent entrepreneurs in the 21<sup>st</sup> century's competitive workforce. It is discovered that women's labor force is positively contributing to the economic prosperity of the country which leads to higher GDP growth. Globalization leads the door open for Bangladeshi female entrepreneurs by grabbing new market opportunities largely in the technological, communication, and information sectors. Gender inequality on the other hand discourages the potential growth of women entrepreneurs' suppressing their innovative ideas and unique leadership in the field.

Conclusively, women's empowerment through the workplace should not be taken up as no different topic than men's. Female entrepreneurs play a major role not only in uplifting themselves in this sector but also in their families, communities, and society. It should be appreciated wholesomely to inspire women entrepreneurs all over the world, especially in Bangladesh to bring something prodigious to the economy.

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## Appendix

<i>Developed Country List</i>	<i>Developing Country List</i>
Argentina	Algeria
Australia	Angola
Belgium	Bangladesh
Brazil	Chinese Mainland
Bulgaria	Colombia
Canada	Czech Republic
Chile	Denmark
Costa Rica	Ecuador
Cyprus	Egypt
France	Ethiopia
Germany	Ghana
Hong Kong SAR	Hungary
Ireland	India
Israel	Indonesia
New Zealand	Iran
Philippines	Italy
Poland	Japan
Portugal	Jordan

Russia	Lebanon
Singapore	Madagascar
Spain	Malawi
Sweden	Malaysia
Switzerland	Mexico
Thailand	Morocco
United Kingdom	Nigeria
United States	Peru
Uruguay	Qatar
	Romania
	Saudi Arabia
	South Africa
	South Korea
	Tunisia
	Turkey
	Uganda
	United Arab Emirates
	Vietnam