
Impact of Globalization on Women Empowerment in the Presence of Corruption

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Abstract: *Positive spillover effect of globalization ascends women empowerment but under corruption benefits of global integration on women empowerment become vulnerable. Results attain through instrumental variable regression analysis reveal that under the presence of corruption benefits of globalization on women empowerment are significantly reduce by 18 percent. This outcome sorts corruption as main hindrance element in trickle-down the fruitful advantages of globalization on women's betterment. More corrupt the country, less benefits of globalization will be translated to women, and less will be the women empowerment in the country, this fact implies relevance for the policy formalization. Moreover, economic, political and social globalization has positive and significant effect on women empowerment.*

Keywords: *Empowerment, Globalization, Corruption, Spillover, Gender.*

1. INTRODUCTION

It is believed that increasing role of women in economic, political and social spheres of life, enhances women empowerment. In addition to other determinants of women empowerment, the importance of globalization cannot be overseen. Market liberalization rises, the level of trade deficit and structural adjustment programs increase the participation of women in the paid labor. It is the globalization that has urged women to become one of the earning hands of their families according to Black and Brained [3], Braunstein [4], Dutta [7], Joeques [9], Neumayer and Soysa [15], because of globalization the traditional household obstacles are removed and have allowed women to work in factories and even in the multinational companies.

Inspite of the universal realization on the argument of benefits of globalization in women empowerment in Neumayer and Soysa [15] for developing countries, it has not been achieved

to its potential level till date. Corruption can reduce the development of globalization and restrict benefits for women, Dutta [7]. In developing and under-developed countries, to be a part of formal sector sometimes bribe plays an important role in Thompson [17] but due to lack of financial resources women are unable to pay bribe.

Under this background it is helpful to determine the influence of globalization on women empowerment when corruption hampers the legitimate trickledown effect of globalization in creating women betterment. Although many existing studies address the determinants of women empowerment but limited literature debate about the influence of globalization and corruption on women empowerment. Thus, this study investigates how globalization approaches women empowerment under the phenomenon of corruption in developing and under-developed countries. Moreover, Bhagwati [2] comes to the view that in addition to economic benefits, globalization also trickles down its social and political influence on lagged economies. This paper aims at to document and investigates the separate impact of economic, political and social globalization on women empowerment, which might have gone unnoticed in literature regarding women empowerment. Furthermore Corruption, globalization and women empowerment are not orthogonal to each other.

2. RELATED WORKS

In theoretical context, globalization empower women through increase in economic, political and social opportunities however incidence of corruption demands bribe thus takes away the advantage of globalization from women. Corruption also reduces the access of women to public services and resources. To abridge, globalization is an important determining indicator for the betterment of women empowerment and along with trade openness and foreign direct investment, social and political spillover effects of globalization are also crucial to be addressed and empirically investigated, since they are unnoticed in prevailing literature.

For last few decades women empowerment and its impact on economic growth and economic development remains a projecting issue in the realm of development economics, Neumayer and Soysa [15]. In their research Diebolt and Perrin [6] uses unique empirical analysis to capture historic path of sustained development. By using cliometric growth model authors induce that with the realization of human capital, income and demographic transition, women empowerment originate as key entity of sustainable economic growth.

Along with other driving factors of women empowerment, significance of the phenomenon of globalization can't be negated. For the last couple of decades globalization has inculcated its healthy returns in terms of development and played a crucial role in women empowerment, globalization is also contributing to poverty alleviation by generating extra earning for poor households. In this way, globalization affects gender equality, women empowerment and building the capability of women can be seen to the larger extent, Dutta [7]. Advocating the role of globalization the authors Braunstein [4], Razavi [16] and Joeke [9] argue that in low- and middle-income countries where foreign multinational companies provide inflating rewards to women, globalization leads substantial infusion in women empowerment in labour/job market.

If we talk about the trickle-down effect of globalization, Neumayer and Soysa [15] explicates that globalization effects economic, political and social life of women in positive way. Through trade and investment women are provided with the opportunity to enter and

participate in labour market, as according to Neumayer and Soysa [15] profit seeking corporations hire workers without considering social stigma. Social benefits of globalization on women empowerment are well justified by Bhagwati [2], in his view under globalization better right and higher standards are spilled over and transfer from developed economies to laggard countries. Furthermore, Bhagwati [2] also states that in globalized world, international pressure makes countries vulnerable to political change. Thus, along with economic aspect of globalization, its social and political aspects are also important for women empowerment.

To capture the empirical influence of globalization on women empowerment, many studies (Neumayer and Soysa [15], Dutta [7], Black and Brainerd [3], Morrisson and Jutting [14], Kucera and Milberg [10] and Mills [13] use foreign direct investment and trade openness, which only relates with the economic phenomenon of globalization. But Bhagwati [2] discourse spillover effect of globalization and talk how developed economics transfer social and political phenomenon in developing and under-developed countries.

Globalization contributes positively in developing women empowerment according to Neumayer and Soysa [15] but in developing and under-developed countries these beneficial outcomes are not fully attained. In his study Mauro [12] highlights that corruption can derail the development of globalization and restrict benefits for women. Due to the deficiency of social, political and economic agency, women remain unaware about their legal rights which imply obstacles to avail public services and ultimately women remain unprivileged from the benefits of global integration, Dutta [7]. Thus, this question of the association between globalization and corruption is therefore an enlightening perspective for the better obligation of globalization in creating women empowerment. Corruption implies differential influences on gender and social groups through inefficiency and ineffectiveness of public sector policies, Brunetti and Weder [5] and Thompson [17]. In addition to that low earning of women reduces their ability to offer bribe to public institutions to get access to services and legitimately enforce them to the pit hole of low economic and political empowerment. Under these circumstances it becomes necessary to contextualize statistical impact of global market integration on women empowerment under the existence of corruption.

Based upon the existing literature it is clear that women empowerment is an important catalyst for development and is conceptualized through access, agency and legitimacy over economic, social and political resources. Moreover, along with other drivers, globalization plays an important role in empowering women but existing literature addresses only the impact of economic globalization on women empowerment while social and political trickledown effect of globalization in the form of social and political globalization are equally important in addressing empowerment issue. Furthermore, it is also clear that in the presence of corruption globalization does not yield results to the potential level. So, it is important to address the impact of globalization on women empowerment in the presence of corruption.

3. METHODOLOGY

The study focuses on the development an appropriate index for women empowerment by considering economic, political, social, education and health well-being dimensions. WEI is therefore a composite index, measured through multidimensional characteristics of women empowerment. To address the issue of women empowerment, globalization and corruption,

study follow the approach of Diebolt and Perrin [6]. The authors use cliometric growth model, and refer cliometric growth as long-term economic growth and address it as two-phase phenomenon. As this paper consider only developing and under-developed countries which are in first phase of cliometric growth, so cliometric growth model is applied in its first phase, where demographic transition, investment in human capital (education), increasing per capita income level, increasing social and labour participation of female and other socioeconomic processes lead towards increase in women empowerment. For the methodological modelling study amends cliometric growth model by the inclusion of globalization and corruption variables. Thus, in following amended cliometric growth model is expressed into econometric equation form;

$$\text{WEI} = \alpha_0 + \alpha_1 \ln\text{GDP_pc} + \alpha_2 \text{EGI} + \alpha_3 \text{SGI} + \alpha_4 \text{PGI} + \alpha_5 \text{GII} + \alpha_6 \text{CPI} + \alpha_7 \text{INT} + \varepsilon \quad (1)$$

Where, WEI= women empowerment index, lnGDP_pc= natural log of per capita income, EGI= economic globalization index, SGI= social globalization index, PGI= political globalization index, CPI= corruption perception index, GII= global innovation index and INT= interaction term for corruption and economic globalization. Novelty of this research lies in the utilization of social and political aspects of globalization to see how social and political globalization affects women's overall empowerment. This universalization of corruption in any economy is subtle in all countries. Consequently, this association between globalization, women empowerment and corruption suffers from the issue of endogeneity. Thus, keeping this endogeneity problem under considerations this paper utilizes instrumental variable approach.

Variables and Data Description

Dependent Variable (WEI)

To construct women empowerment index study, use five variables this contributes in personal decision and choice making. For political empowerment and decision making, female percentage share in parliament is regarded as identifier. Second and third variables are female percentage share in labour force and females estimated per capita income (US\$) showing economic participation and control of female over economic resources. Fourth variable is female education (Population with at least some secondary education, female, percentage ages 25 and older) which plays decisive role in enlightening women to get empowered. Lastly adolescent fertility rate is used to address health and well-being of women. The value of WEI ranges from 0 to 100, where 0 means least empowerment while value of 100 show full women empowerment.

Independent Variables

Per Capita Gross Domestic Product (GDP_pc)

Per capita GDP is referred as countries output per head. This study uses current US\$ per capita GDP. Per capita is regarded as general equipment to see overall development in the economy including women empowerment, thus it establishes positive association with women empowerment. Here for data analysis and estimation per capita GDP is considered into its natural log form.

Economic Globalization Index (EGI)

Economic globalization is a composite index of all economic activities going through in the world, which includes variables like; trade openness, foreign direct investment, portfolio investment, international debt, international reserves and international income payments. EGI index ranges from 0 to 100 where 0 reflects least economic globalization while 100 means full economic globalization of a country.

Social Globalization Index (SGI)

Social globalization is the realization of the core issues e.g. basic rights, gender equality and women empowerment. KOF Swiss Economic Institute constructed social globalization index (SGI) by considering social and cultural variables; international voice traffic, freedom to visit, international tourism, international students, migration, television access, press freedom, gender parity and trade in cultural goods, Gygli et al. [8]. In short SGI tells how social activities are globalized; value of SGI ranges from 0 to 100 where 0 reflects least socially globalized country while value of 100 highlights full social globalization of country.

Political Globalization Index (PGI)

Another important aspect of globalization is movement of political regimes across boundaries; this phenomenon is defined as political globalization. To measure political globalization index Gygli et al. [8] use variables; international organizations, international NGOs, UN missions to keep peace, embassies and international treaties. PGI tells how political activities are globalized, value of PGI ranges from 0 to 100 where 0 represent least political globalization while 100 reflects full political globalization of countries.

Corruption (CPI)

Corruption is regarded as discrepancy in utilization of power, generally corruption is measured through corruption perception index (CPI), developed by Transparency International, we uses CPI score instead of ranks. Value of CPI score ranges between 0 and 100, where 0 reflects highly corrupt county while 100 represents country without corruption, but here in this study for uniform interpretation CPI score is subtracted from scale of 100 thus as CPI score increases countries tend to be more corrupt.

Global Innovation Index (GII)

GII is constructed by World Intellectual Property Organization (WIPO), an agency of United Nations. GII range from 0 to 100 where the value of 0 reflect least global innovations travelled across countries while the value of 100 shows highest global innovation sharing.

Instrumental Variables for Corruption

To address this problem of the selection of suitable instrumental variable, this study tested correlation of instrumental variables with instrumented variable and dependent variable and found that online services index (OSI) and telecommunication infrastructure index (TII) are more plausible variables which can be used as instruments for corruption (Table-2). We see very weak correlation of instrumental variable (OSI and TII) with WEI and moderately healthy correlation with the corruption. Therefore, online services index and

telecommunication index can be used as good instrumental variables for corruption, which have strong theoretical and empirical association with corruption level.

Online Services Index (OSI)

United Nations e-Government Survey [19] defines OSI as willingness and capability of the government to provide electronic communication services. The Online Service Index (OSI) assesses country's national electronic communication system, the value of OSI index range between 0 and 100, where value of 0 means least electronic communication services and on other hand the value of 100 represents highest electronic communication services provided by the government to the people.

Telecommunication Infrastructure Index (TII)

The telecommunication infrastructure Index (TII) is a composite index, captured by assessing Internet, telephone, mobile, and broadband used by countries people, where these variables are calculated by arithmetic average to give TII. The value of TII ranges from 0 to 100, value of 0 represent least availability of telecommunication infrastructure while 100 show maximum availability of telecommunication infrastructure available to people inside a country.

Interaction Term (INT)

Furthermore, to see the combine effect of globalization and corruption an interaction term is used. CPI in endogenous within the model therefore for interaction term CPI is instrumented with OSI, and a new variable is generated as interaction term ($INT = OSI * EGI$).

In this study, data of 99 developing and under-developed countries from 2003 to 2018 is utilized. Due to the missing data set of variables, many countries are dropped. Selection of developed and under-developed countries is carried out under the income criterion set by World Bank. Data for stated variables is collected from different sources; World Bank Database, KOF Swiss Economic Institute, World Intellectual property organization, Transparency International Database, Worldwide Governance Database and UN E-Government Knowledge Database.

Empirical Specification

Universalization of corruption is subtle in all countries, the association between globalization, women empowerment and corruption suffers from the issue of endogeneity. Under the problem of endogeneity due to simultaneous causality, OLS estimate does not remain consistent. As error term does not remain independent over explained variable (WEI) violating the basic OLS assumption E ($\epsilon=0$). Study addresses the problem of endogeneity by using two stage (2SLS) instrumental variables (IV) approach. OSI and TII variables are instrumented with corruption perception index. Results of the correlation of instrumental variable with CPI and WEI are stated in Table-2, which clearly reflects weak association of instruments with dependent variable and healthy correlation of the instrumented with CPI. Stock-Yogo Identifying restriction test also confirm that instruments are valid. Furthermore, OSI is instrumented with CPI to generate new variable for the interaction term to capture the effect of globalization on women empowerment in the presence of corruption. To check whether corruption perception index is endogenous inside the model, Durbin and Wu–

Hausman statistics and first stage regression statistics are used respectively by using 2SLS instrumental variables estimation technique.

Reduced form IV Model

$$WEI_{it} = \alpha_i + \alpha_1 \ln GDP_{pcit} + \alpha_2 EGI_{it} + \alpha_3 SGI_{it} + \alpha_4 PGI_{it} + \alpha_5 GII_{it} + \alpha_6 CPI_{it} + \alpha_7 Int_{it} + \epsilon_i \quad (I \neq j) \quad (2)$$

$$CPI_{it} = \beta_i + \beta_1 OSI + \beta_2 TII_t + \beta_3 OSI*EGI_{it} + \mu_i \quad (I \neq j) \quad (3)$$

α_i and β_i represent fixed effect of the country, ϵ_i and μ_i idiosyncratic stochastic term. In reduced form equation α_2 , α_3 , α_4 and α_5 determine the effect of globalization on women empowerment, α_6 capture the direct impact of corruption on women empowerment, while α_7 captures indirect effect of globalization under given corruption level in the economy. Based on the existing literature it is expected that globalization (economic globalization index, social globalization index and political globalization index) have positive signs. Interaction term (combine effect of globalization and corruption, $EGI*OSI$) have negative sign with women empowerment.

4. RESULTS AND DISCUSSION

Estimation results of IV (two-stage least square) regression are present in Table-1. For the comparison, the results of OLS and IV regression are presented in the table. Results of the OLS and IV regression show difference. In OLS, Global Innovation Index (GII) and interaction term are statistically insignificant furthermore the magnitude of significant variables is also very low. On other hand in IV regression all variables including Global Innovation Index and interaction term turn significant and magnitude of each variable has significantly increased. This fact shows that due to the presence of endogeneity OLS show bias results and underestimating the effect of each explanatory variable on women empowerment. Therefore under endogeneity in order to get more plausible, unbiased, efficient and consistent estimates it is better to use IV regression. For further precision about the endogeneity, Durbin and Wu-Hausman test are conducted. Durbin and Wu-Hausman tests establish null hypothesis that variable under considerations is considered as exogenous. Here we are able to reject the null hypothesis of endogeneity and conclude that corruption is endogenous within the model. And instrumenting corruption with instrumental variables is rational. Furthermore, Stock and Yogo [20] suggest F statistics value is 23.09 which is much greater than 10 and also higher than critical value 13.91 at 5 percent showing strength of instrumental variables. Moreover, based upon Cragg-Donald Wald test we are able to reject null ($23.09 > 22.30$ at 10 percent) of weak instrument another confirmation that used instrumental variables are statistically strong.

Results of Sargan and Basmann test unable to reject null hypothesis of over identification at 1 percent level with value [$p=0.5903$]. Sargan Basmann establish null hypothesis that instrumental variables are valid hence we are unable to reject this hypothesis, showing our instruments are valid and specified and are not redundant. Furthermore, instrumental variables are not correlated with the error term and don't have issue of over identification.

Results of our IV regression show that all measures of globalization (Economic globalization, social globalization, political globalization and global innovation) are statistically significant. One unit increase in economic globalization leads 22 units increase in women empowerment,



similarly one unit increase in political globalization raises women empowerment by 21 units, one unit increase in social globalization influence women empowerment to increase by 19 units and lastly with the one unit rise in global innovation women empowerment increase by 1.40 units. This positive association of globalization with women empowerment reflects that rise in globalization rises women empowerment. This result show women empowerment is more concern with the economic involvement and right of decision making in national political matters.

Corruption coefficient is statistically significant in effecting women empowerment with negative association. Reduction in corruption by 1 unit increases women empowerment by 16 units. This magnitude shows how treacherous is corruption in the way of women empowerment. Only a little change in corruption level can yield huge impact on women empowerment, one unit increase in corruption can significantly decrease women empowerment and vice versa. Direct influence show negative and positive impact of corruption and globalization respectively on women empowerment, however inverse effect of increased globalization is evident across estimated model on women empowerment in the presence of corruption. Interaction term showing combine effect of economic globalization and corruption, and this linkage is crucial in explaining the impact of corruption on economy and particularly on women empowerment. Under the presence of corruption, the positive effect of globalization on women empowerment reduces significantly, this is justified by the IV regression results of interaction term stated in Table-1, showing statistically significant but negative effect of globalization in the presence of corruption on women empowerment. Coefficient value of interaction term is -4.0211; under this coefficient value the calculated impact of globalization on women empowerment under corruption is 18.0224.

Table 1: Estimation Results

Panel A: OLS and IV regression		
Dependent Variable: WEI		
Estimated Model	OLS	IV
Log of per capita GDP	2.3193*** (0.5696)	3.8937*** (0.9012)
Economic Globalization Index	2.6514*** (0.4693)	22.0435*** (3.4531)
Social Globalization Index	1.9322*** (0.3908)	19.3358*** (3.0900)
Political Globalization Index	2.4865*** (0.4140)	21.0638*** (3.2975)
Global Innovation Index	0.2533 (0.1611)	1.4075*** (0.3153)
Corruption Perception Index	-6.9155*** (1.2073)	-16.1918*** (2.6335)
EGI*OSI (EGI*CPI)	-0.0039 (0.0026)	-4.0211*** (0.0050)
Kleibergen-Paap statistics		[p=0.0000]
Cragg-Donald Wald test		65.19
Durbin and Wu-Hausman test for endogeneity		[p=0.0000]
Stock-Yogo weak IV test		29.12
Sargan and Basmann test of over Identification		[p=0.5903]
	1,584	1,584



No. of Observations		
Panel B: First stage regression		
Dependent Variable: CPI		
Log of per capita GDP		0.0210* (0.0118)
Economic Globalization Index		0.3565*** (0.0038)
Social Globalization Index		0.3201*** (0.0011)
Political Globalization Index		0.3419*** (0.0006)
Global Innovation Index		0.0212*** (0.0033)
EGI*OSI (Interaction Term)		-0.0003*** (0.0001)
Online Services Index		0.0002* (0.0004)
Telecommunication Infrastructure Index		0.0037*** (0.0006)
F-statistics		[p = 0.0000]
No. of Observations		1,584

Notes: ***Significance level: $P < 0.01$; ** $P < 0.05$; * $P < 0.1$, standard error in parenthesis.

Result reveals that under the existence of corruption, the positive effect of globalization on women empowerment is reduced to 18.0224 from 22.0435. So it is evident that globalization is beneficial for women empowerment but under corruption the benefit of globalization is reduced by 18.24 percent, justifying Dutta [7] that under corruption the benefits of globalization on women empowerment cannot be achieve to its potential level.

As far as the empirical relationship of per capita income on women empowerment is concern, we see positive association between them; one percent increase in per capita income leads women empowerment to rise by 3.89 units. Results show that rise in per capita income is not only important for overall well-being of the people but also crucial in addressing gender specification by elevating empowerment of women in an economy. Furthermore to see the country effect clustering is also done in IV regression and reported in Table-3. We don't see difference in the coefficient values with and without clustering, reflecting that country specific affect is not dominating our results.

Results attained through regression analysis support hypothesis that globalization has positive and significant effect on women empowerment but when the same phenomenon of globalization takes place in an economy where corruption exists then the benefits of globalization on women empowerment are reduced. This phenomenon of corruption reducing the benefits of globalization is empirically tested and justified in developing and under-developed countries.

5. CONCLUSION

The process of economic, social and political integration between countries has positive spillover effect in the ascendancy of women betterment. Regression results show statistically significant influence of social and political globalization on women empowerment along with economic globalization. It is also evident that worldwide it is impossible to find a country



with zero level of corruption; moreover, this phenomenon is in its adverse condition in globally integrating developing and under-developed countries. Under these circumstances it is evitable to see the effect of the integration (globalization) on women, as according to Bhagwati [2] in social hierarchy women position at the bottom. Since it is very clear that under the presence of corruption the benefits of globalization for women become vulnerable, so this paper estimate and enquire the absolute benefits of globalization on women and how those benefits shrinks when the integration process occurs in the presence of corruption. Results attain through instrumental variable regression analysis reveal that under the presence of corruption benefits of globalization on women empowerment are significantly reduce. Furthermore, the decrease in positive spillover of economic globalization is significant in terms of its magnitude, making corruption as main hindrance in trickledown the fruitful advantages of globalization. More corrupt the country, less benefits of globalization will be translated to women, and less will be the women empowerment in the country, this fact implies relevance for the policy formalization. Amongst policy formalization anti-corruption initiatives are essential which emphasizes on those forms of corruption that directly affect women, and limits their access to productive resources and development facilities. The role of state government and international organizations is inevitable in curbing corruption and encouraging the role of economic, political and social globalization in elevating women empowerment.

Appendix

Table 2: Correlation

	WEI	CPI	OSI	TII	INT
WEI	1.0000				
CPI	-0.5916	1.0000			
OSI	-0.1015	0.7092	1.0000		
TII	-0.0237	0.5535	0.5392	1.0000	
INT	-0.0959	0.5171	0.8996	0.5528	1.0000

Table 3: IV regression with clustering

Panel A: Dependent Variable: WEI	
lnGDP_pc	3.8937 (3.0349)
EGI	22.0435* (12.0464)
SGI	19.3358* (10.7819)
PGI	21.0638* (11.4867)
GII	1.4075 (0.9892)
CPI	-16.1918* (33.6102)
EGI*OSI	-4.0211 (1.3541)
Kleibergen-Paap statistics	[p=0.0000]
Cragg-Donald Wald test	65.19
Durbin and Wu-Hausman test for endogeneity	[p=0.0000]
Stock-Yogo weak IV test	29.12
	[p=0.5903]



Sargan and Basmann test of over Identification No. of Observations	1,584
Panel B: First stage regression	
Dependent Variable: CPI	
lnGDP_pc	0.0210 (0.0396)
EGI	0.3565*** (0.0094)
SGI	0.3201*** (0.0041)
PGI	0.3419*** (0.0026)
GII	0.0212** (0.0091)
EGI*OSI	-0.0003** (0.0001)
OSI	0.0002* (0.0010)
TII	0.0037* (0.0021)
F-statistics	[p = 0.0000]
No. of Observations	1,584

Notes: ***Significance level: $P < 0.01$; ** $P < 0.05$; * $P < 0.1$, robust standard error in parenthesis.

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