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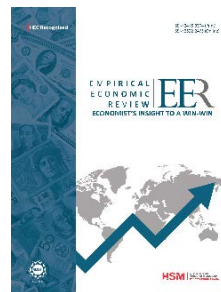
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# Effectiveness of Foreign Capital Inflows (FCIs) and Mitigation of Gender Inequality (GI) in Developing Countries

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## Abstract

Over the decades, foreign capital inflows (FCIs) have been contributing to the economic growth and development of underdeveloped and developing economies. However, it is imperative to inspect the effect of FCIs on gender inequality (GI). The latter includes SDG 5 which addresses the elimination of GI in all its forms. The existing empirical literature on the relationship between FCI-GI nexus shows mixed results. The current study scrutinized the effects of FCIs on GI in a panel of 71 developing economies for the time period 2001-2019. The study used the system generalized methods of moments (GMM) for model estimation. The positive and significant impact of remittances on G I was explored. It was found that official development assistance (ODA) caused an increase in GI in developing economies. The results showed that gross domestic product (GDP) and trade openness (TOP) increased GI. However, good governance was found to reduce GI in developing economies. The outcomes provide a guideline for the role of FCIs in reducing GI in developing economies.

**Keywords:** developing economies, foreign capital inflows (FCIs), gender inequality (GI), official development assistance (ODA), remittances, system generalized methods of moments (GMM)

## Introduction

Gender inequality (GI) has attracted a substantial attention of the researchers, experts, policymakers, and governments due to the global collective wisdom successful setting of SDGs (United Nations, [2015](#), [2022](#)). SDG 5 explicitly asserts gender equality. It promulgates the determination of the global community to eliminate the discrimination(s) against women (and girls) in all its forms at any level. It has been recognized as one of the basic human rights and is considered important for a sustainable future. The empowerment of girls and women by ending gender inequality has been recognized and asserted as a driving factor to help in achieving sustainable

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growth and development (United Nations Development Program [UNDP], [2022b](#)).

Robust and sustained financing is needed to achieve gender equality. In the SDG agenda, the stakeholders agreed to significantly increase investments in order to achieve the objective of gender equality and close the gender gap. For this purpose, to achieve the objectives of the Beijing Platform for Action (BPA), the current study identified 12 major areas which required immediate action to ensure enhanced equality and opportunities for women. These pivotal areas included issues related to women empowerment, such as poverty, education and training, health, violence, political participation, their role in media, and conflicts (Organisation for Economic Co-operation and Development [OECD], [2020](#)).

There are multiple sources of foreign capital inflows (FCIs), such as external debt (ED), ED servicing, worker's remittances, foreign aid, official development assistance, trade inflows, and foreign investment. These FCIs play a pivotal role in the socio-economic development of the economies. It is also imperative to explore the income impact of these foreign capital inflows on gender development and/or GI in the developing economies. Not much literature is available on the impacts of FCIs, such as worker's remittances and official development assistance on GI, especially with a reference to the developing economics.

Moreover, it also attempted to examine the impact of remittances and ODA on GI in developing countries. In addition to remittances and ODA, the current study also included the size of economy measured by GDP, trade openness (TOP), and government efficiency as control variables. The findings would provide guidelines to close the gender gap, promulgate the policy guidelines, and develop strategies to productively benefit from FCIs, such as remittances and ODA to encourage gender equality in the developing economies. Improved gender equality could be productive in developing economies to further speed up the efforts in order to achieve SDGs.

## **Overview of Gender Inequality and Gender Development in Developing Economies**

The comparative overview of GII in developing, least developed counties (LDCs), and the world is shown in Figure 1. It can be observed that

GII is the highest in LDCs. In developing economics, GII is lower than that in LDCs, however, it still has not reached the required level. GII in developing, LDCs, and the world was 0.56, 0.64, and 0.52, respectively in 2001 that decreased to 0.501, 0.60, and 0.47, respectively in 2010. Gender equality in economies improved as GII in developing economics, LDCs, and the world decreased from 0.48, 0.57, and 0.45, respectively in 2015 to 0.46, 0.56, and 0.44 in 2019 (UNDP, [2008](#), [2009](#), [2022a](#)).

**Figure 1**

*Gender Income Inequality in Developing World*

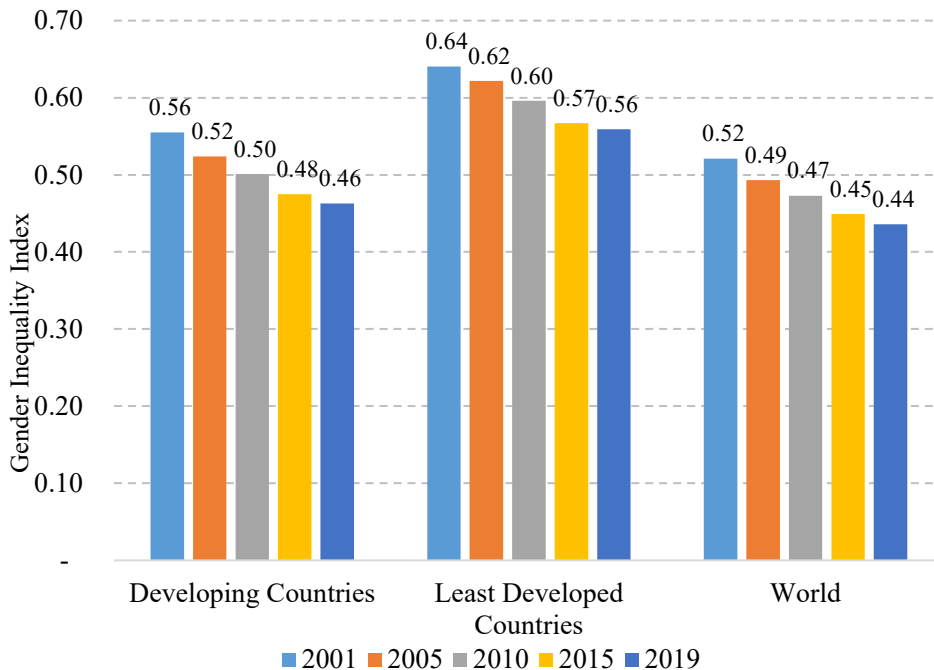
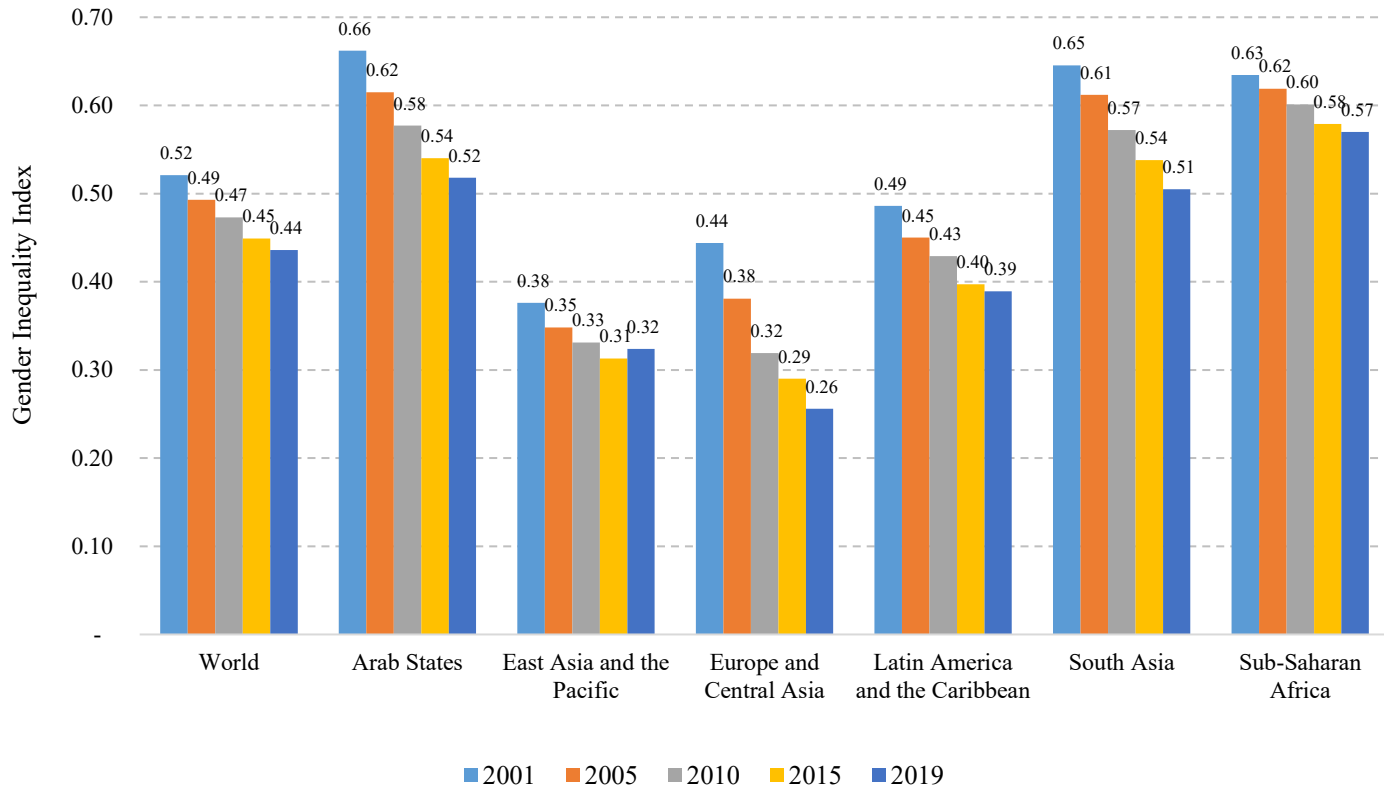


Figure 2 shows that gender equality and GII in different regions of the globe has shown distinct levels. In 2001, the Arab states were characterized by higher levels of GI and the highest GII value of 0.66. Whereas, GII in East Asia and the Pacific, Europe and Central Asia, South Asia, SSA, Latin America and the Caribbean, and the world has been 0.38, 0.44, 0.49, 0.65, 0.63, and 0.52, respectively (UNDP, [2008](#), [2009](#), [2022a](#)). However, GI showed decreasing trends as the GII declined during the 2001-2019 period. GII values in mentioned regions the world declined to 0.52, 0.32, 0.26, 0.39, 0.51, 0.57, and 0.44 in 2019 (UNDP, [2008](#), [2009](#), [2022a](#)).

**Figure 2***Gender Inequality at Regional Level*

The current study was organized into several sections. Section 2 and 3 presented a literature review and conceptual framework along with econometric methodology. Section 4 and 5 provided econometric estimation and discussions on results. While, the concluding section summarized findings and their implications.

### **Literature Review**

The role of financial capital inflows in economic growth and socio-economic development of the economies has been discussed in multiple ways in theoretical and empirical economic literature. This section comprises of literature review, especially in perspectives of financial capital inflows, such as foreign remittances and official development assistance along with trade and their impact on gender equality (inequality).

### **Workers' Remittances and Gender Inequality**

Remittances provide household resources, smooth out their consumption, increase their working capital for them, and have a multiplier impact on household spending. Researchers find remittances to be countercyclical, such as financial receipt's smooth household consumption and welfare, especially for the most disadvantaged. Households receiving remittances use the financial receipts to finance consumption or invest in healthcare, nutrition, and education. Poverty and consequent lack of economic opportunities stimulate the motivation to emigrant and remittances inflows. In few cases, villages in some economies pool their resources to finance the migration expenses of the most skilled young men. Such pool financings are considered as a joint investment and remittances are the returns of these investments. Poor households with migrant family members are likely to receive a steady stream of income from abroad. These remittances are poorer families and a pivotal supplement for their livelihood (Gupta et al., [2007](#)).

Some empirical studies attempted to explore how remittance contributes to the households' life in various aspects. For instance, (Bansak & Chezum, [2009](#)) endeavored to discover how remittances impact human capital formation. In doing so, the authors revisited the effects of remittances on education attainment of the school-age youngster with special focus on the difference between boys and girls in Nepal. The results showed that young girls benefitted relatively lesser from remittances. The findings also supported the argument that with a higher level of Nepal's remittances, the

economy's capacity to attain development goals hinged upon the internal utilization of remittances. Gender equality is linked to educational levels; non-governmental transfers could be helpful for the governments to achieve improved outcomes for women. In a recent study, Naeem and Arzu (2017) used cross-sectional data of 100 developing economies to explore the impact of remittances on human development. The study showed a positive, however, insignificant association between remittances and human development in developing economies.

Amuedo-Dorantes et al. (2006) examined the effect of remittances on the labor supply of workers in Mexican economy. The authors accounted for the endogeneity of remittance and examined differences in the working hours in different employment types in rural and urban areas by men and women, considering their remittances receipts. The study showed that remittances might affect the working hours depending on the gender of the remittance receivers, household location (rural or urban), and type of work.

Migrants' remittances contribute to economic development of the receiving economies. Some studies in economic literature endeavored to explore the potential contribution of remittances in gender development in migrants' countries of origin by using quantitative methods. Karabaeva (2014) discussed contrasting views regarding the potential impacts of remittances on gender equality. The study tested the developed hypothesis that remittances reduce GI in the long run. To test this hypothesis, the study estimated the fixed effects regression model by using remittances and GII. The findings of the analysis of panel data of 144 countries from 1995-2012 supported the hypothesis that remittance affected in long run.

Sambo (2016) used the two-step instrumental variable and GMM method to investigate the impact of remittance on gender equality. The study concluded that remittances positively affected gender equality in general, however, the results were significant only for Sub-Saharan Africa (SSA). Furthermore, it was unveiled that remittances help to improve women's economic-political empowerment. The remittances also showed positive impacts on educational attainment, health, and survival for women in the remittance-receiving economies.

Bouoiyour et al. (2016) examined the association between remittances and education in the rural household of Morocco. By using original data employing IV Probit model, the results showed that remittances have a

substantial and positive impact on the parents' decision regarding their children's education. The remittances contribute to the education of the children, however, the benefits were found to be greater for boys than for girls. It may be because male headship disfavors girls' education and schooling which, in turn, discourages female students' education. The results opened avenues of understanding regarding the subject, especially in the developing countries. It provided strong reasons to believe that channels for investing in human capital in developing countries may contribute to higher gender inequalities in rural areas.

Wahid and Kamaruzzaman (2018) attempted to explore how international migration plays its role in reproducing unequal gender relations in the patriarchal society. The study was based on the idea of "social remittances" and pointed out that migrants in Asian Muslim-majority moved to different Middle East and Gulf countries. The analysis revealed that these migrants sent remittances to their origins and their female household members found it discouraging to go outside and earn without purdah due to practices of socio-religious norms. Such practices cause GI in reproduction between men and women.

Mitra et al. (2021) endeavored to explore the makeover of existing gender norms that societies experience in immigration and related remittances in inflows. The study primarily investigated the impact of household access to remittances on women's attitudes regarding their acceptability of domestic violence. The findings revealed that women who have access to remittances in their households were more likely to accept violence (domestic) than women receiving no remittances in households.

### **Official Development Assistance and Gender Inequality**

SDG 5 is aimed to attain gender development (United Nations, 2022). The official development assistance is an important source of financing to achieve one of the most pivotal SDGs (OECD, 2022). Numerous studies addressed the examination of the role of official development in gender equality in economies. Pickbourn & Ndikumana (2016) examined the impact of aid disbursed by OECD-DAC on overall gender inequality and GI in education and health. The study showed that the influence of official aid for GI depends on the initial level of human development and GDP. Whereas, the sectoral analysis of aid on GI showed that increased aid in



education and health sectors appeared to be effective in achieving gender equality.

Baliamoune-lutz (2013) analyzed the effects of ODA stimulating gender equality in MENA countries. The impacts of aid were examined on women's political empowerment in women's organizations and institutions. A panel data of 13 MENA economies, for the time period 2002-10, was used in the analysis. It included variables, for instance, secondary school enrollment, fertility rates in adults, autocracy along with ODA aiming family planning, and reproductive health. The results revealed that ODA increased women's political power. Moreover, it was also concluded that higher adult fertility rates showed a relationship with a smaller fraction of seats held by women in parliaments in MENA economies.

Few studies explored the impact of foreign aid on income inequality in single-country studies. Ali and Ahmad (2013) investigated the impact of foreign aid on income inequality by using Johansen co-integration approach. The results showed that FCIs, such as foreign aid and FDI have positive impact on inequality in Pakistan. Maiga (2014) investigated the influence of aid on gender equality in education in a panel of developing countries. The study used GMM methods to examine the heterogeneity impacts of aid-type received and type of recipients. The results showed a negative effect of aggregate aid on the education sector and gender-parity in secondary and tertiary levels of education.

Ndikumana and Pickbourn (2017) focused on the influence of foreign aid allocation on social service accessibility in SSA. The results showed that the provision of social services has been one of the major challenges for governments. The ability of the governments in SSA region was found to be constrained due to the availability of limited financial resources. The study revealed that increased aid focusing on the water supply and sanitation was associated with enlarged access to such services. The study concluded that there exists a non-linear relationship between the variables.

The report on MDGs (United Nations, 2012) asserted that women were facing discrimination while accessing education. Aspired from this argument, Kleemann et al. (2016) assessed whether GI in education persisted due to aid received for education. Additionally, the study also examined whether female leadership of related ministries in donor economies is productive in steering aid for education in recipient economies

where girls receive less education than boys. The findings showed that female and male leaders rewarded economies with more schooling for all children. However, female leaders played marginal role in aid allocation for education.

Asongu and Nwachukwu (2017) explored the effects of foreign aid on inequality-adjusted HD after the publication of World Bank 2015 publication on MDGs. It revealed declining trends pertaining to poverty in all regions globally, except in African economies. The study employed contemporary and non-contemporary OLS, fixed effects, and system GMM methods on a panel data from African economies from the time period 2005 to 2012. The effects of aid with high degrees of substitution were found positive including social and economic infrastructures, the productive sector, and multi-sectors. However, the impacts of humanitarian aid persistently appeared to be negative.

Swain et al. (2020) attempted to explore whether foreign aid contributes to gender equality or not. The study used country-level data to examine the impact of aid on gender equality by using structural equation model (SEM). Moreover, it also found that aid alone is unlikely to have a constructive impact on gender equality in economies. The findings stressed the need to bolster efforts by civil society, improvement in institutional structures, and societal norms in order to accrue gender related effects of aid at country level.

Other relevant studies also reflected how selected variables in the current study interact causally with each other. For instance, Udemba (2019a) investigated the relationship between carbon emissions, foreign direct investment (FDI), energy use, and tourism arrivals in China. The study aimed to determine the responsibility for offshore carbon emissions and to provide policy implications for reducing the negative impact of foreign firms on environment. It also explored the concept of embodied energy which is a blend of immediate and non-immediate energy use and its impact on the environment. In another study, Udemba (2019b) analyzed the relationship between selected economic indicators, such as GDP, trade, FDI, and oil price in Nigeria and determined which indicator causes or affects the other. Moreover, the study also found a unidirectional causality that runs from oil price to both FDI and trade and from FDI to trade. There was no causal effect transmitting from either trade to oil price or trade to FDI. Additionally, there was no transmission of causality from growth

(GDP) to any of the selected indicators. The findings suggested that Nigerian economy was heavily influenced by oil prices and FDI was attracted by availability of oil which, in turn, influenced the rate of trade via trade openness.

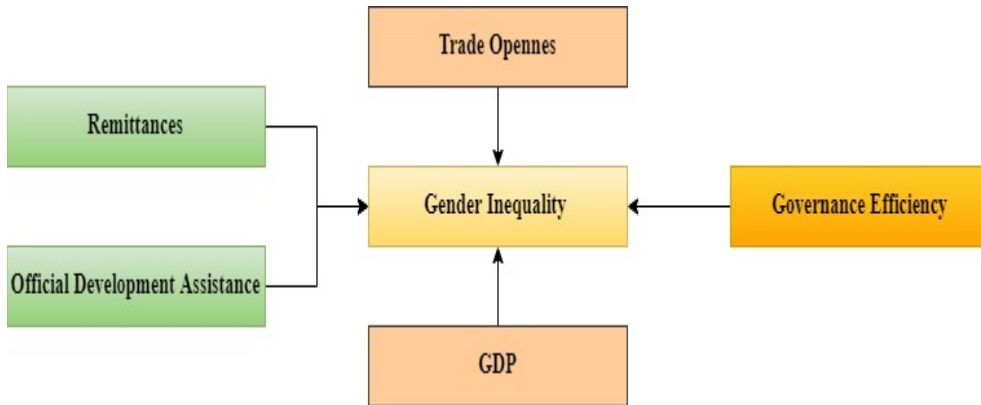
## Conceptual Framework and Methodology

### Conceptual Framework

The impact of FCIs on growth and development of economies is a matter of debate, especially from the perspectives of developing economies. In theoretical economic literature, based on the assumptions of free capital markets and decreasing returns, the standard classical theory foretells contributions of external resources from capital abundance developed economies to developing countries (Combes et al., [2017](#); Prasad et al., [2006](#)). On the contrary, the Lucas paradox of neoclassical predicts that such capital inflows are not necessarily productive in setting high growth trajectories (Göktaş, [2015](#); Prasad et al., [2006](#)).

Recently, the focus of researchers and theorists has been diverted to scrutinize the role of FCIs in the perspectives of SDGs, such as poverty alleviation (Acheampong et al., [2021](#); Dhahri & Omri, [2020](#); Dhrifi et al., [2020](#)) and food security (Dhahri & Omri, [2020](#)), income distribution and inequality (Anderson, [2022](#); Ni et al., [2022](#)). Some studies focused on the analysis of impact of FDI-gender equality relationship (Chaudhuri & Mukhopadhyay, [2014](#); Kodama et al., [2018](#); Oogu, [2021](#); Ouedraogo & Marlet, [2018](#)), remittances and GI linkage, (Amuedo-Dorantes et al., [2006](#); Bouoiyour et al., [2016](#); Gupta et al., [2007](#); Mitra et al., [2021](#); Naeem & Arzu, [2017](#); Sambo, [2016](#); Wahid & Kamaruzzaman, [2018](#)) development assistance and GI relationship (Asongu & Nwachukwu, [2017](#); Swain et al., [2020](#); Balamoune-lutz, [2013](#); Kleemann et al., [2016](#); Ndikumana & Pickbourn, [2017](#)). However, findings of previous studies were inconclusive regarding the role of FCIs in achieving gender equality in developing countries. The current research primarily focused on the analysis of FCIs in terms of remittance and official development assistance while considering the impacts of economic size, trade openness, and government effectiveness. Conceptual framework of the current study is displayed in Figure 3.

**Figure 3**  
*Conceptual Framework*



### Econometric Model Specifications

The current study primarily emphasized on the analysis of the impact of FCIs on GI in developing countries. The study used various variables of GI, such as Gender Parity Index (GPI), Gender Development Index (GDI), Global Gender-Equality Index (GGEI), and Gender Inequality Index (GII) where GPI is the ratio of female to male values of an indicator. The GPI value of 0.97 to 1.03 showed parity between males and females. GPI value less than 0.97 showed a disparity in favor of men. Whereas, its value above 1.03 means a disparity in favor of women (United Nations Educational, Scientific and Cultural Organization [UNESCO], [2022](#)). Maiga ([2014](#)) used gender parity index as a dependent variable to assess the impact of foreign aid disbursed in education. DI is the ratio of the female HDI to the males HDI (UNDP, [2022a](#)). GGEI comprises four components of educational attainment, health and survival, economic participation and opportunity, and political empowerment. Sambo ([2016](#)) used GGEI as the dependent variable in gender equality-remittances model. GII has three dimensions of health, empowerment, and the labor market (UNDP, [2022a](#)). Ouedraogo and Marlet ([2018](#)) used GDI and GII as dependent variables in two different models to assess the impact of FDI on gender equality. Following Pickbourn and Ndikumana ([2016](#)) and Ouedraogo and Marlet ([2018](#)), study uses GII were presented as a response variable to assess the impact of foreign capital inflows in terms of remittances and ODA in a panel of 71 developing economies. The following model was used for analysis.

$$GII = f(RMT, ODA, GDP, TOP, GEE) \quad (1)$$

$$GII_{i,t} = \alpha_0 + \alpha_1 RMT_{i,t} + \alpha_2 ODA_{i,t} + \alpha_3 GDP_{i,t} + \alpha_4 TOP_{i,t} + \alpha_5 GEE_{i,t} + u_{i,t} \quad (2)$$

In model (2), RMT refers to personal remittances received, ODA is net official development assistance received, GDP is gross domestic product, TOP is trade openness, and GEE is the government effectiveness estimate. Various studies used remittances as an independent variable to assess their impact on gender inequality. Maiga (2014) used foreign aid disbursed in education to assess its impacts on GI. Balamoune-lutz (2013) used ODA as an independent variable to examine its impact on gender equality in terms of women's equality organizations and institutions. For estimation purpose, the study used two indicators of FCIs, that is, –personal remittances (RMT) and net ODA received.

In econometric analysis, the control variables in two categories were used which comprised of economic and good governance variables. Following Sambo (2016) and Ouedraogo and Marlet (2018), GDP is used as one of the economic variables. Ouedraogo & Marlet (2018) considered TOP as one of the important economic variables. Therefore, following Ouedraogo and Marlet (2018), the current study also used TOP as one of the control variables in the model. Following Sambo (2016), this study used government effectiveness as an indicator of good governance.

### 3.3 Methodology

The current study used a panel data from 71 economies for 19 years, so panel containing the number of small T and large N makes the system GMM (Arellano & Bover, 1995; Blundell & Bond, 1998) a suitable method of estimation (Gök & Sodhi, 2021).

The model to be estimated is below:

$$GII_{i,t} = \alpha_1 RMT_{i,t} + \alpha_2 ODA_{i,t} + \pi CONT_{i,t} + \epsilon_{i,t} \quad (3)$$

$$\epsilon_{it} = u_i - v_{it} \quad (4)$$

$$E(u_i) = E(v_{it}) = E(u_i v_{it}) = 0 \quad (5)$$

$$\Delta GII_{i,t} = \delta \Delta GII_{i,t-1} + \theta \Delta LRMT_{i,t} + \vartheta \Delta LODA_{i,t} + \phi \Delta CONT_{i,t} + \Delta v_{i,t} \quad (6)$$

$$E[\Delta w_{it} u_i] = 0 \quad (7)$$

Here,  $GII_{i,t}$  and  $GII_{i,t-1}$  indicate gender inequality index (GII) and its first lag for the county in time  $t$  (which is the year in this study).  $RMT_{i,t}$  and  $ODA_{i,t}$  are FCI variables that are remittances and net ODA, respectively. Whereas,  $CONT_{it}$  label the control variables including GDP, TOP, and GEE.

## Data Sources

Table 1 summarizes the list of panels of countries for the period of 2001-2019.

**Table 1**

*List of Countries Included in the Panel*

Panel of Countries
Albania, Algeria, Argentina, Armenia, Bangladesh, Bolivia, Brazil, Burkina Faso, Cambodia, Cameroon, Chile, China, Colombia, Congo, Costa Rica, Côte d'Ivoire, Dominican Republic, Ecuador, El Salvador, Ethiopia, Gabon, Gambia, Ghana, Guatemala, India, Indonesia, Iran, Iraq, Israel, Jamaica, Jordan, Kazakhstan, Kenya, Kyrgyzstan, Lebanon, Lesotho, Liberia, Malaysia, Maldives, Mali, Mauritius, Mexico, Morocco, Mozambique, Namibia, Nepal, Nicaragua, Niger, Pakistan, Panama, Paraguay, Peru, Philippines, Rwanda, Saudi Arabia, Senegal, South Africa, Sri Lanka, Sudan, Tanzania (the United Republic of), Thailand, Togo, Tunisia, Turkey, Uganda, Ukraine, Uruguay, Uzbekistan, Viet Nam, Yemen, Zimbabwe

The sources of data and the description variables are given in Table 2.

**Table 2**

*Description of Variables and Sources of Data*

Variable	Description	Source
GII	Gender Inequality Index	(UNDP, <a href="#">2008</a> , <a href="#">2009</a> , <a href="#">2022a</a> )
RMT	Personal remittances, received (current US\$)	(World Bank, <a href="#">2022a</a> )
ODA	Net official development assistance received (constant 2015 US\$)	(World Bank, <a href="#">2022a</a> )
GDP	GDP (constant 2015 US\$)	(World Bank, <a href="#">2022a</a> )

Variable	Description	Source
TOP	Trade Openness (TOP) is estimated as $\frac{EGS+MGS}{GDP}$ . Where, EGS = Exports of goods and services (constant 2015 US\$) MGS = Imports of goods and services (constant 2015 US\$)	(World Bank, <a href="#">2022a</a> )
GEE	Government Effectiveness, Estimate	(World Bank, <a href="#">2022b</a> )

### Econometric Estimation Results

This section comprises the estimation results of econometric analysis carried out to examine the impact of remittances and official development assistance along with the control variables. The descriptive analysis, correlation analysis, and model estimation results are discussed in the following subsections.

#### Descriptive Analysis

The summary of descriptive statistics is summarized in Table 3. The total number of observations in panel are 1349. The descriptive statistics of GII, RMT, ODA, GDP, TOP, and GEE show that their mean values are 0.483, 3426.566, 971.187, 271950.2, 1.004, and -0.348, respectively. The minimum value of GII is 0.102 which is for Israel in 2018. Whereas, the maximum value of GII in panel is 0.990 for Saudi Arabia in 2001. When it comes to remittances, the lowest value of RMT is -102.428 million dollars for Iraq in 2001. The minimum and maximum values of net official development assistance are 1.78 million and 25671.56 million, respectively. The minimum value of GDP in panel is 982.902 million for Gambia in 2002. The maximum value of GDP is 14300000 million dollars. The minimum value of the governance index GEE is -2.308 in 2019 and the maximum value GEE is 1.391 for Israel in 2009.

**Table 3***Descriptive Statistics*

Variable	Obs.	Mean	Std. Dev.	Min	Max
GII	1,349	0.483	0.138	0.102	0.990
RMT	1,346	3,426.566	7,969.550	-102.428	83,332.080
ODA	1,349	971.187	1,681.911	1.780	25,671.560
GDP	1,349	271,950.200	1,054,192.000	982.902	14,300,000.000
TOP	1,349	1.004	3.076	0.008	40.763
GEE	1,349	-0.348	0.609	-2.308	1.391

**Correlation Analysis**

The correlation analysis presented in Table 3 was carried out to determine the variability of variables in panel of developing economies. Pearson's correlation coefficient is widely estimated value in empirical economic research (Puth et al., [2014](#)). The correlation coefficient between GII and RMT is -0.1931, showing that there is a negative and weak correlation between the variables. It shows that the inflows of RMT in developing economies help to improve their gender equality. The correlation between official development assistance and GII is positive and weak as the correlation coefficient value is 0.3227. GDP in developing countries is also weakly correlated, however, negative as its value is -0.3407.

**Table 4***Correlation Matrix*

Variable	GII	LRMT	LODA	LGDP	LTOP	GEE
GII	1.0000					
LRMT	-0.1931 (0.0000)	1.0000				
LODA	0.3227 (0.0000)	0.3005 (0.0000)	1.0000			
LGDP	-0.3407 (0.0000)	0.533 (0.0000)	0.1258 (0.0000)	1.0000		
LTOP	-0.0608 (0.0257)	-0.0715 (0.0086)	-0.1915 (0.0000)	-0.2992 (0.0000)	1.0000	
GEE	-0.5983 (0.0000)	0.0372 (0.1720)	-0.3843 (0.0000)	0.3723 (0.0000)	0.0669 (0.0140)	1.0000



It is also notable that the correlation coefficient between TOP and GII is closer to zero and negative (that is, -0.0608), showing that there may not be a strong relationship between the variables. The governance variable GEE is -0.5983 and shows a moderate correlation between the variables. However, notably, this correlation has the highest value in absolute terms than any other correlation coefficient between GII and the rest of the variables in the panel. The correlation coefficients of GII with LRMT, LODA, LGDP, and GEE are significant at a 1% significant level. The correlation coefficient estimates only show the measure of co-variability between the variables, however, it fails to explain the direction of relationship of dependence of the variables (Puth et al., [2014](#)). The most profound insight into relationships between the variables is explained by the regression estimates. The next subsection provides a comprehensive and detailed analysis of relationships between GII, FCI variables, and other control variables.

### Foreign Capital Inflows (FCIs) and Gender Equality Results

Estimated results are summarized in Table 4. Firstly, dynamic OLS was estimated to test the significance of the coefficient of the lagged value of GII. After the confirmation of significance of lagged GII, the dynamic panel fixed effect and difference GMM were obtained to test whether the coefficient value of  $GII_{i,t-1}$  of difference, GMM was less than the coefficient obtained in the dynamic panel fixed-effect model. Since the coefficient of  $GII_{i,t-1}$  the coefficient in difference GMM, estimation is 0.408, which is smaller than the coefficient value of 0.638 of  $GII_{i,t-1}$  in dynamic panel fixed-effect model. It confirms that system GMM is the most suitable econometric method to estimate the required model in order to evaluate the impacts of foreign capital on GI in developing economies.

The results of the system GMM, summarized in 5<sup>th</sup> column of Table 5, reveal that the remittances elasticity of GI is -0.021 which is significant at a 1% significance level. ODA is also very important in obtaining SDGs, especially in developing economies. However, in estimated model, the coefficient of ODA is positive and significant at 0.01 level. It shows that foreign aid or assistance was not used to develop gender equality and empower women in developing economies. When it comes to controlling variables, GDP and TOP also have positive elasticities and both variables are statistically significant at a 99% confidence interval.

Governance efficiency is one of the major factors in driving SGDs. In the estimated model, the coefficient of governance efficiency variable GEE shows a negative sign which confirms that better governance brightens the chance to achieve SDGs, such as gender equality in developing economies. The result of the estimated system GMM model is statistically robust. The statistical significance of AR(2) and Hansen test shows the absence of autocorrelation and confirms the validity of instruments in system GMM estimates (Roodman, [2009](#)).

**Table 5***Gender Inequality and Foreign Capital Inflows (FCIs)*

Dependent Variable: GII				
Variables	Dynamic OLS	Dynamic Panel Fixed Effect	Difference GMM	System GMM
	(1)	(2)	(3)	(4)
L.GII	0.928*** (0.00846)	0.638*** (0.0194)	0.408*** (0.0117)	0.769*** (0.0428)
LRMT	0.000134 (0.000547)	-0.000146 (0.00145)	0.032*** (0.0035)	-0.021*** (0.0046)
LODA	0.00178** (0.000750)	-0.00365** (0.00142)	-0.014*** (0.0013)4	0.018** (0.0081)
LGDP	-0.00119 (0.000725)	-0.0249*** (0.00514)	-0.123*** (0.0099)	0.028*** (0.0074)
LTOP	0.000470 (0.00138)	0.00837** (0.00333)	0.026*** (0.004)	0.058*** (0.0177)
GEE	-0.00860*** (0.00203)	-0.0123** (0.00504)	0.043*** (0.0071)	-0.111*** (-0.0314)
Constant	0.0258*** (0.00812)	0.461*** (0.0569)	-	-0.179* (-0.1042)
Obs.	1,278	1,278	1,207	1,278
R-squared	0.946	0.649	-	-
Prob.>F	0.000	0.000	-	-
ar1p			0.000316	0.00058
ar2p			0.1268	0.08854
hansen			51.12	29.95
hansenp			0.0925	0.27
j			45	33

Dependent Variable: GII				
Variables	Dynamic OLS	Dynamic Panel Fixed Effect	Difference GMM	System GMM
	(1)	(2)	(3)	(4)
$k$			71	71
chi2			-	10144
chi2p			-	0.0000

*Note.* Standard errors in parentheses,  $j$  = number of instruments,  $k$  = no. of groups. \*\*\*  $p < 0.01$ . \*\*  $p < 0.05$ . \*  $p < 0.1$ .

### Discussion

The results of estimates summarized in the previous section reveal that remittances play a GI-reducing impact in developing countries. A 1% increase in personal receipts reduces the GI index by 0.021%. It shows that the higher the levels of remittance received, the higher the gender equality in developing economies. This negative impact of remittances on GI may be due to the channel of women's educational attainment. Remittances provide the household financial cushion and additional income in developing economies. The remittances are more likely to increase the education levels (Suh, [2016](#)). They have a positive influence on women's education attainment (Sambo, [2016](#)). An increase in education of women and girls is productive in improving maternal health, reduction of fertility rates, and Infant Mortality Rates (IMRs). Previous studies showed that an extra year of schooling for mothers reduces the probability of IMR by 5-10% (Karam, [2022](#)). An increase in women's education empowers them, increases their productivity, and is thereby helpful in reducing GI. The results supported the theory that there is a negative association between remittances and GI. The findings were also supported by (Karabaeva, [2014](#)).

Foreign aid in terms of ODA has an increasing impact on GII in developing economies. It is evident from the positive sign of ODA that a 1% increase in ODA increases GII by 2%. Official development by international financial institutions (IFIs), developed economies to developing, and least developed economies contributed to growth (Adams et al., [2017](#); Baharumshah & Thanoon, [2006](#); Combes et al., [2017](#)). However, their socio-economic development effect may not be enough to add to gender equality. Education and health are major areas through which

aid and development assistance could be productive. The increased flows of foreign capital raises the probability of increased access to health and education facilities in the economy, especially for women and girls (OECD, [2020](#)).

It is observed that overall growth of economy and enhanced TOP is due to unprecedented levels of globalization in the contemporary world. However, these enhanced levels of economic activities and trade inflows are not enough to create gender equality in the developing world. It may be due to the unequal and gender-biased employment opportunities for women labor force. GI increases the impact of economic growth in developing economies since the latter could not increase the employment opportunities for females in developing economies. Overall growth is not enough to increase female labor force participation and enhance employment opportunities for them. Even if growth enhanced the employment levels of the female labor force, the wage difference between male and female labor force could be a major source of GI. Generally, females are less or underpaid as compared to male labor force. The results are in contrast to that of Ouedraogo and Marlet ([2018](#)). On the contrary, Anyanwu ([2016](#)) unveiled the positive impact of TOP on gender equality in youth employment in Africa.

In the current study, governance effectiveness was found to decrease GI in developing countries. The findings supported the argument that good governance is a key to achieve gender equality in economies. Governance is important if it is effective in creating coordination and competence and powerfully shows the commitments of governments. Good governance makes it possible to promulgate and implement productive and effective policies in order to create effective mechanisms, develop government institutions, introduce programs, and allocate budgets for equal benefits of both men and women. Fair representation and participation of all genders in institutions, government agencies, and political leadership could add to the effort to achieve gender equality (OECD, [2017](#)).

## **Conclusion and Policy Recommendations**

The current study comprises the analyses of the impact of FCIs (in terms of remittances) and ODA on GI in developing economies. Moreover, two economic variables, that is, GDP and TOP along with a good governance variable indicated by governance effectiveness, were also included in the

model. A panel of 71 developing economies for the time period 2001-2019 was developed and GI-remittances nexus as well as the ODA model was estimated by using the system GMM. The results of the estimated model showed that remittances and good governance variables significantly reduced GI in the selected panel of developing countries. Whereas, ODA, GDP, and TOP increased GI in developing countries. The results are significant and the estimated model is statistically robust.

Education is a universally acknowledged basic human right and it is also a pivotal tool to enhance equality and development, as promulgated in the global SDG agenda. Women and girls are disadvantaged in education, especially at secondary and higher levels of education. The focus should be on the allocation of foreign capital and development assistance towards education in general and towards female education in particular. Importance should be given to women and girls' education in order to empower them to achieve sustainable development. Another key area that needs improvement in developing countries is women's health. There is still a lack of health services for women as maternal mortality remains very high in developing economies. It is imperative to increase women's representation in leadership and decision-making processes in health and education sectors. The donor countries should focus on the inflows of aid in developing countries, such as banking, business, trade, and transport in which female employment remains comparatively low.

The governments in developing economies should also integrate the national growth and development policies with social development policies that open the avenues and pave the way for gender equality and women empowerment. Additionally, media must play an essential role in shaping the world. It would also add to the efforts to achieve equity and equality for both men and women by increasing awareness in societies through media and modern technologies. The latter can be used as an important source to promote a gender-friendly and non-stereotype portrayal of women and girls in the socioeconomic arena. As far as governance and its effectiveness is concerned, governments in developing countries should focus on accountability institutions, introduce gender-sensitive public sector reforms, development of effective formal and informal justice systems, and establishment of specified commissions to ensure and defend womens' interests.

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