

# Globalization and Female Participation in Labor Force: Evidence from Developing Nations

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## Abstract

*Today, the inclusion of women in the political, social and economic spheres is crucial for sustainable development. In this effort, globalization acts as a catalyst by creating relationships and opportunities that give women greater economic and social influence. This study is concerned with exploring the influence of globalization and its various dimensions, such as economic, social and political, on women's participation in the labor force in developing countries. We have collected panel data covering 131 developing countries over three years and specify four models that are estimated by the fixed effect method using the OLS within-effects. We explored that overall globalization, economic globalization and social globalization are positively and significantly associated with female participation in the labor force on average. In contrast, political globalization has an insignificant influence on female participation in the labor force. The results of other covariates suggest that female fertility rate, urban population and employment in the industrial sector are significant determinants of female participation in economic activity. Hence, on the basis of these results, it can be prescribed that policy should be formulated to support more economic and social integration at the global level in the context of developing countries.*

**Keywords:** Globalization, Female Labor Force Participation, Developing Nations.

## Introduction

In "*Development as freedom*," Amartya Sen posits that the primary goal of development is to expand people's freedom and capabilities. This perspective not only defines development's ultimate objective but also its fundamental means. Sen particularly emphasized on women's agency as a central aspect of development theory and practice (Koggel, 2003).

*The extensive reach of women's agency is one of the more neglected areas of development studies, and most urgently in need of correction. Nothing, arguably, is as important today in the political economy of development as an adequate recognition of political, economic and social participation and leadership of women. This is indeed a crucial aspect of 'development as freedom' (Sen 1999: 203).*

Globalization is a multifaceted process involving the global movement of capital, organizations, ideas, cultures, and people (Oksak & Koyuncu, 2017). Globalization in the past two decades has significantly impacted women in developing nations. Economic agreements like NAFTA and GATT have led transnational corporations to exploit cheap female labor in these countries. Women are preferred workers due to their perceived compliance and willingness to accept lower wages,

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and cultural influences often reinforce this trend in industries like garment assembly (Bacchus, 2005).

There are advantages and disadvantages to globalization, particularly for developing nations. Advocates highlight advantages such as increased commerce, improved communication, information accessibility, better healthcare, education, and employment opportunities, all of which contribute to economic growth. On the other hand, opponents worry about the effects on society, culture, and the environment, in addition to the possibility that outside shocks could jeopardize social stability (Sarwar & Jadoon, 2020). In a similar vein, it is anticipated that globalization will yield conflicting results on the standing of women in emerging countries.

### **Theoretical Insights**

Two competing theoretical frameworks, the hegemonic perspective and the neoliberal perspective, can be used to analyze the relationship between female economic participation and globalization. Globalization is viewed as a transformational and indispensable force that creates a range of development opportunities from a neoliberal perspective. It argues that globalization is the driving force behind technological breakthroughs, cross-border investments, international trade, and increased production efficiency, hence a source of employment generation. According to this school of thinking, women will benefit from globalization from a gender perspective since it will provide them with more opportunities for training and more involvement in the formal labor market. It is possible to modify domestic policy to better prepare women for careers and occupations where job prospects are greater.

The hegemonic perspective, which maintains that wealthy countries and international organizations profit from globalization at the expense of underdeveloped countries, offers a more critical view of the phenomenon. From this angle, globalization is part of a strategy to create a new international order that prioritizes capital accumulation and market competitiveness. Because it produces excess labor with wages at or below subsistence levels, critics claim that this agenda leads to a global crisis of living standards for the working class. Globalization threatens social democracy and mostly helps the wealthiest classes of society, according to the hegemonic viewpoint.

These perspectives provide different lenses through which to understand globalization's impact on women's economic participation. Therefore, this study aims to examine globalization's overall impact and its dimensions on women's participation in economic activities in the context of 131 developing countries over the three-year period from 2018 to 2020.

This study is organized as follows: after section 1 represents the introduction, section 2 provides an extensive review of the literature. Section 3 provides the situational analysis prevailing in developing countries. Section 4 focuses on the data analysis that includes the specification of model and estimation techniques. Section 5 discusses the results obtained after estimating the model specified in the previous section. Last section 6 concludes the study and provides the appropriate recommendations.

### **Literature Review**

The influence of globalization on women's economic well-being has been a subject of extensive examination, with a fundamental question being whether women emerge as beneficiaries or face adverse consequences. This inquiry has led to a bunch of theoretical and empirical studies, each seeking to uncover the effect of globalization on women's engagement in economic activities. The outcomes of these studies, however, present a mixed picture. While some research has indicated a

negative influence of globalization on Female Labor Force Participation (FLFP), the majority of studies have reported a positive impact. In essence, the question of whether globalization ultimately empowers or disadvantages women remains complex and multifaceted.

Amartya Sen places great importance on women's agency, considering it a crucial element of development. Globalization impacts a specific domain of freedom that is of significant concern to Sen, namely, the freedom of women to work outside their homes. Enabling women to participate in the workforce is seen as a means to strengthen their agency and enhance their overall freedom (Koggel, 2003). Global restructuring via economic globalization has dual effects on women. It opens doors to jobs in export and service sectors, drawing women, particularly young unmarried individuals, in developing countries. This extends to financial and office roles with international business growth.

Furthermore, globalization reduces gender-based occupational segregation and inequality, but its impact varies by a country's global economic position and region (Meyer, 2003). However, determining whether globalization has an overall positive or negative impact is a complex matter and may vary depending on specific contexts and perspectives. Globalization's impact on women in developing nations is mixed. While it has empowered some women as primary breadwinners, it has also brought challenges, leaving many with insecure and undignified work (Bacchus, 2005).

There are many studies which confirm the positive association between globalization and female participation in economic activities (Gray et al. 2006; Seguino & Grown, 2006; Villarreal & Yu, 2007; Bussmann, 2009; Gaddis & Pieters, 2012; Chen et al. 2013; Oksak & Koyuncu, 2017; Kis-Katos et al. 2018; Fatima & Khan, 2019; Asongu et al. 2020; Osinubi & Asongu, 2020; Ghosh, 2022; Hossain et al. 2022). Although the nature of the analysis, data, sample, selection of variables, proxies, and estimation techniques varied in these studies, they reported that globalization promotes female participation in the labor force. However, Bussmann (2009) revealed more surprising results that economic integration does not directly lead to improvements in women's life expectancies. While women's access to primary and secondary education may see slight improvements, overall, women's well-being does not appear to improve more than that of men. Furthermore, Kis-Katos et al. (2018) highlighted interesting results that trade liberalization delayed marriage decisions, as improved labor opportunities for women reduced the incentives for early marriage, particularly among younger cohorts. Furthermore, Fatima and Khan (2019) discovered that exports and imports from developed countries, in isolation, contribute to a higher share of female employment in industries. On the other hand, Osinubi and Asongu (2020) discovered that none of the measures of globalization have an immediate or short-term impact on FEP. This suggests that globalization processes do not lead to immediate changes in female economic participation. At the same time, Ghosh (2022) argued that it is social globalization that positively leads to gender equality in employment opportunities.

There is also evidence of both positive and negative associations of globalization on female labor force participation (Maqsood, 2014; Tejani & Milberg, 2016). Maqsood (2014) argued that female labor force participation is positively and significantly linked to foreign direct investment (FDI) and urbanization (urban). At the same time, there is a negative and significant relationship between female labor force participation and trade openness (top). Similarly, Tejani and Milberg (2016) discovered that export growth in developing countries has led to both feminization (an increase in the female share of employment) and defeminization (a decrease in the female share of employment) in different countries depending on the labor capital intensive production process. Moreover, there are also only a few studies that reported the solely negative influence of globalization on female labor force participation (Wacker et al., 2017; Sangha & Riegler, 2020).

There is an ongoing debate about whether globalization and FLFP have a positive or negative association. Although there is a lot of literature, the results are mixed, and very few studies utilized a comprehensive measure of globalization. Moreover, there needs to be more studies that cover the influence of globalization and its dimensions on female labor participation in the context of all developing countries. Hence, this study will fill this gap.

### Hypotheses

Based on the literature review, the following hypotheses can be formulated:

*H1*: Globalization Index positively and significantly affects the FLFP4

*H2*: The economic globalization index positively and significantly affects the FLFP.

*H3*: The social globalization index positively and significantly affects the FLFP.

*H4*: Political globalization index positively and significantly affects the FLFP.

*H5*: All covariates significantly affect the FLFP.

### Situational Analysis

This situational analysis explores the Globalization Index (GI) and Female Labor Force Participation (FLFP) rates across various regions of developing nations, shedding light on globalization and women's engagement in the workforce in these nations

**Table 1: Globalization Index [3 Year (2018-20) Averages]**

Country	Mean	Country	Mean	Country	Mean	Country	Mean
<b>East Asia &amp; Pacific</b>							
Brunei	63.16	Indonesia	63.05	Myanmar	45.01	Thailand	72.81
Cambodia	58.19	Lao PDR	44.76	Papua Guinea	49.29	Timor-Leste	45.09
China	64.79	Malaysia	81.10	Philippines	65.94	Tonga	45.69
Fiji	55.95	Mongolia	64.15	Samoa	50.60	Vietnam	64.08
<b>Europe &amp; Central Asia</b>							
Albania	65.42	Bulgaria	79.60	Montenegro	70.05	Serbia	78.49
Armenia	67.61	Georgia	70.75	North Macedonia	69.59	Tajikistan	50.89
Azerbaijan	66.85	Kazakhstan	64.28	Poland	80.60	Turkey	70.69
Belarus	66.09	Kyrgyz Republic	61.43	Romania	79.25	Turkmenistan	40.94
Bosnia and Herzegovina	67.68	Moldova	67.13	Russian Federation	71.74	Ukraine	73.90
Uzbekistan	51.64						
<b>Latin America &amp; Caribbean</b>							
Argentina	70.14	Colombia	63.44	Haiti	41.56	Peru	68.47
Bahamas, The	54.21	Costa Rica	71.38	Honduras	59.71	St. Lucia	54.89
Barbados	62.81	Dominican Republic	65.16	Jamaica	61.90	St. Vincent and the Grenadines	49.01
Belize	54.95	Ecuador	58.78	Mexico	71.37	Suriname	52.05

Bolivia	57.60	El Salvador	64.95	Nicaragua	59.70	Trinidad and Tobago	62.35
Brazil	64.33	Guatemala	61.41	Panama	70.27	Uruguay	73.00
Chile	75.82	Guyana	52.53	Paraguay	61.75		
<b>Middle East &amp; North Africa</b>							
Algeria	55.38	Iraq	45.19	Libya	53.90	Saudi Arabia	67.22
Bahrain	68.74	Jordan	72.74	Morocco	70.27	Syrian Arab Republic	46.60
Egypt, Arab Rep.	67.57	Kuwait	70.35	Oman	62.28	Tunisia	66.79
Iran, Islamic Rep.	54.17	Lebanon	67.92	Qatar	73.93		
<b>South Asia</b>							
Afghanistan	38.15	Bhutan	40.29	Maldives	50.66	Pakistan	53.23
Bangladesh	49.76	India	62.82	Nepal	46.61	Sri Lanka	58.28
<b>Sub-Saharan Africa</b>							
Angola	43.34	Congo, Rep.	51.60	Lesotho	48.77	Rwanda	51.11
Benin	50.08	Cote d'Ivoire	53.20	Liberia	46.81	Sao Tome and Principe	42.95
Botswana	55.08	Equatorial Guinea	44.46	Madagascar	47.86	Senegal	61.07
Burkina Faso	51.47	Eswatini	45.97	Malawi	46.96	Sierra Leone	44.89
Burundi	40.18	Ethiopia	44.99	Mali	48.74	South Africa	69.61
Cabo Verde	54.96	Gabon	52.70	Mauritania	50.49	Sudan	45.59
Cameroon	49.60	Gambia, The	52.26	Mauritius	71.78	Tanzania	49.72
Central African Republic	37.95	Ghana	60.83	Mozambique	51.40	Togo	51.01
Chad	40.72	Guinea	49.34	Namibia	57.44	Uganda	52.88
Comoros	39.75	Guinea-Bissau	39.74	Niger	44.98	Zambia	57.49
Congo, Dem. Rep.	45.11	Kenya	55.04	Nigeria	55.78	Zimbabwe	52.67

*Source:* Author's calculation based on data from KOF Swiss economic institute.

Table 1 presents the globalization Index for countries across various regions, providing insights into their levels of economic, political, and social integration with the global community. Among the countries with notably higher globalization Index scores are Malaysia (81.10), Poland (80.60), Bulgaria (79.60), Serbia (78.49), Qatar (73.93), Uruguay (73.00), Chile (75.82) and Saudi Arabia (67.22) that can be contributed to their thriving economy, open trade policies, attractiveness to foreign investment, and political stability. However, a few of countries have lower globalization index ratings, such as Afghanistan (38.15) and Turkmenistan (40.94). Afghanistan's score is significantly damaged by protracted violence, limited economic variety, and political uncertainty.

The combination of a somewhat closed political environment and little economic diversification accounts for Turkmenistan's poor grade.

**Table 2: Female Labor Force Participation [3 Year (2018-20) Averages]**

Country	Mean	Country	Mean	Country	Mean	Country	Mean
<b>East Asia &amp; Pacific</b>							
Brunei	55.77	Indonesia	53.39	Myanmar	46.50	Thailand	59.30
Cambodia	69.12	Lao PDR	55.69	Papua Guinea	46.54	Timor-Leste	61.14
China	60.75	Malaysia	51.73	Philippines	44.77	Tonga	42.40
Fiji	38.22	Mongolia	53.72	Samoa	40.96	Vietnam	69.64
<b>Europe &amp; Central Asia</b>							
Albania	51.24	Bulgaria	49.56	Montenegro	48.25	Serbia	46.64
Armenia	56.92	Georgia	55.13	North Macedonia	43.93	Tajikistan	31.01
Azerbaijan	63.50	Kazakhstan	65.23	Poland	48.98	Turkey	33.01
Belarus	57.65	Kyrgyz Republic	45.08	Romania	45.59	Turkmenistan	47.68
Bosnia and Herzegovina	35.95	Moldova	37.86	Russian Federation	55.09	Ukraine	48.98
Uzbekistan	40.09						
<b>Latin America &amp; Caribbean</b>							
Argentina	48.56	Colombia	54.35	Haiti	61.96	Peru	66.64
Bahamas, The	65.74	Costa Rica	49.86	Honduras	48.30	St. Lucia	63.90
Barbados	58.58	Dominican Republic	49.84	Jamaica	58.83	St. Vincent and the Grenadines	53.78
Belize	48.83	Ecuador	52.38	Mexico	43.58	Suriname	45.14
Bolivia	61.22	El Salvador	44.42	Nicaragua	47.92	Trinidad and Tobago	47.88
Brazil	52.78	Guatemala	37.14	Panama	52.71	Uruguay	55.54
Chile	47.78	Guyana	40.15	Paraguay	58.93		
<b>Middle East &amp; North Africa</b>							
Algeria	16.13	Iraq	11.32	Libya	33.77	Saudi Arabia	25.38
Bahrain	43.83	Jordan	14.40	Morocco	22.64	Syrian Arab Republic	16.25
Egypt, Arab Rep.	16.23	Kuwait	47.94	Oman	30.13	Tunisia	26.03
Iran, Islamic Rep.	16.04	Lebanon	28.13	Qatar	59.08		
<b>South Asia</b>							
Afghanistan	20.00	Bhutan	54.16	Maldives	41.15	Pakistan	22.79
Bangladesh	36.71	India	22.31	Nepal	28.17	Sri Lanka	33.61
<b>Sub-Saharan Africa</b>							

Angola	74.74	Congo, Rep.	66.66	Lesotho	57.34	Rwanda	48.19
Benin	56.14	Cote d'Ivoire	55.95	Liberia	71.93	Sao Tome and Principe	37.66
Botswana	58.01	Equatorial Guinea	50.83	Madagascar	82.79	Senegal	37.36
Burkina Faso	57.61	Eswatini	46.99	Malawi	63.43	Sierra Leone	51.31
Burundi	80.58	Ethiopia	74.40	Mali	55.50	South Africa	50.81
Cabo Verde	48.96	Gabon	38.91	Mauritania	26.18	Sudan	28.79
Cameroon	66.99	Gambia, The	55.91	Mauritius	45.32	Tanzania	78.84
Central African Republic	63.05	Ghana	65.08	Mozambique	78.10	Togo	55.75
Chad	48.38	Guinea	42.54	Namibia	55.16	Uganda	67.28
Comoros	32.90	Guinea-Bissau	48.70	Niger	61.93	Zambia	52.94
Congo, Dem. Rep.	62.35	Kenya	71.70	Nigeria	51.85	Zimbabwe	60.52

*Source:* Author's calculation based on data from World Bank

Female Labor Force Participation (FLFP) rates across various countries and regions are illustrated in table 2, which displays 3-year average data. It's interesting to note that the FLFP rates in different countries are very different from one another, revealing a range of factors influencing FLFP. The countries with the highest FLFP rate include Madagascar (82.79), Tanzania (78.84), Angola (74.74), and Burundi (80.58). These high rates can be explained by the importance of women's work in the agricultural sector of these economies. Conversely, some countries have lower FLFP rates than others, which may indicate challenges and barriers for women wanting to enter the labor. These countries includes Iraq (11.32), Algeria (16.13), Saudi Arabia(25.38) and Turkmenistan (47.68).

## Data Analysis

This section focuses on providing a comprehensive understanding of model specification, selection of variables, data behavior and selection of appropriate econometric estimation technique.

### Model Specification

The main intention of this study is to explore the relationship between, Economic, Social, Political, overall globalization on FLFP. Therefore, we proposed four models as follows:

$$\text{Female Labor Force Participation}_{it} = \beta_0 + \beta_1 \text{Full Globalization Index}_{it} + \beta_i Z_{it} + \varepsilon_{it} \quad (1)$$

$$\text{Female Labor Force Participation}_{it} = \alpha_0 + \alpha_1 \text{Economic Globalization Index}_{it} + \alpha_i Z_{it} + \varepsilon_{it} \quad (2)$$

$$\text{Female Labor Force Participation}_{it} = \gamma_0 + \gamma_1 \text{Social Globalization Index}_{it} + \gamma_i Z_{it} + \varepsilon_{it} \quad (3)$$

$$\text{Female Labor Force Participation}_{it} = \delta_0 + \delta_1 \text{Political Globalization Index}_{it} + \delta_i Z_{it} + \varepsilon_{it} \quad (4)$$

Where  $i$  represent cross sections and  $t$  represents the time series.

$i = 1, 2, 3, 4 \dots \dots \dots n$  And  $t = 1, 2, 3 \dots \dots \dots T$ ;  $i \times t = \text{Total observation (N)}$

In above equations Female Labor Force Participation (FLFP) is measured by labor force participation rate, female (% of female population ages 15+ modeled ILO estimates), and  $Z$

represents other covariates that might influence the female labor force participation like female education and health status, urban population growth, inflation, employment in agriculture and industrial sector. Whereas globalization is measured by KOF globalization index initially constructed by Axel Dreher (Dreher, 2006). We have utilized the latest version of globalization index (Gygli et al. 2019).

While  $\beta$ ,  $\alpha$ ,  $\gamma$ , and  $\delta$  represent the intercept and partial coefficients, and  $\varepsilon$  represents the error term which includes those variables that might have little influence on female labor force participation but do not included in regression model.

### Data and Variables

Data has been collected from authentic sources and variables have been selected based on literature review (Oksak & Koyuncu, 2017; Asongu et al., 2020; Sangha & Riegler, 2020; Hossain et al. 2022). The following table 1 shows the description about the variables:

**Table 3: Description of variables**

Type of Variable	Variable Names	Proxy	Unit of measurement	Source of Data
Dependent variable	Female Labor Force	Participation rate	% of female Pop. Aged 15+	World Bank
Independent variables (explanatory)	Globalization	KOF. Globalization Index (GI)	Scale (between 1 to 100)	KOF Swiss Economic Institute
		Economic GI		
		Social GI		
		Political GI		
Controlled variables	Education	Mean Years of Schooling	Average	UNDP
	Health	Fertility Rate	Total (Birth per Women)	World Bank
	Inflation	GDP Deflator	Annual Percentage	World Bank
	Demographic information	Urban Population	Growth (Annual %)	World Bank
	Employment Status	Employment in Agri. Sector	Employment in Industry Sector	% of Total Employment

Data on these variables has been collected for 131 developing countries<sup>4</sup> over the time period of three years (2018 to 2020). It is the panel data set with cross-section equal to 131, while time series equal to 3, thus the total number of observation would be 393. Description about the characteristics of selected data set is shown in the table given below:

<sup>4</sup> <https://www.worlddata.info/developing-countries.php>



**Table 4: Summary statistics**

Variables	Mean	Stand. Deviation	Minimum	Maximum
Female Labor Force (%)	49.0557	14.85545	11.069	83.12
Globalization Index (GI)	57.73297	10.75066	37.26698	81.31271
Economic GI	51.75218	13.01476	26.0666	82.40387
Social GI	57.26336	14.03122	27.49356	84.93632
Political GI	64.31368	17.26776	22.9171	93
Mean Years of Schooling (Female)	7.584699	3.192036	1.22788	13.34
Fertility rate	2.935417	1.322911	1.217	7.023
Agri. Employment	29.66525	20.22195	0.989426	86.17698
Industry Employment	19.5137	8.158605	3.452964	54.23256
Urban Pop. Growth	2.219243	1.559863	-2.6938	5.862544
Inflation	7.780086	35.45503	-26.2961	604.9459
N (Observations)	393			
n (Countries)	131			
Time (Years)	3			

The table 4 above provides descriptive statistics for various variables, offering insights into their central tendencies, dispersion, and ranges. In developing countries, the average female labor force participation rate stands at 49%, with values ranging from as low as 11% to as high as 83%. The globalization index has an average value of 57.73 units, spanning from a minimum of 37.26 to a maximum of 81.31 units. Economic globalization, social globalization, and political globalization exhibit average scores of 51.75, 57.26, and 64.31 respectively.

### Panel Data Estimation

Panel data, often referred to as longitudinal data or cross-sectional time-series data, encompass observations collected over various time periods for the same units or entities. “Observations on the same units in several different time periods” (Kennedy, 2008, p.281)

A panel data set consists of  $n$  entities or subjects, each observed at different time points (from 1 to  $T$ ), resulting in a total of  $nT$  observations. Ideally, these observations should be taken at regular intervals, like yearly or quarterly. Panels can be categorized as either long, with numerous time periods but few entities, or short, with many entities but limited time periods. Caution is necessary when dealing with either short or long panels, as challenges can emerge with both small and large entity counts. Additionally, panels can be balanced, where all entities have data for every time period, or unbalanced, where some entities may lack data for certain periods (Park, 2011).

The dataset utilized in this study is characterized as short panel as it contains large cross section but small time series, and it is also balanced panel as there is no missing observation. These datasets can exhibit individual or group-specific effects, time-specific effects, or even a

combination of both. Panel data models are employed to investigate group-specific effects, time-specific effects, or a combination of both, represented by introducing the dummies, which helps account for variations or individual-specific influences that might be present, whether observable or not. These effects can take the form of either fixed or random effects. In a fixed effect model, the analysis focuses on whether intercepts differ across groups or time periods. Conversely, a random effect model examines the differences in the components of error variance across individuals or time periods. The primary distinction between fixed and random effect models centers on the treatment of dummy variables. In a fixed effect model, the parameter estimate of a dummy variable contributes to the intercept, while in a random effect model, it influences the error component. Importantly, the slopes remain consistent across groups or time periods in both fixed and random effect models. The functional forms of one-way fixed and random effect models are as follows:

#### Fixed Effect Model

$$y_{it} = (\alpha + u_i) + X_{it}\beta + v_{it} \quad (5)$$

#### Random Effect Model

$$y_{it} = \alpha + X_{it}\beta + (u_i + v_{it}) \quad (6)$$

Where  $y_{it}$  represents the dependent variable (FLFP in our case), while  $X_{it}$  is vector of independent variables (globalization indexes, and other covariates),  $\alpha$  represents the intercept, whereas  $u_i$  is a fixed or random effect specific to individual (group) or time period that is not included in the regression,  $v_{it}$  is the error term which assumed to be independently identically distributed,  $v_{it} \sim IID(0, \sigma^2)$ .

The distinction between a fixed group effect model and a random effect model in panel data analysis lies in their treatment of individual differences. In a fixed effect model, individual variations are incorporated into the intercept, allowing these individual-specific effects ( $u_i$ ) to be correlated with other regressors without violating the Ordinary Least Squares (OLS) assumptions. This model is typically estimated using Least Squares Dummy Variable (LSDV) regression or within-effect methods. Conversely, a random effect model assumes that individual effects (heterogeneity) are uncorrelated with any regressor. Instead, it estimates error variance specific to groups or times, treating  $u_i$  as random individual-specific heterogeneity or an element of the composite error term. The key feature is that, in a random effect model, the intercepts and slopes of regressors are uniform across individuals, with distinctions among individuals (or time periods) residing in their individual-specific errors, not their intercepts. This model is estimated using Generalized Least Squares (GLS) methods.

The choice between a fixed effect and a random effect model in panel data analysis depends on the outcome of the Hausman test. The Hausman specification test, introduced by Hausman in 1978, is a statistical test that helps determine whether a random effect model or a fixed effect model is more suitable for panel data analysis. If the test does not reject the null hypothesis, which posits that the individual-specific effects are not significantly correlated with the other independent variables in the model, it suggests that a random effect model is the preferable choice over the fixed effect model.

## Results and Discussion

The dataset utilized by this study contains more cross section and less time series observations, therefore the data contains more cross section properties than time series properties, hence there is

no need to report the stationarity. Results are obtained through panel data estimation applying both fixed effect and random effect models. The selection of the model is based on the Hausman test which is shown in the table below. Chi2 stats under Hausman test is highly significant which shows the rejection of null hypothesis of individual specific effect ( $u_i$ ) is not correlated with regressors in the model. Instead we found that individual specific effects are correlated with regressors, hence in that case, fixed effect model would be more suitable for panel data estimation. Therefore, we have reported the results obtained through the fixed effect model estimated by OLS within effects method in the table below:

**Table 5: Fixed effect model (Dependent: Female Labor Force Participation %)**

Variables	Globalization Index (Model 1)	Economic Globalization (Model 2)	Social Globalization (Model 3)	Political Globalization (Model 4)
Globalization Index	0.1956** (0.0880)			
Economic Globalization		0.1343** (0.0528)		
Social Globalization			0.2247*** (0.0829)	
Political Globalization				-0.0675 (0.0444)
Fertility Rate	3.2172*** (0.9952)	2.7338*** (0.9653)	3.6098*** (0.9832)	2.9034*** (0.9762)
Female Avg. Schooling	0.2555 (0.5325)	0.3229 (0.5241)	0.1182 (0.5150)	0.4631 (0.5270)
Agri. Employment	0.0716 (0.1397)	0.0575 (0.1360)	0.0534 (0.1482)	0.0873 (0.1421)
Industry Employment	-0.5037*** (0.1946)	-0.5040*** (0.1932)	-0.4709** (0.1946)	-0.4788** (0.1980)
Urban Pop. Growth	0.3657* (0.2044)	0.4189** (0.2071)	0.2880 (0.1968)	0.4439** (0.1940)
Inflation	0.0026 (0.0027)	0.0030 (0.0031)	0.0024 (0.0025)	0.0023 (0.0024)
Constant	37.5436*** (9.8893)	42.2666*** (8.9165)	34.8487*** (11.8050)	52.3267*** (8.9830)
Hausman Test Chi2 Stat (7)	43.71***	53.04***	50.69***	46.37***
F-Statistics	4.27***	4.28***	5.51***	6.44***
Observation	393			
No. of Countries	131			
Time Period	2018-2020			

Note: Robust Standard Errors are in parenthesis

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

The above table 5 shows the results for the proposed models (1), (2), (3), and (4) estimated by fitting the fixed effect model. The F-statistics significance indicates that, collectively, there is a significant association between Female Labor Force Participation (FLFP) and all explanatory variables. F-Stat remained highly significant across all the models, indicating that overall, all models are meaningful in explaining the relationship between these variables. When examining the individual significance, we observe the overall Globalization Index (GI), economic globalization, and social globalization are statistically significant and positively affecting the FLFP, while political globalization is negatively influencing the FLFP, but it is found to be insignificant. Our results are in line with Oksak and Koyuncu (2017), except that political globalization is insignificant.

We found that 1 unit increase in the scale of the overall globalization index leads to a 0.20 percent increase in FLFP, while 1 unit increase in the scale of economic globalization enables 0.13 per cent more women to join the labor force; on the other hand, social globalization brings the 0.22 per cent empowerment in the female to join the labor force, on average, in the context of developing countries. The rationale behind these relationships would be that globalization can positively impact female labor force participation channelized through its dimensions. Economic globalization expands job markets, enhances skills, and reduces gender wage gaps, while social globalization challenges traditional norms and empowers women economically and socially. Access to flexible work arrangements and sectors linked to global markets, along with changing societal perceptions, can increase women's participation in the labor force. Additionally, globalization promotes women's education and financial independence, creating opportunities for greater female workforce engagement and gender inclusivity. Hence, globalization is significantly improving women's conditions in developing countries. We accept the H1, H2, H3, but reject the H4.

As far as other covariates are concerned, we found very surprising results that fertility rate is positively and significantly affecting the FLFP across all the four models, as it was thought to be a hurdle in the way of joining the labor force for females and its sign was anticipated to be negative. Instead, we found that model 1 shows that a 1 unit increase in the fertility rate would bring a 3.2 percent increase in female labor force participation on average. In contrast, model 2 shows that it would bring a 2.7 percent increase in the participation of females in the labor force; model 3 shows that 3.6 per cent more females will join the labor force due to a 1 unit increase in fertility. Model 4 represents that 2.9 per cent more females will join the labor force on average if there is a 1 unit increase in the fertility rate in the context of developing nations. However, the rationale behind this relationship would be: A higher fertility rate among females can positively influence female labor force participation through several socioeconomic and cultural mechanisms. With more children in the family, there may be a higher demand for additional income to support the household. In such cases, women may be more motivated to enter or remain in the labor force to contribute financially to their family's well-being. Increased fertility rates can also drive demand for childcare services, potentially creating job opportunities for women in this sector. Cultural norms may encourage women to balance work and family life, viewing employment as a means to provide for their families while fulfilling maternal roles. Financial pressures arising from raising more children can necessitate women's participation in the labor force to support their families. Additionally, supportive policies like paid maternity leave and flexible work arrangements can mitigate the challenges associated with higher fertility rates, facilitating female workforce participation.

Female years of schooling are also another important factor that might encourage females to join the labor force, but we found that female education is insignificant across all four models. Employment in the Agriculture sector is also found to be insignificant in all four models, whereas employment in the industry sector negatively and significantly affects the FLFP. We found that a 1 per cent increase in the labor force employed in the industry sector will lead to reducing the FLFP by 0.50 per cent (model 1 & model 2), 0.47 per cent (model 3), and 0.48 per cent (model 4) on average in developing nations. The channel of relationship could be as follows: employment in the industrial sector can have an unfavorable impact on female labor force participation due to several interconnected factors. Gender discrimination and biases prevalent in these sectors can limit women's access to opportunities, perpetuate wage gaps, and hinder career advancement.

Additionally, the physically demanding nature of industrial jobs, coupled with often inadequate family-friendly policies, can discourage women from pursuing such careers. Moreover, the challenging work-life balance demanded by industrial jobs, driven by irregular hours and long commutes, can pose significant obstacles for women who prioritize family responsibilities. Hence, through these channels, the growth of employment in the industrial sector could discourage females from joining the labor force.

Furthermore, urban population growth is also a significant factor that influences female participation in the labor force. We found that urban population growth is marginally significant in model 1 and significant at 5% in models 2 and 4, while it is insignificant in model 3. The results show that a 1 per cent increase in urban population growth would lead to a 0.37 per cent increase in FLFP on average (model 1). In comparison, it brings 0.42 per cent, according to model 2, and 0.44 per cent encourages more females to join the labor force on average (model 4) in the context of developing nations. The channel through which urban population growth encourages female labor force participation suggests that as urban areas expand and become more economically dynamic, women may be drawn to the labor force due to improved job prospects, changing household dynamics, enhanced access to education and support services, shifting social norms, economic empowerment, and the influence of peers and community networks. These factors collectively contribute to the observed positive relationship between urban population growth and female labor force participation in developing nations. Moreover, we found that inflation is also insignificant across all four models.

Altogether, the results suggest that overall globalization, economic globalization, social globalization, fertility rates, industry employment, and urban population growth are factors that are associated with female labor force participation. In contrast, political globalization and the other control variables do not have a significant impact in the context of developing countries.

## Conclusion and Recommendations

Amartya Sen argues that the primary goal of development is to expand people's freedom and capabilities, with a particular emphasis on women's agency. Globalization in the past two decades has significantly impacted women in developing nations, with economic agreements leading to the exploitation of cheap female labor. Globalization has both positive and negative impacts, and its effects on women in developing countries are anticipated to be mixed. Consequently, the main concern of this study is to check how globalization and its dimensions of economic, social, and political influence female participation in the labor force. For this purpose, we took the panel data for 131 countries over the latest period of three years, 2018 to 2020. The panel is characterized as a short panel as it contains a large cross-section and a small time series.

This study proposed four models: model 1 for the overall impact of globalization, model 2 for economic globalization, model 3 for social globalization, and model 4 for political globalization. We analyzed these models by estimating the fixed effects model using the method of OLS within effects. However, we have applied the Hausman test to specify the more appropriate model. The Hausman test provided results that are in favor of the fixed effects model. The obtained results suggest that there is a collectively significant association between FLFP and explanatory variables across all models. Individual significance analysis reveals that overall Globalization Index (GI), economic globalization, and social globalization positively affect FLFP, while political globalization is insignificant and negatively related. Surprisingly, fertility rates positively influence FLFP in all models, likely driven by increased financial demands and childcare opportunities. Female education and employment in the agriculture sector are insignificant, while employment in the industry sector negatively affects FLFP due to gender biases and work-life challenges. Urban population growth has a positive but varying impact on FLFP, suggesting improved job prospects and changing social dynamics. Inflation is insignificant. Altogether, overall globalization, economic globalization, social globalization, fertility rate, industrial employment and urban population growth are the important predictors of female participation in the labor force.

On the basis of these results, the following suggestions could be made for developing nations:

- Given that economic globalization has a positive and significant impact on FLFP, policymakers should consider policies that encourage international trade, investment, and economic integration. Trade agreements, lower trade barriers, and assistance for companies operating in international markets can all help to achieve this. Women can be economically empowered, the gender wage gap can be closed, and more work opportunities can be created as a result.
- Additionally, FLFP benefits from social globalization. Policymakers may promote social globalization by supporting initiatives that challenge conventional wisdom and give women more social and economic clout. This could involve campaigns to promote gender equality, initiatives to increase the representation of women in decision-making processes, and educational initiatives for girls.
- There is a significant and favorable relationship between FLFP and fertility rates. Enacting family-friendly policies like parental leave and competitively priced daycare facilities will encourage women who choose to enter or remain in the workforce while raising children. These guidelines can help women who require support managing their duties to their families and their jobs.
- The negative impacts of FLFP employment in the industry sector highlight the need for legislation combating bias and discrimination against women in these domains. By adopting family-friendly policies in industrial occupations, improving working conditions, and passing anti-discrimination legislation, we may encourage more women to enter and remain in the workforce.
- Increased FLFP is associated with population growth in cities. Policymakers should focus on developing urban areas in order to increase employment possibilities, give access to education and support services, and promote women's economic empowerment. By endorsing laws that promote work-life balance in metropolitan settings, women can also more effectively manage their personal and professional lives.

In summary, the adoption of these thoughtful policies in developing nations will increase FLFP and pave the path for further sustainable development.

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