

THE IMPACT OF FOREIGN DIRECT INVESTMENT ON INCOME INEQUALITY: A COMPARATIVE STUDY OF SAARC AND ASEAN COUNTRIES

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Abstract

Income inequality is a significant development issue in developing and emerging economies and it has created a question mark in regard to whether Foreign direct investment (FDI) induced growth is inclusive. Foreign Direct Investment (FDI) can be broadly marketed as an economic development catalyst, yet the effect that it has on income distribution is ambiguous in theory and debatable in practice. This study analyses the impact of foreign direct investment on income inequality by making a comparative study between South Asian Association of Regional Cooperation (SAARC) countries and Association of Southeast Asian Nations (ASEAN) countries. The rationale is to determine the different effects of FDI on income inequality in these two regional blocs that have different economic structures and institutional frameworks. The study utilizes annual panel data from 1981 to 2024 of selected SAARC and ASEAN countries. The Gini index is used to measure income inequality and FDI inflows are considered as the explanatory variable. Control variables are Gross Fixed Capital Formation, trade openness, inflation and unemployment. To have a strong estimation, panel econometric methods are used, such as cross-sectional dependence tests, panel unit root tests, panel cointegration analysis, and the panel Autoregressive Distributed Lag (ARDL) model to allow robust estimation of both the short and the long-run variables. The empirical results affirm that there exists a long-run cointegrating relationship among the variables. The results create the conclusion that FDI lowers income inequality in the prolonged period, and a greater and steadier influence exists in ASEAN nations in contrast to SAARC nations. This difference reflects variations in the structure of industry, labor market absorption and state institution quality. It finds that FDI is capable of achieving the purpose of enhancing equitable income distribution in the country in the presence of complementary domestic policies, including human capital development, labor market reforms, and macroeconomic stability. These results have great policy implications towards inclusive growth and the Sustainable Development Goal 10.

Keywords: foreign direct investment, income inequality, Gini coefficient, PMG-ARDL approach, SAARC, ASEAN, comparative regional analysis.

1. Introduction

The issue of Income inequality is a pressing situation in the world of the developed as well as developing nations. This is not concerned with the allocation of income, but a phenomenon that has such far-reaching effects on society, that it affects not only the public policy and the integrity of institutions, but the economic development itself. The underlying trend is a lack of balance in which the rich are at the top and usually leave the poorest layers of the population behind. The largest disparity is seen in the sense that the 10 percent of the global population who are most wealthy earn 52 percent of all incomes, and the bottom half of the population can only survive on 8.4 percent (World Inequality Report 2022). As a result of this, a large quantity of humanity is in poverty with almost four billion living under less than \$6.70 per day. Although the global economy has increased by 14% in the last five years, experts have estimated in 2018 that the income of people in low-income bracket may increase by mere 4,000 dollars by the year 2035, a trend which is inherently inconsistent with the Sustainable Development Goals to leave no one behind. The

attained high growth in the income inequality in the developing economies during the last two decades has spurred a vigorous academic and policy debate on the effectiveness of foreign direct investment (FDI) in decreasing the distributive inequalities in the recipient countries (Lee and Vivarelli, 2006). According to UNCTAD (2022), FDI is an investment, which creates enduring interest and control by a foreign direct investor resident in one economy or an enterprise in the other economy. This is especially important to the capital-deprived developing economies, which could be triggered by the capital and lead to poverty reduction by establishing and growing enterprises, creating employment, and improving productivity (Moosa, 2002). Nevertheless, there is still an enormous gap and lack of solid findings in the empirical literature that looks at the FDI-inequality nexus. One line of research argues that FDI helps to achieve more equal distribution of incomes (Nguyen and Nguyen, 2019; Ganic, 2019; Do et al., 2021). Similar strong evidence also finds negative or statistically non-significant relationships, implying that FDI can alleviate, or even increase, distributive inequalities (Mihaylova, 2015; Akinmulegun, 2012; Ogunniyi and Igberi, 2014). This speculative challenge, also manifested in the mixed results of Chintrakarn et al. (2012) and Mugeni (2015) in contrast to Yeh (2021), Le et al. (2021), and Yuldashev et al. (2023) identifies the need to develop more sensible, contextually specific studies that transcend the generalizations of universalistic statements on the distributive effects of FDI to conditional explanations. Little is known critically about the comparative regional aspect of this question. Though FDI inflows to South Asian Association of Regional Cooperation (SAARC) have shown sustained enhancement since the 1990s, the scholarship has been led by country specific studies or comparative panel studies which lack systematic comparative frameworks that can shed some light on how the divergent regional economic structures, institutional organization and development paths mediate the relationship between FDI and inequality. This is a particularly consequential lacuna taking into consideration the sharp differences between SAARC and ASEAN: The ability of the latter to entice export-driven FDI manufacturing to relatively strong institutional settings is dramatically different to the relative paucity of regional integration, geopolitical strains and institutional underdeveloped settings in which SAARC above all attracts FDI inflows.

The essence of the proposed study is to evaluate the effect of FDI on the income inequality in the SAARC countries, to evaluate the effect of FDI on the income inequality in the ASEAN countries, to evaluate and compare the difference in contribution of FDI to income inequality in the SAARC member countries and the ASEAN member countries, where the key mediating factors are located. Therefore, to fill this gap, the paper presents intensive comparative research that goes beyond the aggregate flow analysis to disaggregate the processes and conditionality of divergent FDI-inequality performers in SAARC and ASEAN. By so doing, it adds a subtlety of understanding of the conditionality in which FDI is purported to generate distributive equity or create disparity, as well as develop action-oriented insights of policy towards the regions and other developing economies that have to grapple with the same reality.

Section 2 contains literature review as a whole in terms of both theoretical frameworks and empirical evidence. Section 3 outlines the methodological frameworks, such as the data sources, operationalization of variables and econometric processes. The empirical findings are discussed and reported in Section 4. Section 5 contains conclusions, policy implications and future research directions.

2 Theoretical and Empirical Frameworks

Endogenous growth model developed by Aghion and Howitt (2009) is what the theoretical explanation of the nonlinear correlation between FDI and income inequality lies on. Based on this model, technological change is one of the key sources of the earnings gap between skilled and unskilled employees. Multinationals transfer technology to host economy markets in two phases of development. In the learning phase, local companies learn and adopt new technology although their partial dependence is on the traditional way of doing things with small funds spent on research and development. This has led to low wage differentials between skilled and unskilled labor and the demand of skilled labor is comparatively low. The second phase will also begin once the domestic businesses have learned and applied the new technologies in the production channels. Heavy technology use normally requires high skilled work force, and this creates acute demand that is bifurcating the labor market. The new skill endowment increases the wages of skilled labor and increases income inequality. However, with time, this gap theoretically dampens as education and training increases skilled labor supply so that low-skilled workers could gain skills to work skilled jobs, thus lessening historical inequality differentials. This is in line with the modernization hypothesis which is the inverted U-shaped hypothesis of Kuznets (1955) that states that income inequality would increase with the economic development to a certain level and then will decrease. This trend, the Kuznets curve, can be applied to FDI-inequality relations, which propose that in early stages of development when there is a shortage of capital and skills, FDI can focus on gaining advantages among skilled workers and capital owners, contributing to inequality. With the continued development and the accumulation of human capital, institutional maturation, and deepening of the labor market, the equalizing potential of FDI can be fulfilled.

There is a large amount of empirical data that records the inequality-enhancing impacts of FDI within host nations. Such a view puts a heavy emphasis on the selective technological flow and capital-intensive nature of large foreign investments, which raises the wage premium of skilled labor at the expense of unpaid wages. Looking at the emerging economies, Mallick et al. (2020) show that FDI is more likely to increase income disparities with high-productivity enclaves which are poorly connected with domestic economies. Yuldashev et al. (2023) presents findings that the inequality-promoting effect of FDI is greater in the environments that are resource-dependent and have low regulation where narrow elites accumulate capital disproportionately. Researching on Vietnam, Le et al. (2021) discover that FDI has positive and statistically significant impacts on income inequality at the 1 percent level. Investigating Latin America, Daud et al. (2025) indicate that even though FDI is effective in alleviating poverty, the unequal impacts of FDI are not always uniform as FDI is concentrated in extractive sectors and generates minimal jobs as well as strong profitability of the elites, thus raising Gini coefficients. Akanbi and Du Toit (2024) record how FDI in technology and telecommunications in emerging economies generates so-called digital enclaves that, although boosting GDP, disproportionately benefit digitally competent populations, which creates an additional rift between technologically progressive urban labor forces and the traditional rural population. In their study on the issue of AI-based FDI projects in Southeast Asia, Nguyen and Chen (2024) determine job polarization other than the replacement of middle-skilled routine jobs without equivalent replacements, hence the rise in the Gini coefficient. Kummritz et al. (2025) show how global value chain positioning is more significant than FDI volume. The inequality decline through mass employment is found in countries that occupy the downstream (assembly/labor-intensive) positions, which are common in Vietnam and Bangladesh. Nevertheless, advancement into design and R&D phases can trigger the rapid growth of inequality

without the intervention of fierce educational subsidies. According to Zhang (2024), FDI-based participation in the GVCs of South Asia is still disjointed and superficial, generating horizontal disparity between the globally integrated and localized industries.

On the other hand, the body of empirical knowledge has recorded the inequality-reducing impacts of FDI. Investigating the United States, Chintrakarn et al. (2012) discover that FDI lowers income inequality, with the impact depending strongly on states. Mugeni (2015) also indicates that income inequality is reduced by the foreign investment flows. Using panel smooth transition regression, Lee et al. (2022) show that FDI decreases income inequality to certain levels of financial development; after them, the benefits of FDI to poverty diminish and capital concentration impacts can take the forefront. In the wide-ranging meta-analysis by Huang, Sim, and Zhao, (2020) that included 543 empirical studies spanning 25 years, it was established that FDI is related to increased inequality in low-income countries and decreased inequality in high-income countries, and the most important phenomenon is the development stage. The evidence presented by Herzer and Nunnenkamp (2011) is corroborating evidence to Latin American economies. In a comparative analysis of China and India, Mallick et al. (2020) prove that FDI and remittances are strong contributors to the reduction of income inequality in China and an opposite effect in India, which underlines the importance of country-specific mediating variables. Their analysis also notes that, in the two countries, economic growth, urbanization, human capital formation, state spending on health and education, and economic globalization are inequality-reducing.

In a third line of research, it is argued that there exist no systematic and significant distributional effects of FDI. According to Goldberg and Klein (2005), FDI is not always associated with determinate effects on the income distribution of host countries, and where the effects exist, they are usually associated with reduction of inequalities and not intensification. Milanovic (2002) concludes that FDI has no effects in terms of income distribution. In their analysis of the OECD countries (1995-2007), Faustino and Vali (2011) conclude that the trade openness decreases the income inequality although the effect of FDI is rather weak. Franco and Gerussi (2013) do not define direct FDI-inequality relations, but they admit that the FDI features can create the negative distributional impacts in certain circumstances. The article by Ofori et al. (2022) that focuses on Africa establishes that the effect of FDI on inequality diminishes only when accompanied by strong democratic institutions; in the absence of transparency and accountability, FDI inflows can bring about the tendencies of rent-seeking that only serve politically connected parties. In their seminal paper, Figini and Görg (2011) determine the existence of U-shaped relationships: FDI decreases inequality at low penetration rates and increases inequality at high penetration rates. Their analysis also creates a greater inequality-strengthening impact in low-income nations. The longitudinal panel cointegration analysis provided by Herzer et al. (2014) shows that there is no systematic long-run relationship and so this indicates the high level of cross-country heterogeneity, and country-specific impact and historical context were crucial. The three gaps that are discussed in this study are that there has been no systematic comparative analysis of the strategic importance regional blocs such as SAARC and ASEAN, inadequate analysis of contextual factors (e.g., sectoral composition and quality of governance) that moderate the distributional effects of FDI across regional settings, and poor integration of theoretical propositions with observed regional heterogeneity.

Through intensive comparative analysis that disaggregates the processes and conditionality that lead to divergent FDI-inequality results in these two regions, the study not only offers detailed

information as to when FDI leads to equitable development as opposed to increased disparities, but it also has policy implication to the two regions and others developing economies.

3. Materials and Methods

The research design adopted in this study is a comparative quantitative research design based on balanced panel data between 1981 and 2024 on four countries in the SAARC (India, Pakistan, Bangladesh, Sri Lanka) and five countries in the ASEAN (Indonesia, Malaysia, Philippines, Singapore, Thailand). The choice of countries was based on the availability of the data and the goal of building representative panels that reflect the heterogeneity of the region and at the same time be analytically comparable.

The data on income inequality, which is operationalized using the Gini coefficient, is taken out of the Standardized World Income Inequality Database version 9.8 (SWIID) (Solt, 2023). The SWIID has some specific strengths in comparative research by maximizing cross-national comparability and breadth of coverage in addition to overcoming the restrictions that come with other inequality data with multiple imputation algorithms to standardize observations across different sources (Luxembourg Income Study, World Bank, UNU-WIDER, Eurostat, national statistical offices). The information about foreign direct investment (net inflows as percentage of GDP), gross fixed capital formation (percentage of GDP), trade openness (exports plus imports as percentage of GDP), inflation (annual percentage change in consumer price index) and unemployment (total percentage of labor force) are retrieved in World Bank Development Indicators (World Bank, 2025).

Dependent Variable Income Inequality (Gini Coefficient), which is the unequal allocation of income among population groups, is one of the key development issues with far-reaching effects on social cohesion, political stability, and sustainable growth (Alvaredo et al., 2018). The most commonly used measure is the Gini coefficient, which is used to indicate equality to inequality (the range of values can be 0 (perfect equality) to 100 (perfect inequality)). Inequality in the context of the developing economies is often an expression of systematic differences in access to education, access to healthcare services, and access to economic opportunities that operate as an outcome of poverty and as a limiting factor to social mobility (World Bank, 2025).

The primary explanatory variable is the Independent Variable Foreign direct investment, which refers to the cross-border investment of establishing long-lasting interest and significant control (usually 10 percent or above voting rights) of an enterprise in one economy by a resident entity in another economy. The theoretically ambiguous impact of FDI on inequality, which may be equalizing due to employment, technology transfer, and productivity increase and may be disequalizing due to the formation of enclaves, shift to skills-biased technological change, and the replacement of domestic enterprises requires an empirical study (Herzer et al., 2014). The operationalization of FDI is the net inflows percentage of GDP.

Gross Fixed Capital Formation (percentage of GDP) is a measurement of net additions to the physical productive assets in terms of infrastructure, machinery, equipment, buildings. GFCF being a domestic investment indicator eliminates the effects of domestic capital accumulation, so that the effects of FDI can be isolated. Theoretically, GFCF is shown to have both positive and negative effects on inequality, in that labor-intensive such infrastructure investment can narrow gaps by creating jobs, whereas capital-intensive such investment in industrial production can widen them due to capital-skill complementarity (Krusell et al., 2000).

The trade openness (exports and imports percentage of GDP) is used as a measurement of the integration of the economies. This is predicted by Stolper-Samuelson theory which opines that

liberalization of trade in labor-abundant developing economies ought to augment the unskilled labor demand, increasing the relative wage levels and decreasing inequality. But in the event whereby trade reflects skill-biased technology or the specialty in skill-intensive exports, inequality can rise (Goldberg and Pavcnik, 2007). Inclusion regulates the distributional channels of globalization other than FDI. The macroeconomic instability is reflected in inflation (annual change in consumer price index in percentage). Theoretical regressive distributional impacts of inflation (annual consumer price index percentage change) include higher levels of purchasing power of lower-income households which are comparatively less advantaged by the inflation, and which spend more of their budget on necessities (Albanesi, 2007). Macroeconomic instability has a direct impact on the FDI inflows and on the income distribution, and therefore, there should be inflation control.

Unemployment (total percentage of labor force) is the measure of underutilization of the labor market. The negative impact of unemployment on inequality is the loss of labor income and the stifling of wages, especially in relation to low-skilled employees (World Bank, 2022). The inclusion is important since FDI influences inequality in major ways; employment creation/destruction and wages.

Table 3: Description of Variables Used In the Study.

Variable	Abbreviation	Description	Unit	Source
Income Inequality	GI	Gini coefficient (0-100)	Index (0-100)	SWIID v9.8 (Solt, 2023)
Foreign Direct Investment	FDI	Net inflows	% of GDP	World Bank (2025)
Gross fixed capital formation	GFCF	Gross fixed capital formation	% of GDP	World Bank (2025)
Trade Openness	TO	Exports + Imports	% of GDP	World Bank (2025)
Inflation	CPI	Consumer price index	Annual %	World Bank (2025)
Unemployment	UE	Total unemployment	% of labor force	World Bank (2025)

3.1 Testing Cross-Sectional Dependence

Before unit root and cointegration analysis, we determine the cross-sectional dependence that is the correlation of residuals between different panel units, a feature that is rampant in macroeconomic panels in which countries are susceptible to a common shock (global financial crisis, oil price fluctuations) and location spillovers. The effect of unaddressed CD is the creation of biased and inconsistent estimates and invalid inferences (Pesaran, 2004). We use Pesaran CD test, which is strong to the panels with large cross-sectional dimension (N) as compared to the time dimension (T):

$$CD = \sqrt{\frac{2T}{N(N-1)}} \sum_{i=1}^{N-1} \sum_{j=i+1}^N \rho_{ij} \quad (1)$$

In this case, ρ_{ij} refers to the average pair-wise correlation coefficient of the residual between units i and j . Following the null hypothesis of no cross-sectional dependence, the statistic of the CD is an asymptotic value of standard normal:

$$CD \sim N(0, 1)$$

Various statistical tests have been suggested to be used to identify cross-sectional dependence in panel data and the Pesaran (2004) CD test is one of the most widely used. It is a test which is especially suitable to panels with large cross-sectional dimension (N), though there is a relatively short time span (T). The main strength of Pesaran CD test is that it is robust to both weak and strong versions of cross-sectional dependence.

3.2 Panel Unit Root Testing

The order of integration of variables is determined, which is a prerequisite of cointegration analysis. With a possible cross-sectional dependence, a first-generation unit root test (Levin-Lin-Chu, Im-Pesaran-Shin) with the assumption of cross-sectional independence can cause distortion of size effect and spurious conclusion. We thus use Pesaran (2007) Cross-sectionally Augmented IPS (CIPS) test, which is a second-generation panel unit root test that fixes the shortcoming of CD by augmenting conventional ADF regressions with cross-sectional averages of levels and first differences:

$$\Delta y_{it} = a_i + b_i y_{i,t-1} + c_i y_{t-1} + d_i \Delta y_t + \sum_{j=1}^{p_i} \phi_{ij} \Delta y_{i,t-j} + \varepsilon_{it} \quad (2)$$

The hypotheses are H 0: There is a unit root (non-stationary) in all series.

H 1: There are at least stationary some of the series.

Critical values of the CIPS statistics are acquired through simulation because it is not normally distributed. This test strengthens and increases the strength of unit root analysis where cross-sectional connections exist.

3.3 Panel Cointegration Testing

The panel cointegration testing is a series of four tests. When we determine the order of integration of variables, we explore the relationship of the long-run equilibrium, based on the bounds testing of the cointegration by Pesaran, Shin, and Smith (2001) in an autoregressive distributed lag model. This method has a number of strengths compared to standard cointegration tests (Engle-Granger, Johansen): (i) it can be used with regressors of any I(0) and I(1) type, including mutually cointegrated regressors; (ii) it has relative strengths on a small-sample basis; (iii) it gives an unbiased estimate of the coefficients in the long-run; (iv) it can be applied where there are mixed integration orders. The bounds test is based on an approximate error correction model that is not restricted and an F-test that is used to test the joint significance of lagged level variables. The null hypothesis of cointegration (H1: $\beta_0 = \beta_1 = \beta_2 = \dots, \beta_k = 0$ (No long-run relationship exists).

Against the alternative hypothesis:

H 1: $\beta_0 \neq 0, \beta_1 \neq 0, \beta_2 \neq 0, \dots, \beta_k \neq 0$ (A long-run relationship exists)

Calculated F-statistic is compared with calculated critical bounds: I(0) lower bound (all variables I(0)) and I(1) upper bound (all variables I(1)). The F-statistic that exceeds upper bound rejects the null and the cointegration is confirmed; the F-statistic that is below lower bound fails to reject the null and the values between these limits require knowledge about order of integration.

3.4 Panel ARDL estimation

The Panel ARDL model is used to capture the lagged variables in an autoregressive form that is the current value of a variable depending on its previous values. This model generalizes the ARDL model to panel data where the researcher is able to investigate dynamic associations among the variables whilst bearing in mind variations between the entities in the dataset. Besides the panel ARDL methodology considers cross-sectional dependence and hence interdependence between various organizations is appropriately considered. This is why it is a useful econometric instrument to examine both short-term fluctuations and long-term equilibrium correlations in panel data.

The ARDL model (Panel ARDL) is a superior econometric model that is utilized to examine the changes in panel data, both short and long-term. Its capability to model cointegration relationships and the fact that it takes into account cross-sectional dependence make it very useful in empirical research and policy analysis. Using dynamic interactions along with maintaining equilibrium relationships, the Panel ARDL method allows a researcher to see the complex economic interconnections in a better way. This in turn eases the process of making decisions based on data and developing policies based on informed decision-making; hence, it is a potent tool of interpreting economic, financial, and social phenomena. The Panel ARDL (Autoregressive Distributed Lag) model distinguishes between a short and a long run impact of a panel dataset. In short run, the variation in the variables is reflected in the lag values, whereas in the long run, cointegrating relationships outlines the stable equilibrium among variables over the period of time. A key aspect of the Panel ARDL approach is that it has a capacity to factor in cointegration which implies a long-run relationship between variables in spite of short-term fluctuations. Cointegration in panel data is an indication that there exist two or more entities in a common equilibrium relationship, which make sure that the interactions between the entities are not random but a predictable trend over a period of time. This approach to the research is especially effective in the interpretation of economic and policy-making relationships, which can be of good use in decision-making and strategy development. The model to be used is the Panel ARDL as below;

$$GI_{it} = \beta_0 + \sum_{j=1}^n \beta_1 \Delta SA_{it-j} + \sum_{k=1}^m \beta_2 \Delta FDI_{it-k} + \sum_{p=1}^q \beta_3 \Delta GFCF_{it-p} + \sum_{h=1}^f \beta_4 \Delta TO_{it-h} + \sum_{s=1}^g \beta_5 \Delta CPI_{it-s} + \sum_{r=1}^d \beta_6 \Delta UE_{it-r} + \theta_1 FDI_{it-1} + \theta_2 CPI_{it-1} + \theta_3 GFCF_{it-1} + \theta_4 TO_{it-1} + \theta_5 UE_{it-1} + \pi ECT_{t-1} + u_{it} SA_{it} \equiv$$

$$\left(\sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} \hat{e}_{i,t-1}^2 \right)^{-1} \sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} (\hat{e}_{i,t-1} \Delta \hat{e}_{i,t} - \hat{\lambda}_i)$$

$$\Delta GI_{it} = \sum_{j=1}^p a_{it} GI_{it-j} + \sum_{j=0}^q a_{it} \delta_{it} X_{it,t-j} + \mu_{it} + \epsilon_{it} \quad (3)$$

GI_{it} is used for income inequality (Gini index), FDI_{it} represents the foreign direct investment, $GFCF_{it}$ represents gross fixed capital formation, TO_{it} represents Trade openness, CPI_{it} represents inflation (consumer price index), UE_{it} represents unemployment, the parameter of interest is symbolized by the 0 based on the equation above; The β_1 , β_2 , β_3 , and β_4 parameters are the short-run coefficients whereas the θ_1 , θ_2 through θ_5 are the long-run coefficients. The ECT component is the effect of adjustment and the coefficient π is the total model of dynamic stability. Where i are the numbers of cross-sectional, t is the time period, j is optimal lags, X_{it} represents other variables, such as FDI , $GFCF$, TO , CPI , UE , and μ_{it} .

3.5 Diagnostic Testing

Adequacy of the model is determined by diagnostic tests: (i) heteroskedasticity (Breusch-Pagan test); (ii) autocorrelation (Ljung-Box test); (iii) normality (Jarque-Bera test); (iv) multicollinearity (Variance Inflation Factor), (v) model specification (Ramsey RESET test). In the case of a found diagnosis violation, corrective measures are taken (heteroskedasticity-consistent standard errors, autoregressive error structure).

4. Results and Discussion

Table 4 shows the descriptive statistics for all independent and dependent variables observed during the specified sample period (1981-2024) for both SAARC and ASEAN countries. The descriptive statistics serve to provide a basic understanding of the ranges of values, and how they

are spread across all observations, the similarities and differences between SAARC and ASEAN countries in regards to the distributional characteristics, scale, and variability for each of the variables for which income inequality, foreign direct investment, and the selected macroeconomic control variables have been measured for both regional groups. The descriptive statistics presented for both groups will facilitate comparing the structural and institutional variations which exist between SAARC and ASEAN countries before conducting any formal econometric analysis that might lead to more detailed information regarding the extent and relationship between green energy efficiency and green technology innovation on a regional basis.

Table 4: Descriptive Statistics for both SAARC and ASEAN Countries.

Panel-1 SAARC countries						
	GI	FDI	GFCF	TO	CPI	UE
Mean	39.29	1.87	22.98	38.78	83.39	5.17
Median	38.15	1.73	23.8	34.19	54.67	4.22
Maximum	49	4.66	35.82	88.64	386.81	17.24
Minimum	29.5	1	12.83	12.22	5.4	0.4
Std. Dev.	6.17	0.68	6.03	18.02	75.01	3.7
Observations	176	176	176	176	176	176
Panel-2 ASEAN countries						
Mean	41.12	8.85	26.2	143.28	80.17	3.88
Median	41.7	6.08	25.24	106.57	82.14	3.51
Maximum	46.5	37.07	46.23	437.33	172.75	11.19
Minimum	35.9	1	8.73	32.19	6.24	0.25
Std. Dev.	2.62	6.97	7.26	111.96	38.11	2.19
Observations	220	220	220	220	220	220

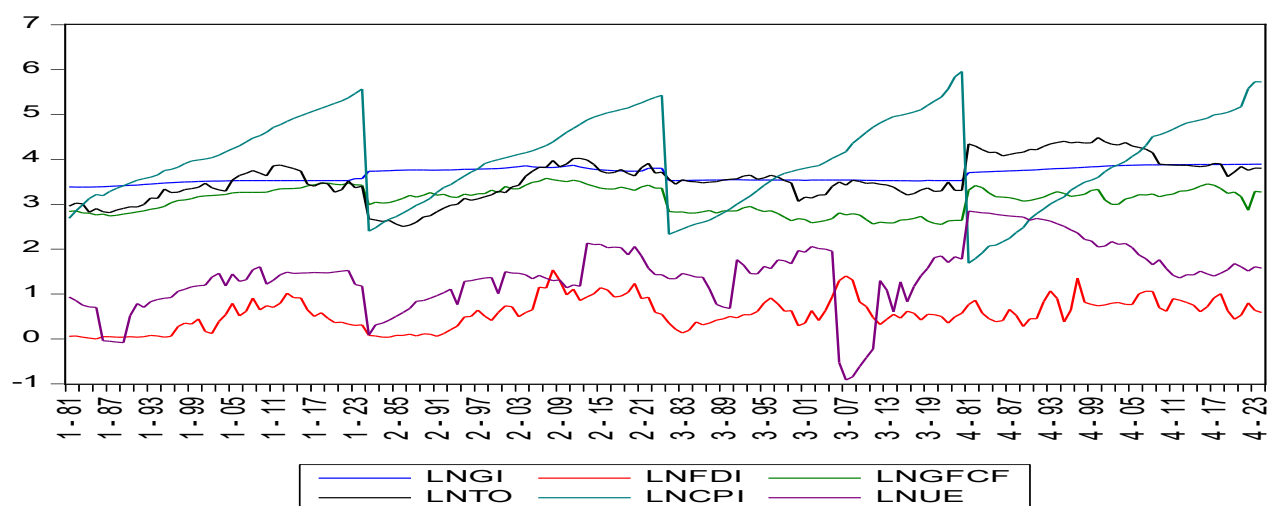


Figure 1. Yearly Trend of Variables in SAARC Countries

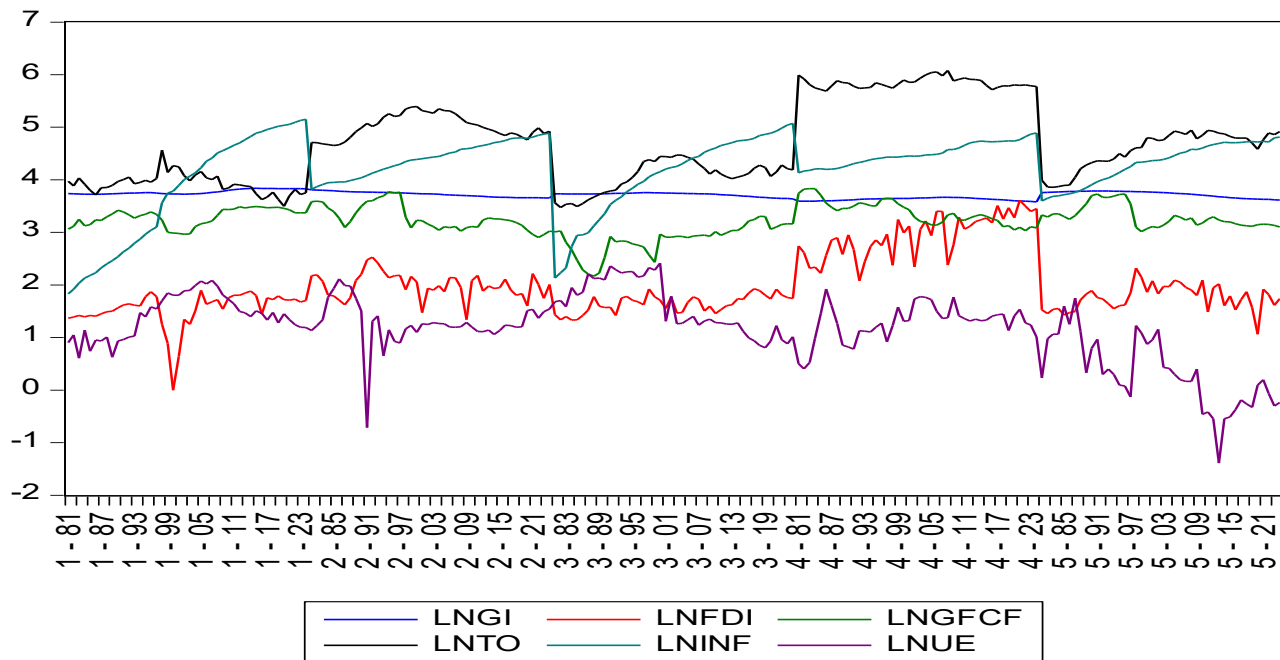


Figure 2. Yearly trend of variables in ASEAN countries.

In table 5 below all the CD test statistics, the null hypothesis of the absence of cross-sectional dependence is not rejected at the common levels of significance, which implies the absence of correlation between the residuals in the panel units. This result indicates that similar shocks (world financial crisis, changes in oil prices) do not cause systematic cross-country correlation in either regional panel when controlling covariates included. Lack of CD allows one to apply first-generation panel unit root tests; however, we use the second-generation CIPS test proposed by Pesaran as the test of robustness.

Table 5: Residual Cross-Section Dependence Test for SAARC and ASEAN.

Panel-1 SAARC Countries			
Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	1.2345	6	0.2112
Pesaran scaled LM	2.5678		0.1164
Pesaran CD	-0.3456		0.7312
Panel-2 ASEAN Countries			
Breusch-Pagan LM	0.5678	10	0.7462
Pesaran scaled LM	1.4325		0.8321
Pesaran CD	0.1123		0.9124

Table 6 shows the results of IPS tests. It shows a mixed order of integration in the two panels. FDI and GCF are at level $[I(0)]$, in SAARC; $[I(0)]$ - FDI and UE in ASEAN. When the first differencing $[I(1)]$, all the other variables would turn to be stationary. More importantly, there is

no variable that behaves [I (2)], and the ARDL bounds test condition is met requiring all the variables to be [I (0)] or [I (1)]. In both panels, the dependent variable (LNGI) is [I (1)], which is

Panel-1 SAARC Countries					
Im, Pesaran and Shin W-stat					
Variables	Levels Statistics	p-value	Fist difference statistics	p-value	decision
LNGI	-0.87181	0.1917	-2.74	.0035	I(1)
LNFDI	-2.40760	0.0080	-8.52029	0.0000	I(0)
LNGFCF	-8.52029	0.0000	-6.22103	0.0000	I(0)
LNT0	0.44008	0.6701	-7.09370	0.0000	I(1)
LNCPI	2.50018	0.9938	-4.90977	0.0000	I(1)
LNUE	-0.46913	0.3195	-6.53694	0.0000	I(1)
Panel-2 ASEAN Countries					
LNGI	2.59680	0.6653	0.43915	0.0000	I(1)
LNFDI	-3.40043	0.0003	-12.6236	0.0000	I(0)
LNGFCF	-1.36964	0.0854	-6.66884	0.0000	I(1)
LNT0	-1.17209	0.1206	-8.67853	0.0000	I(1)
LNCPI	-0.50261	0.3076	-4.98452	0.0000	I(1)
LNUE	-1.59891	0.0549	-10.3250	0.0000	I(0)

in line with the nature of inequality as a slow sluggish process that necessitates first differencing to attain stationery.

Table 6: Unit Root for SAARC and ASEAN Countries.

Table 7 shows the cointegration tests results for both the panels. The calculated F-statistics are significantly higher than the upper bound critical value at the 5% level of significance in both panels (SAARC: 5.65 > 4.72; ASEAN: 6.12 > 4.72), which proves the presence of a stable relationship between income inequality and the set of explanatory variables at 5% level of significance. This result justifies the next step of long-run coefficient estimation.

Table 7: Cointegration Test Results for SAARC and ASEAN Countries.

Panel-1 SAARC Countries				
Test	Statistic	Critical Value (5%)	Decision	p-value
Bounds Test (Pesaran et al., 2001)	F-statistic: 5.65	Lower Bound = 3.56, Upper Bound = 4.72	Reject null hypothesis of no cointegration	0.003
Panel-2 ASEAN Countries				
Bounds Test (Pesaran et al., 2001)	F-statistics: 6.12	Lower Bound = 3.56, Upper Bound = 4.72	Reject null hypothesis of no cointegration	0.001

4.1: Panel ARDL Results Interpretations for SAARC and ASEAN Countries

The results will be provided in the form of long-run outcomes in SAARC countries. The long-run coefficients indicate that FDI has a negative and significant effect on income inequality in the SAARC countries ($\beta = -0.12$, $p = 0.02$). The effect of an increase in FDI inflows by 1 percent is the decrease in the Gini coefficient by 0.12 percent, *ceteri paribus*. This observation is consistent with the modernization and capital-skill complementary theoretical schools of thought in that FDI brings about technological advantages, managerial skills, and capital, which would increase productivity, create jobs, and lead to the more equal distribution of wealth in the long-term. This finding is consistent with Mushtaq et al. (2014), who registered the equality-mitigating impacts of FDI in South Asian nations, and Khan et al. (2021) that reported the significant adverse connection between FDI and inequality in the area. The relationship between Gross fixed capital formation and inequality is positive and significant ($\beta = 0.13$, $p < .01$). Every 1 percent of the domestic investment is linked with a 0.13 percent increase in inequality. This evidence is consistent with structuralist views of the economy that capital formation, in particular, when concentrated in capital-intensive sectors, gains capital owners and skilled labor disproportionately, expanding skilled-unskilled wage differentials (Krusell et al., 2000). Inequality can be heightened when returns to investment are concentrated in certain sectors or geographic location, especially when the populations that lack access to education or lack access to vocational training are involved. Trade openness has positive and significant inequality effects ($\beta = 0.33$, $p = 0.01$). In line with the Heckscher-Ohlin and growth stages theoretical forecasts, trade liberalization in SAARC seems to create specialization effects that benefit certain industries of labor over others. The advantages of globalization might be concentrated in the areas of high skill and high wage to the disadvantage of low-paid, unskilled labor. This observation is supported by Jaumotte, Lall, and Papageorgiou (2013) who reported inequality-promoting consequences of trade globalization in developing economies due to exposure to skill-biased technological change. There are positive significant impacts of inflation on inequality ($\beta = 0.03$, $p = 0.01$). Every single percentage point of the increase in inflation is linked to the rise in inequality by 0.03%. This observation confirms the definition of inflation as a regressive tax that reduces the purchasing power or the lower income households in a disproportionate manner because they have a higher ratio of cash to assets and use more budget to necessities (Albanesi, 2007). More affluent households, who have inflation-hedging resources (real estate, equities), are relatively cushioned. This finding is consistent with those of Law and Soon (2020) and Zandi et al. (2022) which reported the inequality-exacerbating impacts of inflation. The effects of unemployment are positive, significant ($\beta = 0.03$, $p = 0.02$). The greater the unemployment rate, the greater the inequality, which is also in line with the dual labor market and mismatch theories. High unemployment indicates structural labor market failures such as skill gaps between the skills of labor force and economic needs, but the less skilled workers with lower income lose their jobs or are displaced to the informal sector. This increases income inequality by widening employed-unemployed incomes (Stiglitz, 2012).

The effect of FDI on income inequality in ASEAN is found to be negative and statistically significant ($\beta = -0.17$, $p = 0.001$) and is stronger in magnitude than the SAARC coefficient. The impact of 1 percent increase in FDI lead to 0.17 percent reduction in inequality. This result stands in heavy favor of Stolper-Samuelson predictions: FDI in the labor-intensive manufacturing sector in labor-abundant economies of the ASEAN region raises the low-skilled labor demand and in turn raises real wages and level wage distributions. The same trends were reported in Vietnam,

Cambodia, and Indonesia by Athukorala (2011) and McCaig and Pavcnik (2018), in which the export processing zone FDI created a lot of formal employment to low-skilled workers, especially female workers, alleviating poverty and, possibly, inequality. Chintrakarn et al. (2012) have found financial market development to be a key requirement of the equalizing effects of FDI a requirement that is being met to an increasingly larger extent in ASEAN. Gross fixed capital formation indicates the positive and significant effects of inequality ($\beta = 0.10$, $p = 0.001$) although the value of the coefficients is less in comparison to that of SAARC. Physical capital investment is found to be overly benefiting the high-income earners which could be as a result of capital-skill compatibility whereby investment of higher-order machinery increases the marginal productivity and wages of skilled workers more than the unskilled workers (Krusell et al., 2000). Devoid of complementary development of human capital, investment processes can only benefit those already in possession of property or advanced skills (Sabir et al., 2021). Trade openness has positive, significant impacts of inequality ($\beta = 0.28$, $p = 0.001$). Although ASEAN has excelled in export-oriented manufacturing, and created a lot of jobs, the inequality-enhancing impacts of trade liberalization still prevail. This is probably within-industry skill upgrading and polarizing wages: as low-skilled workers find jobs, technology-related skills like technicians, engineers, and managers get higher pay differentials out of proportion. The same situation was recorded by Jaumotte, Lall, and Papageorgiou (2013) when they observed the inequality effects of trade globalization when linked with skill-biased technological change in the context of developing economy. Positive, significant effects of inflation ($\beta = 0.29$, $p = 0.003$) are observed, the coefficient is significantly larger than that of SAARC. The presence of greater trade integration and export orientation in ASEAN can enhance the regressive distributional impacts of inflation by generating food and energy price transmission processes that will disproportionately affect lower-income households that devote bigger proportions of their budget to these essentials. The effects of unemployment are positive and significant ($\beta = 0.05$, $p = 0.001$), as was expected on theoretical grounds, and SAARC findings. Every one percentage point rise in unemployment is linked to 0.05% rise in inequality.

Coefficient of error correction is also negative and significant in both panels (SAARC: $\beta = -0.14$, $p = 0.04$; ASEAN: $\beta = -0.26$, $p = 0.04$) which attests to cointegration and dynamic stability. The magnitude of the coefficient represents the rate at which long-run equilibrium is attained after disturbance in short-runs. SAARC corrects about 14 percent of disequilibrium every year and takes a period of about 7.1 years to completely adjust. The pace of adjustment of ASEAN is much quicker (26%/year, 3.8 years to full adjustment) due to the presence of more flexible labor markets, stronger institutions, and the more efficient process of relocating resources. There is a significant regional difference in the short-run FDI impacts. Short run FDI coefficient in ASEAN is negative and high ($\beta = -0.04$, $p = 0.04$) meaning that there are short term inequality-reducing effects as would be expected of rapid labor market absorption and wage effects. The short-run FDI coefficient is positive and significant in SAARC ($\beta = 0.02$, $p = 0.05$) implying that initial disequilibrium in terms of skill premium, sectoral concentration or enclave formation followed by the long-run equalization. This difference highlights quite differing adjustment strategies: the export-oriented manufacturing FDI in ASEAN directly and quickly employs low-skilled labor; the service-sector and capital-intensive FDI in SAARC initially broadens the skilled-unskilled wage gap before the longer-term equalizing effects of FDI by creating new jobs, transferring skills, and spillover benefits and costs become apparent. The effects of trade openness in the short run are positive and significant in ASEAN ($\beta = 0.16$, $p = 0.01$) and slightly significant in the SAARC ($\beta =$

0.02, $p = 0.06$), and the implication is that the inequality-enhancing effects of trade liberalization are relatively fast-acting. ASEAN ($\beta = 0.02$, $p = 0.01$) is positive and significant only in short-run unemployment effects but not in the case of SAARC. Although both panels have trivial short-run GFCF and inflation effects, it is likely that these variables have a role in inequality by affecting inequality in the long term through structural adjustment and in the short term through short-run adjustment.

Table 8: Panel ARDL Results for SAARC and ASEAN Countries

ASEAN Countries					SAARC Countries			
Long Run					Long Run			
Variables	coefficient	Std err	stat	P Values	Coefficient	Std err	Stat	p-value
LnFDI	-0.17	0.03	-5.79	0.001	-0.12	0.05	-2.44	0.02
LnGFCF	0.1	0.03	4.51	0.001	0.13	0.05	2.67	0.01
LnTO	0.28	0.06	4.74	0.001	0.33	0.08	4.26	0.01
LnCPI	0.29	0.1	3	0.003	0.03	0.01	3.6	0.01
LnUE	0.05	0.01	5.64	0.001	0.03	0.02	2.54	0.02
Short Run					Short Run			
Δ LnFDI	-0.04	0.02	-2.08	0.04	0.02	0.01	2.02	0.05
Δ LnGFCF	-0.1	0.07	-1.51	0.14	0.04	0.05	0.79	0.44
Δ LnTO	0.16	0.05	3.46	0.01	0.02	0.01	1.96	0.06
Δ LnCPI	0.12	0.2	0.59	0.56	0.04	0.02	1.85	0.07
Δ LnUE	0.02	0.01	2.64	0.01	0.01	0.01	1.37	0.18
C	0.35	0.13	2.74	0.01	-0.11	0.05	-2.07	0.04
ECT	-0.26	0.13	-2.15	0.04	-0.14	0.07	-2.14	0.04

Table 9 shows diagnostic tests results for both the panels. Diagnostic tests prove model suitability on all levels. There is no sign of heteroskedasticity, autocorrelation, non-normality and multicollinearity. It is observed that Ramsey RESET test p-values above 0.05 mean that the model has been correctly specified with no additional variable or functional form misspecification. These findings confirm the effectiveness and accuracy of coefficient estimates.

Table 9: Diagnostic Test Results for SAARC and ASEAN Countries.

Panel-1 SAARC Countries		
Test	Statistic	p-value
Heteroskedasticity Test (Breusch-Pagan)	0.512	0.809
Autocorrelation Test (Ljung-Box)	1.23	0.264
Normality Test (Jarque-Bera)	2.54	0.280
Multicollinearity Test (VIF)	Variable-wise VIFs: 1.2 to 2.3	No Multicollinearity
Model Specification Test (RESET)	1.01	0.350

Panel-2 ASEAN Countries		
Heteroskedasticity Test (Breusch-Pagan)	1.12	0.293
Autocorrelation Test (Ljung-Box)	2.38	0.135
Normality Test (Jarque-Bera)	3.21	0.200
Multicollinearity Test (VIF)	Variable-wise VIFs: 1.2 to 3.0	No Multicollinearity
Model Specification Test (RESET)	1.08	0.370

4.2 Comparative Discussion: Explanation of Regional Divergences

The empirical data shows that FDI will decrease income inequality in both regions in the long-term, but the transmission mechanisms, adjustment pathways, and short-run dynamics are very different. This difference needs to be explained based on structural, institutional, and policy variations between SAARC and ASEAN.

The export-oriented manufacturing investment of electronics, automotive components, textiles, and consumer goods is the predominant FDI of ASEAN with high levels of absorptions of low skilled labor, high levels of female employment and the integration in the global value chain (Athukorala, 2011). This form of composition creates instant massive job creation to workers in the lower end of the income distribution, which directly pulls down the inequality. This trend is seen in Vietnam textile industries and footwear, the Indian electronics assemblies industry, and electrical machinery production in Malaysia. The FDI of SAARC, on the contrary, is more concentrated in the services (Indian IT and financial services, telecommunication in Pakistan), capital-intensive manufacturing and infrastructure projects. These industries produce fewer jobs per unit of investment, and require greater investment in terms of skill, and concentration of the benefits on already-privileged urban, educated populations. This compositional fact is measured by the first positive short-run coefficient of FDI, which initially adds to inequality by raising skill differentials and concentrating around high-wage enclaves before equalization of the same, indirectly, comes in through indirect mechanisms (supplier development, productivity spillovers, and gradual employment growth):

The better institutional environment of ASEAN is more effective regulatory frameworks, better contract enforcement, less corruption perceptions, and better government effectiveness; hence, they can transmit better FDI benefits to larger populations (Beneassy-Quere et al., 2007). Effective institutions can guarantee that the tax revenues created as a result of FDI can be converted into public goods (education, health, and infrastructure) which would improve the productive abilities of poor households. The quality of regulation guarantees compliance with labor standards and eliminates the extreme wage depression. Open procurement lowers elite grabbing of FDI-related contracts. The institutional environment of SAARC is relatively weaker which allows more rent seeking, enclave development and elite capture of FDI benefits. FDI spillovers to domestic firms are limited by regulatory inefficiencies, corruption and low enforcement of contracts. Rigidities in the labor market and the complementary, weak enforcement generate fragmented results: the formal sector workers in the FDI enterprises gain more conditions whereas the rest of the informal workers stay marginalized.

The high levels of education and more balanced distribution of human capitals will enable ASEAN to participate in the opportunities created by FDI on a wider scale. Universal primary schooling and secondary school attendance is becoming the norm in Vietnam, the investments

made by Malaysia in tertiary education are significant, and the Singaporean system of technical education is of world-class standards, which means that the skill requirements of FDI can be fulfilled without excessive inflation of the skills premium. Human capital stocking has been following technological modernization and has stopped the extreme shortages of skilled labor that creates runaway wage premiums. SAARC is faced by worse human capital constraints. The system of higher education in India has generated sufficient numbers of engineers and managers yet has issues with quality and geographical/social inequalities in access. The Pakistani, Bangladesh and Sri Lankan countries have lower secondary enrollment rates and high urban-rural, gender and socioeconomic educational disparities. The skills that FDI requires are beyond the domestic skills supply and thus create massive skill premiums that enhance inequality especially in the short-term and medium-term.

Regional Production Networks and Regional Integration. The multiplier effects that amplify the developing effects of FDI are the profound regional integration of ASEAN via the ASEAN Economic Community plus large production networks with the Northeast Asian economies (Japan, Korea, and China). Specialization based on the comparative advantage is facilitated by regional value chains where labor-intensive processes take place in the lower wage economies of Vietnam, Cambodia, Indonesia, Philippines and capital/technology-intensive processes are present in advanced economies (Singapore, Malaysia, and Thailand). The creation of jobs at the regional level of income distribution and transfer of technology via supplier-customer associations is created through this networked structure. The lack of comparable multiplier effects is caused by the limited regional integration by the SAARC that includes weak trade under SAFTA, the ongoing India Pakistan tension, weak transport and energy infrastructure. FDI is not regionally networked as it is nationally contained and restricts benefits of specialization, scale effect and spillovers. The individual countries have to build full value chains, which decreases productivity and job creation per unit of FDI.

The various institutions of ASEAN labor market encompass the flexible structure that enables quick adjustment of employment and social protection system that alleviates inequality. The retirement and healthcare benefits as well as unemployment benefits provided by Singapore Central Provident Fund, Malaysia Employees Provident Fund, and Thailand Social Security Office also mitigate the consumption inequality even in situations where market income inequality is still present. Minimal wage regimes that are irregularly implemented create protection of floors. The labor market institutions of the SAARC are dualistic as they have the large amount of formal sector employees and the small amount of informal workers. This institutional structure creates insider-outsider relationships in which the workers in the formal sector that are related to FDI possess better protections and salaries and most of the informal workforce does not have the same. Instead of raising the total level of inequality, FDI can in the short term raise the measured level of inequality through formalizing formerly informal workers at better pay rates and abandoning other informal workers, creating new layers between formal and informal groups.

5. Conclusion and policy recommendations

The current study offers the initial formal comparative econometric literature of FDI effects on income inequality in SAARC and ASEAN countries over the long run 1981–2024. The analysis of the balanced panels consisting of four SAARC and five ASEAN countries using the PMG-ARDL methodology provides a number of strong conclusions. To begin with, FDI has statistically significant negative effect on both regions in the long-run income inequality. The intercessory effect is that a 1 percent increase on FDI inflows is linked to a 0.12 percent decrease in the Gini

coefficient of SAARC and a 0.17 percent decrease in ASEAN. This result confirms that despite the expectations in the dependency theory and despite the significant heterogeneity in magnitudes of effects and transmission mechanisms, foreign capital inflows can be used to be distributive equity in developing Asian economies in long-term horizons. Second, there is a fundamental difference in the transmission patterns and pathways of adjustment in different regions. The export-oriented manufacturing FDI of ASEAN creates direct inequality reduction that is rapid and generates low-skilled job absorption effects and wage effects in a consistent manner with the predictions of Stolper-Samuelson theorem. The services and capital-intensive FDI offered by SAARC first raise inequality by raising the skill premium and sector concentration and thereafter equalization will be achieved over the long run by expanding employment, generating productivity spillovers, and diffusion of skills. The short-run coefficient of FDI is found to be negative and significant in ASEAN and positive and significant in SAARC, which proves this difference in adjustment processes. Third, the gross fixed capital formation, trade openness, inflation and unemployment steadily aggravate income inequality in both regions in the long run. Although domestic investment is necessary to productive capacity growth, it is disproportionately paid to bring about capital and skilled workers without complementary human capital growth and redistributive policies. The openness of trade generates unequal distribution of benefits despite the employment creation across the skill categories. Inflation is a form of retrogressive tax that reduces the purchasing power of the lower income earners. Unemployment contributes directly to increasing the income disparity by loss of labor income and wage pressure. Fourth, there exists high levels of cross-regional heterogeneity in the economic structure, institutional quality, human capital endowments and policy framework systematically mediating the distributional impacts of FDI. The fact that, ASEAN has been doing better in its efforts to translate FDI to inequality reduction is an indication of its more natural integration, institutional environment, fairer distribution of human capital, and successful complementary policies.

5.2 Theoretical Contributions The paper enhances the theoretical knowledge on the FDI-inequality nexus in three important aspects. First, it shows that canonical theories, Stolper-Samuelson, skill-biased technological change, Kuznets curve are not generalizable but vary in different institutional and structural settings. The Stolper-Samuelson mechanism is very effective in the ASEAN environment of labor-intensive export manufacturing but less so in the FDI environment of SAARC, which is service-oriented. This observation highlights the need to apply theoretical use contextually but not generic theoretical invocation. Second, the research indicates that the relationship between FDI and inequality is featured with heterogeneous adjusting dynamics over time horizons. In the short-run, the relationships between the long-run equilibrium may be distorted or even contradictory. This time-heterogeneity, especially the positive short, negative long-run FDI coefficient of SAARC has not been theorized sufficiently in the available literature, nor have most policy models designed to focus on short-term outcomes sufficiently accounted for it. Third, the study establishes institutional quality, human capital, and FDI sectoral composition as among the key mediating variables, which establish a systematic conditional on the distributional impacts of FDI. This adds to the newly developed scholarship that highlights conditionality and contingency in the relationship between globalization and inequality that asserts universalistic assertions, focuses more on the particular situation, where FDI fosters equitable development.

Policy Recommendations for SAARC countries: To start with, the SAARC countries ought to be concurrently seeking FDI attraction and complementary policy packages that will take care of the

costs of transitional disequilibrium. The observation that FDI raises inequality first and then balances it out on the long run indicates that time will heal things, yet the intervention of active policies can shorten the adjustment phases and alleviate the transitional sufferings. Certain policies that should be implemented are: (i) an intensive increase in vocational training and technical education to quickly modernize domestic skill endowments, reducing skill premiums, and creating opportunities to employ masses in FDI-based ventures; (ii) enhancing social protection programs, such as the unemployment insurance, conditional cash transfers, and the provision of public works programs that can allow the small and medium enterprises to gain access to the benefits of FDI-based ventures. Second, the control of inflation should be increased as a distributional priority policy. The fact that in both regions, the effects of inflation to be more inequality-enhancing points to the fact that price stability is not an aim of macroeconomics only but a distributional policy that is pro-poor. The high and highly fluctuating inflation rates in SAARC are a sign of frequent fiscal imbalances, supply side limitations and exchange rate pressures which demand a coordinated monetary and fiscal strategy, better agricultural output and efficiency of food supply chain. Third, labor market reforms are to cover the formal-informal duality that allows formal workforce to be related to FDI to be subjected to superior conditions whereas the large part of the informal workforce is marginalized. Social protection coverage of informal workers, lowering entry barriers to the formal sector, and the application of core labor standards to all forms of enterprises would contribute to the inclusive growth contribution of FDI. Fourth, the concept of regional integration through the SAARC needs to be rejuvenated as a tool of increasing the developmental influence of FDI. The experience in the ASEAN shows that regional production networks create jobs throughout income distribution and technology diffusion. By overcoming the political tensions in history, to adopt the agreed SAFTA provisions, building the necessary infrastructure to facilitate regional transport and harmonize investment regulations would allow the countries of SAARC to follow the successful model of networked industrialization that ASEAN has shown.

Policy recommendations ASEAN Countries: To begin with, the countries of ASEAN need to engage in the upgrading of FDI quality whilst keeping labor standards and wage equity. The threat of technological change to become increasingly skill-biased with the advancement of economies towards higher value-added operations grows. Policy measures ought to comprise: (i) investment incentives that are designed to compensate employment creation and local supply of suppliers instead of capital spending; (ii) gradual wage schemes that guarantee that gain in productivity is widely distributed; (iii) unremitting investment in education and training to make sure that the local supply of skills keeps up with technological modernization. Second, the openness to trade should be supported by national policies that make certain the benefits of globalization are widely spread. The discovery that the region of trade openness enhances inequality even with such a large amount of employment creation shows that the current trend of integration leads to the distribution of benefits unequally. The wage insurance, trade adjustment assistance, relocation assistance, and similar labor market policies can assist workers in competitors of the imports industry. Trade tax revenues, when reinvested in education, health and infrastructure, can increase the productive capacities of poor households. Third, exclusive growth cannot be achieved without macroeconomic stability. The comparably stable inflation situation in ASEAN is a considerable distributive success, yet the size of the positive coefficient of inflation is enormous to be improved. Further mitigating the impact of inflation by strengthening monetary policy frameworks, increasing food and energy security to mitigate external transmission of price shocks and creating inflation-hedging financial instruments that can be accessed by lower-income households would

also lessen the regressive impacts of inflation. 5.3.3 International Development Institutions Recommendations. Multilateral development banks, UN agencies, and bilateral donors are advised to: (i) include distributional impact assessments in all the technical assistance and investment promotion programs in relation to FDI; (ii) help the SAARC countries to develop comprehensive FDI-readiness strategies, including human capital development, institutional fortification, and social protection; (iii) facilitate cross-regional knowledge transfer, whereby the FDI attraction project will not be judged based on volume metrics but rather have an inclusive growth contribution. 5.4 Restrictions and Research implications.

There are a number of limitations that are worth considering. First, all member states of the SAARC (and ASEAN) were not included in the study because of the constraints of the data; Laos was not included because of the lack of data, while Bhutan, Maldives, Nepal (SAARC), Cambodia, Myanmar, Brunei (ASEAN) were left out. Subsequent studies that cover the countries at a broader level would improve the generalization. Second, the panel method, though having the advantage of yielding efficiency benefits by using cross-country variation, averages what could be large heterogeneity within regions. Panel results would be enhanced with country-specific time series analysis that would shed light on country-specific experience. Third, the paper was considering aggregate FDI flows and not sectoral disaggregated investment. Since the study has proved the significance of sectoral composition of FDI, in-depth research in the future should be done using sector-based FDI data to distinguish between those industries that have equalizing and disequalizing impacts. Fourth, the analysis presupposed the existence of linear and symmetric relationships; possible non-linearities (Kuznets curve-type regularities, threshold effects) and asymmetries (differentiated effects of FDI increases vs. decreases) should be examined using panel smooth transition regression, quantile regression, or nonlinear ARDL models. Fifth, there are several structural breaks (Asian Financial Crisis, Global Financial Crisis, COVID-19 pandemic) included in the study period (1981-2024) and the impact of which was not explicitly modeled.

Future studies based on structural break tests and regime switching models would shed light on the Mississippi of crisis periods in moderating FDI-inequality relationships. A spatial econometric method might explore the border spillover and regional inequality dynamics of FDI, in particular, for integrated ASEAN production networks. Institutional frameworks that mediate the distributional impacts of FDI should be subject to more qualitative research. Specific policy, institutional structure, and strategies of case studies, stakeholder interviewing, and process tracing would shed light on how particular policies, institutional structures, and strategies employed by actors turn FDI into fair or unfair results. It would be especially productive when the mixed-method research designs, combining the econometric analysis with qualitative research into the political economy, are employed. Lastly, the current comparative framework can be extended to other regional blocs (MERCOSUR, ECOWAS, Andean Community) to determine whether the patterns observed in Asia can be generalized to other developing regions, which would add up to cumulative knowledge development on the conditional distributional impact of FDI in the global economy.

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