

# Social Globalization and Human Development: Panel Evidence from Developing Economies (1990–2018)

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## ABSTRACT

We investigated the relationship between Social Globalization Index and Human development Index using panel data from 20 countries over 29 years. Human development is measured by the UNDP Human Development Index (HDI) and is a proxy for welfare outcome, while Social Globalization is assessed using the KOF Social Globalization Index. Per capita income and Trade openness are included as controls. Results from Fixed effects, Random effects, Generalized Least Square and Driscoll-Kraay robust standard error consistently show that an increase in Social Globalization has a significant and positive impact on HDI across all specifications. The impact remains robust even after accounting for cross-sectional dependence. Our empirical findings indicate promotion of Social Globalization by enhancing interpersonal connections, information flows and cultural exchange as it leads to improvement in human welfare. Our results suggest for more liberal policies for developing countries in order to achieve better welfare outcomes.

**Keywords:** Human Development Index (HDI), KOF Social Globalization Index, Per Capita, Income, Trade Openness, Panel Data, Cross Sectional dependency

Globalization is a trending topic. Neither can it be ignored nor restricted for too long a period. When nations depend on foreign sources for necessities such as food and raw materials, globalization brings important advantages. It relieves countries from the burden of manufacturing goods they cannot produce efficiently. At the same time, globalization allows people to connect globally by widening markets, creating jobs, encouraging skill exchanges, and enabling individuals to work abroad and send remittances home.

Through globalization, employers can access talent worldwide, and MNCs can operate where taxes are lower. As a result, globalization is often linked to greater efficiency, higher productivity, and improved quality of products and services. However, no policy is without drawbacks. Research highlights several concerns. Even as globalization grows markets, it may also harm the environment,

concentrate wealth among capitalists, and displace traditional producers. These negative consequences remain central points of criticism for globalization.

Kempmen (2007) recommends balancing broad economic development with local opportunities. Collier (2017) observes that while trade, migration, and technology integration create both winners and losers, current approaches do not adequately support those who are negatively affected. He suggested instead of rejecting globalization completely, policymakers should focus on reforming it.

Despite its many strengths and weaknesses, this paper focuses on the welfare outcome of globalization. We enquire whether globalization has

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improved people's well-being or not. By welfare, we mean better economic conditions, higher access to educational services, and improved health outcomes. We find the Human Development Index (HDI) to be the best proxy for measuring this outcome. It is also important to mention that in this research, we measure the role of Social Globalization instead of using a combined index of globalization.

Therefore, in this research, we aim to measure the effect on HDI using the KOF Social Globalization Index, and include Per Capita Income (constant 2015 USD) and Trade Openness as control variables. The analysis uses panel data from 20 developing countries of the global South, covering the period from 1990 to 2018. By examining these relationships, we seek to clarify the role of Social Globalization Index in advancing human development as measured by HDI.

## LITERATURE REVIEW

### (i) Evolution of Globalization Index

Over time, the meaning of globalization has grown beyond its purely economic dimension. Jones (2010, pp. 1–14) observes that while globalization was initially framed in terms of economic integration, it gradually evolved into a broader concept that reflects social transformation and growing global interdependence. Rennen and Martens (2010) argue that globalization cannot be assessed solely with economic measures as globalization is affected by major factors, such as political, technological, socio-cultural, and environmental aspects. To support their argument, they illustrate how key historical developments, such as the invention of the steam engine, the Bretton Woods Agreement, and major environmental conventions, played an important role in driving globalization. To reflect this multidimensionality, Martens and Zywiets (2006) introduced the Modified Globalization Index (MGI), taking a holistic approach by including variables from politics, organized violence, trade, finance, migration, technology, and the environment. Their index covered 117 countries and showed strong correlation with the A.T. Kearney/Foreign Policy Globalization Index (2002) and the World Markets Research Centre G-Index (2001). The Maastricht Globalization Index (2014) built on these ideas by incorporating methodological insights from

the OECD (2008), organizing globalization into five key domains: political, economic, social and cultural, technological, and environmental. The most widely used and recent framework is the KOF Globalization Index developed by the KOF Swiss Economic Institute. The 2018 version, based on Dreher (2006) and Dreher *et al.* (2008), identifies three main dimensions: economic, social, and political. Economic globalization is divided into trade and financial components. Social globalization is broken down into interpersonal, informational, and cultural aspects. Political globalization is measured by variables such as the number of embassies and membership in international organizations. The KOF Index distinguishes between *de facto* (actual activities and flows) and *de jure* (formal policies and institutions) measures. Composite indicators for each domain are aggregated to form the overall KOF Globalization Index.

### (ii) The outcomes of Globalization

Extensive research has been carried out on economic globalization, highlighting its positive effects on economic growth, particularly in studies from the late twentieth century. Theories such as export-led growth (Jung & Marshall, 1985; Dodaro, 1993) and growth-led export (Balassa, 1978; Feder, 1983; Taylor, 1983), as well as studies finding mixed or bidirectional causality (Goh *et al.* 2017; Tiwari & Mutascu, 2011; Konya, 2006; Hobbs *et al.* 2021), have demonstrated the contribution of economic globalization in economic welfare. Both exports and imports play crucial roles in this process. While exports expand market opportunities and generate foreign exchange that facilitate imports, imports support industrial growth by providing essential raw materials, minerals, and fuels crucial for developing economies. Several studies also suggest that imports enhance productivity and facilitate knowledge transfer through exposure to advanced technologies and global practices (Grossman & Helpman, 1991; Coe *et al.* 1995). World Bank (2002) mentions three major periods of globalization: 1870–1914, 1950–1980, and post-1990. They argue that poor countries have not succeeded well with globalization throughout these periods. The reason is that the success of globalization often depends on other factors, especially institutional quality. Therefore, the benefits of globalization can only be

realized when institutions function well. This idea is supported by Little and Green (2009), who point to the role of good educational systems in improving the competitiveness of East Asian economies. Similarly, UN - World Investment Report (2006), also stresses on the role of governmental policies and macroeconomic framework reaping the benefits of globalization through foreign investments.

Research shows that globalization affects welfare spending differently depending on the type of welfare regime. Kim and Zuhro (2009) find that globalization has a more negative impact on Socio-democratic regimes than on conservative or liberal ones. Wealthier countries tend to increase overall welfare spending under Globalization, but this sometimes means reducing labor market programs while raising other social benefits. Poorer or authoritarian countries tend to reduce welfare spending due to pressures from globalization, reflecting their distinct political and social contexts. Two main ideas explain these effects: the compensation hypothesis, which states that globalization increases the need for social protection, and the efficiency hypothesis, which suggests that globalization compels states to cut Social spending to remain competitive. Nga and Thach (2024) studied ASEAN countries and found that economic globalization raises government spending in a nonlinear way; it grows rapidly in the early stages of globalization but slows later. This contrasts with Santos and Simoes (2021), who showed that all types of globalization namely, economic, political, and social generally lead to more public social spending, as citizens demand greater protection from global risks. However, some research has focused on the negative effects associated with globalization. Noyoo (2025, pp. 83–94) states that the benefits of globalization have been disproportionately enjoyed by countries in the Global North. These advanced economies benefited from neoliberal economic ideas that encouraged free markets, trade openness, privatization, and limited government intervention. When these same reforms were applied to the Global South, particularly African nations, they often led to negative Social and economic outcomes. Guided by the neoliberal framework of the 'Washington Consensus,' Structural Adjustment Programmes (SAPs) were introduced as part of this globalization process. Although intended to modernize and stabilize developing economies,

SAPs instead weakened domestic industries, reduced state support for welfare, and deepened poverty and inequality. As a result, globalization, while accelerating growth in already industrialized countries, has often undermined inclusive Social and economic development in less developed regions and widened the global divide between North and South.

Globalization also considered as a medium for loss of cultural and unique significance in developing countries. Open borders have been linked with the movement of terrorism, and the expansion of digital infrastructure has led to transnational crime. There is also continuous drain of skilled workers from developing countries, while transnational companies often take advantage of lower tax regimes, leading to reduced tax collection. Developing countries therefore suffer from drain of both raw materials and human capital Shopina *et al.* (2017). These realities seem relevant for unproductive economies, as highlighted by Adams and Sakyi (2012), who found a negative correlation between globalization and government spending in Sub-Saharan Africa. Goryakin *et al.* (2015) also have related globalization with negative health outcomes. On the other side of the debate, Potrafke (2014) disputes these claims. He argues that globalization is beneficial because it has improved economic conditions, advanced human rights, and promoted gender equality. Moreover, the effect of globalization is better for high income countries like OCED (Meinhard and Potrafke 2012). Further few research also reports positive relationships between well-being and globalization indices (Behera & Sahoo, 2025; Mukherjee & Kriekhaus, 2012).

One interesting observation from the literature review is that although globalization has often linked to hike in social expenditure its effect on combined welfare indicator is not studied. We also believe that increases in government social spending due to globalization may be offset by higher taxes, increased lifestyle costs, or inflation. Because of these complexities, it is reasonable to question whether globalization truly improves overall welfare. Moreover, our review found no studies focusing solely on a single dimension of globalization. Therefore, this study aims to specifically investigate the role of social globalization on the Human Development Index (HDI).

## METHODOLOGY

There are 20 countries in our study which are listed as Argentina, Bangladesh, Botswana, Brazil, China, Colombia, Egypt, India, Indonesia, Malaysia, Mexico, Morocco, Namibia, Pakistan, Peru, Philippines, South Africa, Thailand, Turkey, Vietnam and time span ranges from 1990-2018.

The dependent variable in this study is the UNDP Human Development Index (HDI), which is used as a proxy for welfare. The HDI measures development across three dimensions: health, education, and standard of living. It is calculated as the geometric mean of life expectancy, years of schooling, and GNI per capita (log-transformed to reflect diminishing returns). HDI provides a comparative perspective for countries and aids in evaluating policy outcomes, though it does not reflect inequality, poverty, empowerment, or security.

The main independent variable is the KOF Social Globalization Index, taken from the Swiss Economic Institute. Social Globalization accounts for one-third of the overall KOF Globalization Index and reflects the extent to which countries are interconnected through people, information, and culture.

The panel regression equation is:

$$HDI_{it} = \alpha + \beta_1 \log SG_{it} + \beta_2 \log PCI_{it} + \beta_3 \log TO_{it} + \varepsilon_{it} \quad \dots(i)$$

Here, HDI<sub>it</sub> represents the human development index for country *i* at time *t*, log *SG*<sub>it</sub> is the log-transformed Social Globalization Index, log *PCI*<sub>it</sub> is the log-transformed per capita income, log *TO*<sub>it</sub> is log-transformed trade openness index.  $\alpha$  is the intercept and  $\beta_1$ ,  $\beta_2$  and  $\beta_3$  are the respective regression coefficients, while  $\varepsilon_{it}$  is the error term.

The empirical strategy begins with summary statistics to describe the distribution and central tendency of each variable. Followingly we will also portray the relationship between respective independent and dependent variable using correlation coefficient. Panel regression estimation proceeds via both Fixed Effects (FE) and Random Effects (RE) models, where FE estimation controls for time-invariant, unobserved heterogeneity specific to each country by including country-specific intercepts, while the RE model treats these intercepts as random and independent from the regressors, followingly, Hausman test is implemented to guide model selection.

Since many panel datasets exhibit violations of independence and identical error distribution assumptions, the analysis addresses common panel-specific error issues such as heteroskedasticity (varying error variance), autocorrelation within countries over time, and cross-sectional dependence between countries. It is important to point out that our sample includes countries from various trade blocs which can lead to problem of cross section dependency because external shocks like war, pandemic and recession are likely to affect countries in a similar way due to higher integration. Therefore, Generalized Least Squares (GLS) estimation is utilized for correcting heteroskedasticity, autocorrelation and cross correlation, which will be complemented by Driscoll- Kraay standard errors ensuring robust and valid inference for the relationship between Social Globalization and human development in the presence of cross-sectional dependency. Before addressing panel-specific error issues, we formally confirm for the presence of cross-sectional dependency in the residuals using the Breusch-Pagan LM (BP-LM) test. It is also important to note that according to Hoyos and Sarafidis (2006), the BP-LM test is generally recommended when the time dimension (T) is larger than the cross-sectional dimension (N). So initially we will begin with traditional estimation technique of panel data (FE and RE estimation) which will be followed by more sophisticated methods (GLS and Driscoll Kraay standard errors) for robustness.

## RESULTS AND ANALYSIS

### (i) Summary of the variables

**Table 1:** Provides summary of the variable

| Variable | Obs. | Mean     | Std. dev. | Min      | Max      |
|----------|------|----------|-----------|----------|----------|
| HDI      | 580  | .6472397 | .0975964  | .395     | .861     |
| Log SG   | 580  | 1.664026 | .1402579  | 1.226858 | 1.921114 |
| Log PCI  | 580  | 3.52805  | .3476574  | 2.675269 | 4.147386 |
| Log TO   | 580  | 1.643361 | .2648112  | 1.028376 | 2.28358  |

*Source:* UNDP, KOF Swiss Economic Institute, World Bank.

**Table 2:** Provides correlation (R<sup>2</sup>) matrix of the variables

| Variable | Log SG | Log PCI | Log TO |
|----------|--------|---------|--------|
| HDI      | 0.84   | 0.86    | 0.17   |

*Source:* UNDP, KOF Swiss Economic Institute, World Bank.

*Notes:* 1. Number of observations is 580.

Table 1 provides summary of the variables whereas table 2 displays correlation matrix among the variables.

**(ii) Panel data estimation using Fixed effect and Random effect**

**Table 3:** Fixed effect and Random effect estimation

| Variables                 | Fixed effect      | Random effect     |
|---------------------------|-------------------|-------------------|
| Log SG                    | 0.247*** (0.019)  | 0.258*** (0.019)  |
| Log PCI                   | 0.229*** (0.013)  | 0.219*** (0.013)  |
| Log TO                    | 0.022** (0.009)   | 0.019** (0.009)   |
| Constant                  | -0.606*** (0.027) | -0.584*** (0.028) |
| Observations              | 580               | 580               |
| Groups                    | 20                | 20                |
| Within R-sq               | 0.890             | 0.890             |
| Between R-sq              | 0.760             | 0.760             |
| Overall R-sq              | 0.784             | 0.786             |
| F/Wald stat               | 1505.54           | 4516.96           |
| Prob > F/chi <sup>2</sup> | 0.000             | 0.000             |

*Source:* Authors’ calculation.

*Notes:* 1. Standard errors in parentheses.

2. Significance levels: \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

Table 3 presents the regression estimates obtained from the Fixed Effects and Random Effects models. We conducted a Hausman test to determine the appropriate specification and found that the null hypothesis of systematic differences in coefficients is rejected at the 5 percent significance level. Therefore, we proceed with the Fixed Effects model, confirming that the fixed effect term is correlated with the independent variables. This justifies the inclusion of country-specific intercepts that remain constant over time. Such an assumption appears reasonable, as the twenty countries in our sample differ significantly in terms of geographical location, cultural backgrounds, neighborhood proximity, and institutional or governmental structures. Therefore, adopting a Fixed Effects specification is both methodologically and contextually appropriate.

Our Fixed effects regression estimates the impact of Social Globalization (Log SG) on HDI controlling for Per capita income (Log PCI) and Trade openness (Log TO) by using within-country variation over 29 years for 20 countries. The model controls for all time-invariant differences across countries, focusing solely on how changes in these variables within each country relate to changes in HDI. The high within

R-square (0.89) means these variables explain a large part of HDI fluctuations over time within countries. The significant F-tests confirm that the explanatory variables and country-specific effects are important. Importantly, this means the model captures effects of temporal changes within countries rather than differences between countries, providing a robust estimate of how evolving economic and social factors influence development outcomes over time.

**(iii) Test for Cross Sectional dependency**

**Table 4:** Provides test for cross sectional dependency using BP-LM test

| Statistic              | Value   |
|------------------------|---------|
| Chi-squared (df = 190) | 2077.88 |
| p-value                | 0.0000  |
| Complete Observations  | 29      |

*Source:* Authors’ calculation.

*Notes:* 1. *df* means degree of freedom

2. Null hypothesis ( $H_0$ ): There is no cross-sectional dependence.

The BP-LM test results in Table 4 show a large chi-squared statistic with a  $p$ -value of 0.000, further confirming significant cross-sectional dependence. Given this, the employment of robust estimation method becomes essential for reliable inference.

**(iv) Estimates controlling for Cross sectional dependency**

**Table 5:** Estimates controlling for Cross sectional dependency

| Variable                | GLS                | Driscoll-Kraay FE  |
|-------------------------|--------------------|--------------------|
| Log SG                  | 0.358*** (0.0015)  | 0.247*** (0.0167)  |
| Log PCI                 | 0.127*** (0.0006)  | 0.229*** (0.0160)  |
| Log TO                  | -0.039*** (0.0005) | 0.022* (0.0108)    |
| Constant                | -0.334*** (0.0022) | -0.606*** (0.0504) |
| Observations            | 580                | 580                |
| Groups                  | 20                 | 20                 |
| R-squared               | —                  | 0.890              |
| Wald F/chi <sup>2</sup> | 424714.38          | 248.38             |

*Source:* Authors’ calculation.

*Notes:* 1. Standard errors in parentheses.

2. Significance: \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

The regression table presents the results of two models estimating the effect of Social Globalization, as measured by the logarithm of the KOF Social Globalization Index (Log SG), on the Human

Development Index (HDI) while controlling for per capita income and trade openness. In the GLS model, with correlated panels, there is a highly significant and substantial positive association between Log SG and HDI, that is; coefficient of 0.358 ( $p < 0.01$ ) indicates that increases in Social Globalization are strongly related to improvements in human development levels. Control variables, Per capita income also has a positive effect, while Trade openness shows a negative association with HDI in this specification. In comparison, the fixed effects model with Driscoll-Kraay standard errors reveals that Log SG remains positively and significantly associated with HDI, even after accounting for all country differences and correcting for within-country serial correlation and cross-sectional dependence.

After running all four models, namely, Random effect, Fixed effect, GLS and Driscoll-Kraay Robust standard error, for studying effect of Social Globalization on HDI controlling for Per capita GDP and Trade openness, we found out that role of Social Globalization is positive and significant in all four models with different specifications. The result is stronger in GLS model and consistent in all other three model. Therefore, we conclude that one percent improvement in Social Globalization leads to 0.247-to-0.358-unit improvement in HDI controlling for other factors such as Per capita income and Trade openness.

## DISCUSSION

Our objective in this paper was to examine the role of Social Globalization on the Human Development Index (HDI), while controlling for Per Capita Income and Trade Openness. Across all model specifications, Social Globalization Index emerges as a key determinant of human development. This influence operates through several important channels.

Social Globalization Index is a composite index composed of Interpersonal, Informational, and Cultural Globalization. Interpersonal Globalization, measured through international voice tariffs, migration, and international students, increases the flow of foreign knowledge, customs, and experience across borders through personal interactions, shaped by experience and research conducted in the original country.

*De jure* indicators of Informational Globalization include access to television, press freedom, internet access, and civil liberties. These factors ensure an uninterrupted flow of information, and independence to present opinions which increases government accountability and improves the feedback mechanism, enhancing the efficiency of social welfare expenditure ultimately improving health and educational outcomes.

Informational Globalization also becomes important as liberalization progresses and privatization expands, increasing the demand for better human capital. In developing economies with surplus labor, increased information flow intensifies competition among job seekers that improves productivity and attracts higher foreign direct investment. Increased investment then generates higher income through multiplier effects, leading to improvement in HDI.

Social Globalization Index includes greater internet access, which may improve mobile learning outcomes due to increased bandwidth and access to television and the internet. Rapid digitalization has made mobile learning an essential tool for acquiring skills from home and increase employment opportunities. Social Globalization also expands opportunities for work-from-home especially in countries like India and China that receive significant outsourcing from developed nations. Internet usage also facilitates investment through mobile platforms and enables the purchase and sale of goods online, enabling higher diversification of an economy.

*De facto* Informational Globalization encompasses indicators such as the share of high-tech exports and international patients, which reflect economic sophistication. High-tech exports and international patient inflows require knowledgeable labor and better infrastructure, resulting in increased investment in human and social capital. These improvements can enhance foreign exports, increase export earnings, and help finance imports. Improvement in gender parity, part of *de jure* Cultural Globalization, signifies better opportunities for women to work and learn and achieve a decent standard of living. Better gender parity also supports a more balanced sharing of unpaid care work, improving psychological satisfaction.

Social Globalization, being a composite indicator, cannot have its effects attributed to any single

factor. To sum up, Social Globalization implies the uninterrupted flow of information and knowledge from local to international levels promoting transparency and enhancing government accountability. Increased internet usage makes citizens more aware of employment opportunities. When combined with improved human capital, this helps them seize foreign outsourcing opportunities. Therefore, developing countries should prioritize this index as a powerful tool for achieving better developmental outcomes.

## SUMMARY

In this study we examined role of Social Globalization Index for panel data of 20 countries over 29 years in explaining HDI controlling for Per capita income, and Trade openness over time. Correlation index reveals the strong association between HDI and log Per capita income as well as between HDI and log Social Globalization Index. Fixed effects model results confirm a significant positive impact of Social Globalization on HDI, controlling for Per capita income and Trade openness with a high within-country explanatory power (R-squared = 0.89). Cross-sectional dependence diagnostics using BP-LM test indicate strong correlation among variables, underscoring the need for robust standard errors. GLS and Driscoll-Kraay estimates further support the consistency and significance of the positive effect of Social Globalization Index on human development. Overall, the findings validate that Social Globalization Index is a key driver for improving welfare outcomes, and this relationship remains strong even after accounting for country-specific effects and error structure complexities in the data.

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