

# **How Financial Development Shapes Globalization's Impact on Income Inequality in Asia?**

## **Abstract**

Globalization in the form of increased trade, technological advancements, and capital flows has spurred economic growth and lifted millions out of poverty across Asia, but these advantages have not been equally distributed, leading to income inequality. As Asian economies become more integrated into the global system, understanding how financial development mediates effects of globalization on income disparity has become crucial for policymakers, researchers, and practitioners. This paper empirically investigates how financial development shapes the impact of globalization (trade, technological, and financial) on income inequality in Asian countries? Using a fixed effects panel data model with data for 22 Asian countries, we show that while all three modes of globalization—trade, technological globalization, and financial—aggravate the income gap, the influence of these types of globalization on income inequality is reduced when financial development takes place. In particular, the study finds that if a country is financially developed, the net effect of all types of globalization on income inequality is negative, meaning that in a financially developed country, globalization can reduce income inequality. In response to these findings, we suggest policy recommendations, including increasing access to banking services and promoting financial literacy for financial inclusion, prioritizing sectors with high job creation potential, and providing reskilling support for globalization.

**JEL Classifications:** F62, O15, F41

**Keywords:** Income Inequality, Trade Globalization, Technological Globalization, Financial Globalization, Financial Development

## **1. Introduction**

Globalization can be stated as the connectivity and interdependence of people, economics, cultures, and nations worldwide (Brady et al., 2005). While the idea of interconnection isn't new, the word "globalization" has become more common in recent years due to trade liberalization, technology improvements, and communication innovations that have sped up the rate at which the world is coming together (Jaumotte et al., 2013; Bong & Premaratne,

2019). These developments have significant impacts such as economic growth, changes in trade patterns, and technological progress (Berg et al., 2018).

Globalization is changing our connected world bringing both good and bad things. On one side more trade new tech, and money moving around (Cabral et al. 2016) have helped economies grow getting many people out of poverty. But on the other side, not everyone has benefited the same from this global connection, which has led to some people making more money than others (Firebaugh and Goesling 2004; Melinda Mills 2009; Autor et al. 2008). Income inequality is the term used when the distribution of income among people in a society gains an epidemic proportion, and as a result, gaps between the rich and the poor are challenging socioeconomic disparities (Asteriou et al., 2014).

The paper identifies several ways in which income inequality is impacted by globalization. Trade globalization (Bensidoun et al., 2011; Rodriguez-Pose, 2012), for instance, entails the opening of markets and liberalization of trade policies which in turn empowers countries to specialize and engage in international trade. This has resulted in economic growth and job creation on one hand while wage polarization on the other. Export-oriented industries often pay higher wages to their highly skilled workers while low-skilled workers are likely to lose jobs or experience no wage growth in less competitive sectors (Zhu et al., 2005).

The integration of financial markets around the world and increase in cross-border flow of capital known as financial globalization leads to new economic opportunities and investment. Nonetheless, many people are not able to participate in financial globalization because financial markets and services are mainly accessible by wealthy people hence leading to an increasing gap between rich and poor communities (Bumann & Lensink, 2016; Jaumotte et al., 2013). Technological globalization, driven by many everyday developments, has transformed markets and economies in several countries and has improved output growth. However, such 'digitization' encompassing technological developments usually requires specialized skills (Giri et al., 2021) that increases the demand for skilled labor, whereas it reduces job opportunities for unskilled workers. This technological gap is another factor in increasing socioeconomic disparity.

Asia, for the last few decades, has been one the greatest examples of globalization as well. During the second half of the 20th century and up until the present day, export-led strategies, combined with FDI, have underpinned growth and industrialisation across much of Asia

(Munir and Bukhari, 2020). The region turned into a global player, pushing for integration by way of trade agreements and opening up markets to the whole of the global system. Crucially, technological developments — especially in countries such as South Korea and Japan — were important. Asia received huge foreign investment, which resulted in growth of manufacturing, technology, and services industries.

In this globalization era, the question of how does financial development influence (Mishkin, 2006) the effect of globalization on income inequality has drawn vast attention among Asian countries, who are lately being emerged into world financial system. As part of our broader work on globalization and income inequality in Asia, we investigate the interconnected relationship between globalization and financial development. Financial development serves as the bedrock for the efficient allocation of resources, investment, and economic growth (Banerjee & Newman, 1991; Galor & Zeira, 1993; Aghion & Bolton, 1997). Still, its engagement with international trade, investment, and capital flows complicates the situation concerning the income distribution. This relationship dynamics is important to weigh in for policymakers, researchers, and practitioners who are looking for ways to solve the issue of economic inequality, particularly with the Asian context. **In this study, we will focus on this complex relationship and seek to examine how the level of financial development within Asian economies shapes the effect of globalization on income distribution.**

The motivation for this study comes from the increasing relevance of financial markets (Mishkin, 2006; Sehwat and Giri, 2015) and their crucial implications on income distribution among Asian economies. Even though globalization promote economic growth, the effects of globalization on the income distribution are more complicated, and thus requires more detailed analyses (Melinda Mills, 2009). The function of financial development as a mediator in this relationship is under explored, and a thorough knowledge is required for informed policy decisions.

The following are the study's main literary contributions: First, examine the unrecognized role of financial development. While many studies have looked at trade, technology, and financial globalization separately, one important factor is often overlooked: financial development. It is surprising that existing studies frequently misses how a country's financial development affects the globalization's impact on income inequality. This presents a critical question. How does a nation's financial development influence the specific effects of globalization? In this sense, there is a significant research gap that must be filled. Until far, no study has rigorously

classified countries based on their financial development in order to unravel the subtle consequences of globalization on income inequality.

Second, to examine the wide range of globalization components, most studies have concentrated on trade and financial globalization while ignoring the transformative impact of technological globalization. There have been important technical advancements and implications since 2014. Some major breakthroughs include the development of smart gadgets, increased automation in many industries, advancements in healthcare technology, the expansion of digital platforms, and the continued evolution of communication technologies. The technological landscape is always changing (Gravina and Lanzafame, 2021), and new inventions continue to alter how we live, work, and interact. In today's environment, when technology is constantly advancing, this creates a substantial gap in our understanding of how it influences income distribution. Our study addresses this gap by using variables that better encompass today's technology, ensuring a more comprehensive analysis of the current technological impact on globalization and income distribution. Third, this study looks at the years 2007 to 2019 to provide a more up-to-date and comprehensive view. Most existing studies stop around 2014-15, missing recent years when technology, like the internet and AI, grew rapidly. By examining this period, we aim to see how these technological advances, along with globalization and financial development, have impacted income disparity in Asia.

Here is the remainder of the paper: Trends and patterns of globalization and income inequality discussed in section 2. The literature review on trade, financial, technological globalization, and their connections to income disparity is presented in section 3. In Section 4, the model, approach, and data are covered. Findings of empirical analysis is presented in section 5 and section 6 discusses the conclusion and policy suggestions.

## **2. Trends and Patterns of Globalization and how it affects income inequality**

Globalization has existed for centuries but it gained exponential advancement particularly towards the end of the twentieth century and keeps on expanding even faster in the present activity of the twenty first century. On one side, increase in trade across borders, technological progress, and capital flow (Cabral et al, 2016) have catalyzed economic development which gave a chance for the millions to eliminate poverty. At the same time, the benefits from this global economy have been distributed unequally, which created a problem

with income inequality. To understand the impact of globalization on income inequality, it is essential to analyse the trends and patterns within globalization indicators.

## **2.1 Trends in Trade Globalization**

Over the last few decades, the importance of trade has grown and it has become the engine for the growth of economies. The trend of market integration and the development of new market countries shifted the pattern of trade which affected local and international trade. This section discussed the key patterns that have emerged in trade, drawing attention to changes in trade and their consequences for the economy and globalization. We use trade volume both in absolute terms and as percentage of GDP as an indicator of trade globalization.

Table 1 and 2 shows the total trade volume both in absolute terms and as percentage of GDP for several Asian countries over the period from 2007 to 2019. This time period captures the rapid growth phase of globalization, marked by significant increases in international trade activities across these countries. The analysis highlights both the absolute values and the growth trends, illustrating how deeply integrated these economies have become in the global market. In China, the trade-to-GDP ratio decreased from 62.2% in 2007 to 35.9% in 2019, yet the absolute trade values surged from approximately \$2208.1 billion to over \$5125.1 billion, underscoring China's deepening integration into the global economy. Vietnam exhibited a stable trade-to-GDP ratio, slightly increasing from 154.6% to 164.7% within this period, with absolute trade values increasing roughly from the level of \$119.7 billion to \$550.7 billion. This pattern suggests that Vietnam is becoming more and more an appealing destination as a manufacturing hub. India, in spite of the trade-to-GDP ratio shrinking from 45.7% to 39.9%, was able to increase the trade volume from approximately \$555.9 billion to \$1131.6 billion or over double showing that more of the economies of the world are being integrated into India's economy.

Singapore maintained a very high trade-to-GDP ratio, albeit with a slight decrease from 394.3% to 321.7%, while its absolute trade values grew from \$713.4 billion to \$1217.7 trillion, reinforcing its status as a global trade hub. Understanding the inequality in the distribution of income due to globalization requires knowledge of changing volumes and trends in trading activities. Increased trade activities often lead to economic growth, but its effect on income distribution varies within nations. This research concentrates on how these trading volume and patterns affect income inequality between countries of different levels of financial development.

While separating Asian countries according to their financial development level, the analysis intends to deeply understand how globalization through trade affects income inequality in Asian countries.

**Table 1: Total Trade Volume (Export plus Import), US\$ Billion**

	2007	2008	2010	2011	2013	2014	2016	2017	2018	2019
Armenia	5.2	6.4	6.0	7.0	8.6	8.8	8.0	10.1	11.5	13.1
China	2208.1	2646.9	3087.3	3831.7	4473.7	4704.1	4144.5	4632.7	5219.7	5125.1
Cyprus	26.7	31.4	28.1	30.6	29.0	30.4	29.3	34.0	38.0	39.4
Georgia	9.0	11.0	10.1	13.2	16.4	17.1	14.7	16.9	19.7	20.8
India	555.9	639.8	825.3	1014.1	999.7	997.6	919.8	1080.3	1178.9	1131.6
Indonesia	237.0	298.8	352.6	448.1	443.8	428.3	348.7	399.7	449.0	421.1
Israel	146.5	167.8	158.4	185.8	192.5	195.4	187.0	202.6	221.8	226.5
Japan	1502.9	1742.9	1641.3	1882.1	1771.1	1833.0	1566.7	1697.4	1845.5	1802.4
Jordan	25.0	31.9	31.0	35.0	38.4	40.5	35.4	37.5	38.2	38.2
Kazakhstan	96.6	125.8	109.8	140.8	154.8	143.9	82.8	94.8	113.9	117.8
Korea	866.3	1000.4	1045.3	1323.1	1342.6	1345.2	1103.8	1251.7	1362.9	1251.1
K.Republic	5.2	7.5	6.4	8.4	9.8	9.3	7.2	7.8	8.2	8.8
Lao PDR	3.3	4.5	6.0	8.0	11.8	13.2	11.9	12.4	12.0	12.5
Malaysia	372.5	407.8	402.8	461.6	461.4	467.6	382.3	424.9	467.9	449.3
Mongolia	5.0	6.8	7.4	13.2	12.6B	13.4	11.3	13.3	16.7	17.7
Pakistan	56.7	69.5	62.9	74.6	79.9	80.0	77.5	86.4	98.4	92.8
S.Arabia	394.6	499.5	436.0	574.2	617.5	609.9	399.0	442.0	524.5	504.8
Singapore	713.4	846.7	886.5	1059.0	1128.9	1135.0	967.4	1088.2	1231.4	1217.7
Sri Lanka	22.2	25.8	23.7	25.7	33.7	35.7	40.9	44.5	47.1	44.0
Thailand	341.5	409.2	434.1	517.9	556.8	533.2	498.4	551.7	612.4	596.7
Turkey	326.0	389.4	362.8	447.1	503.1	504.8	420.3	479.0	487.7	480.9
Vietnam	119.7	153.0	167.8	216.2	279.6	316.1	373.8	452.9	510.6	550.7

Source: World Bank

**Table 2: Total Trade Volume (Export plus Import) as percentage of GDP**

	2007	2008	2010	2011	2013	2014	2016	2017	2018	2019
Armenia	57.0	54.5	64.6	69.4	77.6	75.8	76.1	87.2	92.5	96.1
China	62.2	57.6	50.7	50.7	46.7	44.9	36.9	37.6	37.6	35.9
Cyprus	111.3	112.9	109.2	110.9	121.2	131.2	139.6	148.5	149.0	151.9
Georgia	88.4	86.3	82.9	87.5	95.6	96.8	96.8	104.0	111.8	118.6
India	45.7	53.4	49.3	55.6	53.8	48.9	40.1	40.7	43.6	39.9
Indonesia	54.8	58.6	46.7	50.2	48.6	48.1	37.4	39.4	43.1	37.6
Israel	32.8	34.1	28.5	30.2	34.0	37.4	31.3	34.4	36.6	35.2
Japan	32.8	34.1	28.5	30.2	34.0	37.4	31.3	34.4	36.6	35.2
Jordan	146.0	140.9	114.2	118.7	111.5	109.9	88.7	90.1	88.0	85.8
Kazakhstan	92.2	94.3	74.1	73.1	65.4	65.0	60.3	56.8	63.5	64.9
Korea	73.9	95.5	91.4	105.6	98.0	90.6	73.6	77.1	79.0	75.8

K.Republic	137.1	146.1	133.2	136.2	134.0	125.1	105.8	100.6	98.9	79.2
Lao PDR	79.2	81.8	84.7	91.7	98.2	99.1	75.1	75.1	75.1	75.1
Malaysia	192.5	176.7	157.9	154.9	142.7	138.3	126.9	133.2	130.4	123.0
Mongolia	117.9	121.2	103.4	127.0	100.3	109.3	101.1	115.9	126.4	124.4
Pakistan	30.8	34.3	32.0	32.4	30.9	29.5	24.7	25.5	27.6	28.9
S.Arabia	94.9	96.1	82.5	84.9	81.9	79.6	59.9	61.8	62.0	60.2
Singapore	394.3	437.3	369.7	379.1	367.0	360.5	303.1	316.5	325.2	321.7
Sri Lanka	68.6	63.4	49.1	48.1	47.1	46.1	46.5	47.1	49.8	49.4
Thailand	129.9	140.4	127.3	139.7	132.5	130.9	120.6	120.9	120.8	109.7
Turkey	47.9	50.5	46.7	53.3	52.5	53.8	48.3	55.8	62.6	63.2
Vietnam	154.6	154.3	114.0	125.3	130.8	135.4	145.4	161.0	164.7	164.7

Source: World Bank

## 2.2 Trends in Technological Globalization

The modern global economy is defined by technology globalization, which involves the spread of technological and informational resources across national borders. We measured technological globalization by using variable high-tech exports. A detailed examination of high-tech exports from 2007 to 2019 across various Asian countries reveals significant trends and patterns (Table 3 and 4). Over this period, many countries have shown an increase in high-tech exports as a share of GDP, indicating a growing emphasis on technology-driven sectors. For instance, Vietnam's share of high-tech exports soared significantly from 3.89% in 2007 to 27.04% in 2019, showcasing its rapid advancement in the high-tech sector. Similarly, Malaysia and Singapore have also exhibited notable shares, reflecting their significant roles in global technology markets. In several cases, even though the share of high-tech exports relative to GDP decreased, the absolute value of high-tech exports increased. For instance, China, despite a decline in the high-tech export share from 9.65% in 2007 to 5.01% in 2019 (Table 4), saw substantial increases in the absolute value of high-tech exports (Table 3). This suggests that, even though the relative share has diminished, the sheer volume of exports has grown significantly, reinforcing China's dominance in the global technology market. Similarly, India's high-tech exports showed fluctuations, rising slightly from 0.92% of GDP in 2007 to a peak of around 1% in 2013, before stabilizing at 0.83% by 2019. The above scenario indicates that there has been an increase in the volume of India's technological exports but they have not kept pace with the country's economic growth, thus there is room for improvement when it comes to innovation and competitiveness in this field. There are other countries such as Armenia and Mongolia, which although started from a much smaller base have steadily increased the proportion of high-tech exports to GDP. Thus, in Armenia for instance, the share increased from 0.056% in 2007 to 0.33% in 2019, demonstrating a widening assimilation into the global technological market.

**Table 3: High-Tech Exports, US\$ Billion**

	2007	2008	2010	2011	2013	2014	2016	2018	2019
Armenia	0.005	0.007	0.005	0.007	0.009	0.009	0.022	0.036	0.046
China	342.574	390.967	474.347	540.168	655.897	653.848	594.521	731.319	715.303
Cyprus	0.097	0.124	0.144	0.113	0.056	0.068	0.056	0.095	0.093
Georgia	0.015	0.015	0.012	0.012	0.021	0.026	0.016	0.023	0.016
India	11.215	11.215	10.659	14.504	17.938	18.326	14.261	20.182	23.471
Indonesia	7.056	7.056	7.056	7.277	6.493	6.586	5.416	6.382	6.281
Israel	7.056	7.056	7.056	7.277	6.493	6.586	5.416	6.382	6.281
Japan	128.315	130.247	129.808	133.087	111.060	107.367	99.101	110.742	103.897
Jordan	0.039	0.043	0.122	0.117	0.082	0.093	0.149	0.074	0.071
Kazakhstan	1.812	1.812	2.365	2.599	3.111	3.394	2.074	1.772	2.225
Korea	106.527	110.787	132.075	133.455	143.474	149.049	135.900	192.786	153.547
K.Republic	0.011	0.011	0.003	0.012	0.017	0.006	0.067	0.040	0.030
Lao PDR	0.013	0.015	0.019	0.021	0.045	0.154	0.275	0.468	0.229
Malaysia	35.649	45.649	65.670	66.493	67.074	70.927	63.195	90.500	86.901
Mongolia	0.007	0.009	0.016	0.018	0.023	0.034	0.036	0.007	0.040
Pakistan	0.279	0.279	0.268	0.325	0.354	0.264	0.311	0.375	0.396
S.Arabia	0.131	0.181	0.202	0.214	0.290	0.255	0.421	0.253	0.271
Singapore	109.336	123.643	131.843	132.144	143.334	144.926	134.922	154.867	150.031
Srilanka	0.103	0.103	0.062	0.072	0.072	0.071	0.067	0.079	0.091
Thailand	32.476	33.496	37.178	36.110	37.050	38.436	39.026	44.753	40.142
Turkey	1.882	1.962	1.943	2.202	3.782	4.293	3.422	3.736	4.280
Vietnam	3.013	3.013	6.069	11.706	32.759	36.376	55.215	82.611	90.430

Source: World Bank

By employing this type of analysis it is possible to assess high-tech export development of Asian countries over the years and understand why these countries have different levels of technological development and the effects of globalization. Nations such as China and India, with such impressive leaps in high-tech exports, enjoy enhanced economic output. Yet, the distribution and the subsequent benefits in this case are not equal, which has heightened income class polarization among the countries. Studying those high-tech exports patterns reveals which portion of the income inequality could be attributed to the process of technological globalization. Focusing upon the comparative analysis of the data over the period from 2007 to 2019, all the countries under study show a tendency towards the enhancement of high-tech exportation that demonstrates within every nation's dissimilarity in terms of technological and integration capacity. These paradigms are central to understanding how the technology based processes lead to increases in income inequality and the mediating effect of financial development.



**Table 4: High-Tech Exports, as percentage of GDP**

	2007	2008	2010	2011	2013	2014	2016	2017	2018	2019
Armenia	0.056	0.062	0.051	0.073	0.084	0.080	0.207	0.245	0.291	0.335
China	9.649	8.510	7.793	7.153	6.853	6.242	5.292	5.314	5.263	5.009
Cyprus	0.403	0.444	0.559	0.409	0.236	0.295	0.268	0.239	0.373	0.358
Georgia	0.146	0.116	0.102	0.080	0.124	0.150	0.108	0.131	0.132	0.089
India	0.922	0.935	0.636	0.796	0.966	0.899	0.621	0.570	0.747	0.828
Indonesia	1.633	1.383	0.934	0.815	0.712	0.739	0.581	0.588	0.612	0.561
Israel	1.696	4.380	4.440	4.378	3.944	3.948	3.784	3.366	3.443	3.122
Japan	2.802	2.551	2.254	2.135	2.131	2.193	1.981	2.153	2.197	2.030
Jordan	0.227	0.188	0.451	0.397	0.237	0.253	0.375	0.200	0.171	0.160
Kazakhstan	1.729	1.358	1.597	1.349	1.315	1.533	1.511	1.070	0.988	1.225
Korea	9.085	10.578	11.548	10.648	10.468	10.040	9.062	10.268	11.174	9.298
K.Republic	0.295	0.223	0.062	0.192	0.235	0.083	0.981	1.154	0.484	0.317
Lao	0.319	0.284	0.272	0.241	0.376	1.156	1.729	2.283	2.580	1.224
Malaysia	18.418	19.777	25.751	22.317	20.748	20.980	20.977	23.227	25.224	23.797
Mongolia	0.168	0.160	0.226	0.175	0.180	0.276	0.318	0.033	0.051	0.279
Pakistan	0.152	0.138	0.136	0.141	0.137	0.097	0.099	0.106	0.105	0.123
S.Arabia	0.031	0.035	0.038	0.032	0.038	0.033	0.063	0.037	0.030	0.032
Singapore	0.031	0.035	0.038	0.032	0.038	0.033	0.063	0.037	0.030	0.032
Srilanka	0.319	0.253	0.106	0.106	0.094	0.086	0.077	0.084	0.084	0.102
Thailand	12.351	11.496	10.899	9.738	8.814	9.436	9.441	9.627	8.831	7.379
Turkey	0.276	0.255	0.250	0.263	0.395	0.457	0.393	0.474	0.480	0.562
Vietnam	3.892	3.040	4.123	6.782	15.329	15.582	21.476	26.342	26.640	27.045

Source: World Bank

## 2.3 Trends in Financial Globalization

It is important to review the trends as well as the patterns of financial globalization for assessing its implications on economic progress and income distribution. One of the variables of financial globalization is the degree of an economy's exposure to international investment flows as well as to the internationalization of capital; it can be expressed using the FDI variable. Such a measure is evident since FDI measures integration into global marketplace whereby money brought into a country's industries from other countries is evaluated along with the productivity of the nation. The figures on net inflows of FDI from 2007 to 2019 presented in table 5 and 6 helps to highlight FDI performance of these economies in terms of foreign direct investment. We focus on both the absolute values of FDI inflows (Table 5) and their relative significance as a share of GDP (Table 6), providing insights into how these countries have attracted foreign investment over time.

China experienced significant growth in its absolute FDI inflows, which rose from nearly \$156.2 billion in 2007 to approximately \$187.2 billion in 2019. However, even with this increase in absolute FDI inflows, China's FDI as a percentage of GDP went down from 4.4%

to 1.3%. In other words, this indicates that although the country's economy piled up more and more foreign investments, the increase in the country's basket was higher than these inflows. At the same time, India experienced a rise in FDI inward flows from \$25.2 billion to more than \$50.6 billion, however its FDI to GDP ratio fell to 1.8% from 2.1%, thus indicating again the expansion of the economy ahead of the relative volume of external investments. Indonesia, on the other side, showcased a steady increase in both absolute FDI inflows and its FDI-to-GDP ratio. Indonesia's FDI surged from \$6.9 billion in 2007 to \$25 billion in 2019, with its FDI-to-GDP ratio also rising slightly from 1.6% to 2.2%, indicating Indonesia's growing attractiveness to foreign investors.

**Table 5: Net FDI Flows, US\$ Billion**

	2007	2008	2010	2011	2013	2014	2016	2017	2018	2019
Armenia	0.7	0.9	0.5	0.7	0.3	0.4	0.3	0.3	0.3	0.1
China	156.2	171.5	243.7	280.1	290.9	268.1	174.8	166.1	235.4	187.2
Cyprus	2.3	12.3	31.0	40.4	26.0	51.7	8.5	14.4	-1.1	52.8
Georgia	1.9	1.6	0.9	1.2	1.0	1.8	1.7	1.9	1.3	1.4
India	25.2	43.4	27.4	36.5	28.2	34.6	44.5	40.0	42.1	50.6
Indonesia	6.9	9.3	15.3	20.6	23.3	25.1	4.5	20.5	18.9	25.0
Israel	8.8	10.3	7.0	8.7	11.8	6.0	12.0	16.9	21.5	17.4
Japan	21.6	24.6	7.4	-0.9	10.6	19.8	41.0	18.8	25.3	40.0
Jordan	2.6	2.8	1.7	1.5	1.9	2.2	1.6	2.0	1.0	0.7
Kazakhstan	12.0	16.8	7.5	13.8	10.0	7.3	17.2	4.8	0.4	3.7
Korea	8.8	11.2	9.5	9.8	12.8	9.3	12.1	17.9	12.2	9.6
K.Republic	0.2	0.4	0.5	0.7	0.6	0.3	0.6	-0.1	0.1	0.4
Lao PDR	0.3	0.2	0.3	0.3	0.7	0.9	0.9	1.7	1.4	0.8
Malaysia	9.1	7.6	10.9	15.1	11.3	10.6	13.5	9.4	8.3	9.2
Mongolia	0.4	0.8	1.7	4.6	2.1	0.3	-4.2	1.5	2.0	2.4
Pakistan	5.6	5.4	2.0	1.3	1.3	1.9	2.6	2.5	1.7	2.2
S.Arabia	6.2	5.5	4.9	4.7	3.4	1.5	22.0	1.0	12.1	3.1
Singapore	47.3	13.6	55.3	49.2	64.4	68.7	65.4	102.2	82.0	105.9
Sri Lanka	0.6	0.8	0.5	1.0	0.9	0.9	0.9	1.4	1.6	0.7
Thailand	8.6	8.6	14.7	2.5	15.9	5.0	3.5	8.3	13.7	5.5
Turkey	22.0	19.9	9.1	16.2	13.6	13.3	13.8	11.2	12.5	9.5
Vietnam	6.7	9.6	8.0	7.4	8.9	9.2	12.6	14.1	15.5	16.1

Source: World Bank

**Table 6: Net FDI Flows, as a percentage of GDP**

	2007	2008	2010	2011	2013	2014	2016	2017	2018	2019
Armenia	7.3	8.1	5.7	6.4	3.1	3.5	3.2	2.2	2.1	0.7
China	4.4	3.7	4.0	3.7	3.0	2.6	1.6	1.3	1.7	1.3
Cyprus	9.6	44.2	120.6	146.7	108.6	223.4	40.6	63.0	-4.3	203.6
Georgia	18.6	12.5	7.5	7.7	6.1	10.4	11.0	11.9	7.4	7.9
India	2.1	3.6	1.6	2.0	1.5	1.7	1.9	1.5	1.6	1.8
Indonesia	1.6	1.8	2.0	2.3	2.6	2.8	0.5	2.0	1.8	2.2

Israel	4.8	4.7	2.9	3.2	4.0	1.9	3.7	4.7	5.7	4.3
Japan	0.5	0.5	0.1	0.0	0.2	0.4	0.8	0.4	0.5	0.8
Jordan	15.3	12.5	6.2	5.0	5.6	5.9	3.9	4.9	2.2	1.6
Kazakhstan	11.4	12.6	5.0	7.1	4.2	3.3	12.5	2.9	0.2	2.1
Korea	0.8	1.1	0.8	0.8	0.9	0.6	0.8	1.1	0.7	0.6
K.Republic	5.5	7.3	9.9	11.1	8.3	4.6	9.1	-1.4	1.7	4.3
Lao PDR	7.7	4.2	3.9	3.4	5.7	6.5	5.9	9.9	7.5	4.0
Malaysia	4.7	3.3	4.3	5.1	3.5	3.1	4.5	2.9	2.3	2.5
Mongolia	8.8	15.0	23.5	43.9	16.4	2.8	-37.2	13.0	14.8	17.2
Pakistan	3.0	2.7	1.0	0.6	0.5	0.7	0.8	0.7	0.5	0.7
S.Arabia	1.5	1.1	0.9	0.7	0.4	0.2	3.3	0.1	1.4	0.4
Singapore	26.2	7.0	23.1	17.6	20.9	21.8	20.5	29.8	21.5	27.9
Sri Lanka	1.9	1.8	0.8	1.4	1.2	1.1	1.0	1.5	1.7	0.8
Thailand	3.3	2.9	4.3	0.7	3.8	1.2	0.8	1.8	2.7	1.0
Turkey	3.2	2.6	1.2	1.9	1.4	1.4	1.6	1.3	1.6	1.3
Vietnam	8.7	9.7	5.4	4.3	4.2	3.9	4.9	5.0	5.0	4.8

Source: World Bank

Singapore, which is known for its strong trade and investment relations, maintained high absolute FDI inflows, growing from approximately \$47.3 billion in 2007 to over \$105.9 billion in 2019, and a high FDI-to-GDP ratio, rising from 26.2% to 27.9%, underscoring country's robust growth and growing attractiveness to foreign investors. A wider understanding of globalizations' effects on income inequalities could be found through looking at trends in FDI net inflows. However, even though employment can be created and enhanced income generation activities carried out because there is more FDI, the fruits are not equally distributed among different populations' sectors. For this reason, this paper attempts to analyze how foreign direct investment, which is an indicator of openness to the world economy suppresses income concentration in particular countries in this case in a number of Asian nations.

## 2.4 Trend in Income Inequality

To understand the relationship between financial development, globalization, and income inequality, it is important to analyze the trends and patterns in income inequality among Asian nations. From 2007 to 2019, income inequality in various Asian economies exhibited diverse trends and patterns as presented in Table 7. The rate of income difference in Armenia witnessed decline from 48.4 in 2007 to 47.3 in 2019 which constitutes a moderate success at combating income disparities. On the other hand, China experienced an increase in the level of income disparity where it changed from 47.3 in 2007 to 49.0 in 2019 indicating that rapid growth of the economy and globalization had widened income gaps. Similarly, Cyprus observed increment in inequalities as it shift from 48.3 to 49.1 between 2007-2019 while

Georgia had undergone considerable transformation towards lowering its level of income difference by dropping from 51.4 to 47.4 in 2019 saying thus significant progress made for reducing income inequality. India also went through a process of reducing inequality where it recorded a decline from 48.2 to 45.1 between 2007-2019 indicating some positive developments alongside economic growth in terms of distribution of wealth against all odds.

Between 2007 and 2019, the Gini index of income inequality in Indonesia increased from 40.4 to 42.3, suggesting widening gaps between people with different levels of income over the said period. On the other hand, Israel lowered the level of income inequality from 51.9 in 2007 to 47.4 in 2019 thus indicating significant efforts made towards addressing these disparities across all sectors of living standards. The Japanese experience as reported in reports showed that between 2007 and 2019 their Gini coefficient rose from 45.8 to 48.9 which indicates a possible increase of earnings differentiation due to economic changes or structural factors during this period. Economic disparity remained relatively constant for Jordan because it only diminished by an insignificant margin from 39.3 in 2007 to 39.2 in 2019 suggesting slight improvements may have occurred during this time span. The Republic of Kazakhstan reduced its level of income inequality from 37.7 in 2007 to 35.7 in 2019 which represents steps forward aimed at achieving an equitable distribution among people. The other side, Korea increased its Gini index for equal income distribution from 34.3 to 37 during the same period indicating increased wealth gaps. The Kyrgyz Republic saw a decrease in inequality from 43.9 in 2007 to 41.4 in 2019, reflecting positive trends in reducing income disparities. Lao PDR experienced an increase in inequality from 37.9 in 2007 to 38.9 in 2019, suggesting that income disparities may have widened slightly. Furthermore, we observe a decrease in Malaysia's level of income inequality from 44.3 to 42.5 which indicates progress towards more equitable income distribution. Mongolia's inequality remained relatively stable, with a slight decrease from 36.4 in 2007 to 36.1 in 2019, indicating minor improvements.

Pakistan experienced a slight decrease in inequality from 34.8 in 2007 to 34.2 in 2019, reflecting modest progress in addressing income disparities. Saudi Arabia's inequality remained stable at 50.1 throughout the period, indicating challenges in achieving equitable income distribution. Sri Lanka's inequality remained stable, decreasing slightly from 44.3 in 2007 to 43.6 in 2019, indicating minor improvements. Thailand showed a significant reduction in inequality from 45 in 2007 to 40.5 in 2019, reflecting substantial progress in reducing income disparities. In Turkey, the inequality trends were more or less stable with minimal

improvements from 44.6 in 2007 to 45.1 in 2019. Notice that inequality in Vietnam dropped from 38.1 in 2007 to 37.4 in 2019, signifying some efforts to reduce income inequalities. Generally, the study has shown that whereas some states have made inroads towards achievement of equitable distribution of income, others have in the recent past recorded a leaping or stable distribution of inequality indicating the dynamics and pluralistic nature of income inequality distribution trends in different countries in Asia. The relationship between different forms of globalization and income equality, and how a country's level of financial development shapes this relationship, is critical for policy makers, researchers and practitioners looking for ways to tackle this challenge of economic inequality in the context of Asia.

**Table 7: Income Inequality (Gini Coefficient)**

	2007	2008	2010	2011	2013	2014	2016	2017	2018	2019
Armenia	48.4	48	47.5	47.3	47.7	47.9	48.1	48	47.7	47.3
China	47.3	47.9	48.6	49.1	49.2	49.1	48.9	49.1	49.4	49
Cyprus	48.3	48.5	48.7	48.9	49.1	49.2	49.2	49.2	49.1	49.1
Georgia	51.4	51.8	52.1	51.5	49.9	49.4	48.6	48.4	47.8	47.4
India	48.2	48.4	49.4	50.1	47.7	46.9	45.8	45.5	45.2	45.1
Indonesia	40.4	40.7	41.5	41.9	42.4	42.5	42.5	42.4	42.3	42.3
Israel	51.9	51.7	51	50.3	48.7	48.1	47.1	46.9	47	47.4
Japan	45.8	46.8	47.8	48	48.3	48.2	48.6	48.8	48.9	48.9
Jordan	39.3	39.1	39	39	39	39	39.2	39.2	39.2	39.2
Kazakhstan	37.7	37.2	36.5	36.2	35.8	35.6	35.5	35.6	35.6	35.7
Korea	34.3	34.4	34.5	34.8	34.8	34.6	35.7	36.5	36.8	37
K.Republic	43.9	43.5	42.8	42.5	42.2	42	41.6	41.4	41.4	41.4
Lao PDR	37.9	38	38.2	38.3	38.5	38.6	38.7	38.8	38.9	38.9
Malaysia	44.3	44.1	43.7	43.5	43.1	42.9	42.6	42.5	42.5	42.5
Mongolia	36.4	36.4	36.3	36.2	36.2	36.1	36.1	36	36.1	36.1
Pakistan	34.8	34.8	34.6	34.6	34.4	34.3	34.2	34.2	34.2	34.2
S.Arabia	50.1	50.1	50.1	50.1	50.2	50.1	50	50	50	50
Singapore	44.3	44.3	44.3	44.3	44.1	44.1	43.9	43.8	43.7	43.6
Sri Lanka	44.3	44.2	43.9	44	44	43.9	43.8	43.7	43.7	43.6
Thailand	45	44.6	43.7	43.3	42.5	42	41.3	41	40.8	40.5
Turkey	44.6	44.5	44.2	44.1	43.9	44	44.6	44.9	45	45.1
Vietnam	38.1	38.2	38.3	38.2	38	37.9	37.7	37.6	37.5	37.4

Source: Standardized World Income Inequality Database

### 3. Literature Review

Globalization, marked by expanded trade openness, capital flows, as well as technological incorporation, has significantly changed the economic condition of Asia and the world. The link between globalization and income inequality, defined as the unequal distribution of income among a population, has been a central focus of recent research. Studies by Heimberger (2020), Swapnanil Sen Gupta(2021) and Gravina and Lanzafame (2021) suggested that globalization

worsens income inequality. Similarly, Huh and Park (2021) highlighted that regional integration further amplifies this disparity. Atif (2012) also found that globalization intensifies income inequality, particularly in developed countries, while Swapnanil Gupta (2021) observes a similar effect in developing nations. Although globalization is viewed as a potential source of economic growth and development, its effect on income inequality is still under debate with critics of globalization arguing that the economic benefits brought about by globalization is regressive rather than progressive so that they are not extended to all the population but more to a selective group of individuals or groups within one particular country. Globalization is often linked to inequality (Melinda Mills, 2009), but with often divergent and contrary results.

### **3.1 Impact of Trade Globalization**

Globalisation which is basically a liberalization of international trade has elicited various discussions among various researchers as to its impacts on incomes. Regarding the discussion about trade globalization impact on income disparities, there are two main positions among scholars (Munir and Bukhari, 2020). The first suggests that increased international trade reduces income inequality by promoting economic growth, fostering specialization, and enhancing efficiency, which raises living standards and narrows income gaps (Hui and Bhaumik, 2023; Rimidis and Butkus, 2023). This theory explains that trade globalization, through comparative advantage, enhances productivity and wages, thus reducing income inequality (Giri, Pandey, Mohapatra, 2021; Chakrabarti, 2000). Researchers like Jaumotte et al. (2013) and Anderson (2005) also supported this view, showing that trade openness can alleviate inequality, particularly when coupled with social investments and education in less developed countries (Rudra, 2004; Georgantopoulos and Tsamis, 2011).

Under the second view, however, it is suggested that globalization of trade contributes to greater inequality in income since its benefits are tilted towards capital- and skill-intensive industries and workers, while labour-intensive industries and low-skilled labors suffer a negative outcome (Jong-Eun Lee, 2006; Sethi, 2021). Opponents of globalization point out that this benefits only the large corporations and rich people, increasing income inequality especially in developing countries (Silva and Leichenko, 2004; Munir et al., 2012). Other studies like Beckfield (2006), Vivarelli (2009) and Munir and Sultan (2017) also showed that globalization deepens income inequality. This is especially the case in regions characterized by vast differences in resource endowments, population size and trade costs. Similarly

Spilimbergo et al. (1999) and Milanovic (2005) suggested that so-called trade globalization mainly benefits the already rich, increasing the income inequality.

### **3.2 Impact of Technological Globalization**

This section of the literature reviews the impacts of technological globalization on income inequality. In terms of modern global economy, technological globalization is defined as the spread of technology and information across borders. According to researchers, income inequality has been a result of globalization, specifically technological globalization which has increased the value of human capital. This signifies the role of both education and skills in reducing this gap between the rich and poor. Autor et al. (2008) supported this argument by examining how the integration of technology into American labor markets led to the emergence of wage differentials and thus concluded that income inequality worsened due to technological globalisation. Jaumotte et al. (2013) found similar results in their study, showing that technological globalization has more severe effects on income inequality than globalization alone. It is suggested that surging technological globalization has increased the demand for skills and education, often leading to unequal income distribution that favors those with greater level of skills and education. This has sparked significant attention from researchers, resulting in mixed results across different country groups. Giri et al. (2021) while studying the impact of technological progress on income inequality in India, suggested that technological progress are inherently skill-based, favors skilled labor and capital-intensive production, thereby widens the income gap among low and high skilled labor.

A number of authors, however, suggest that the current process of globalization promotes technological expansion with considerable scope for innovation, productivity growth and economic progress, and hence can result in reduced income inequality. According to them, technological advancements increase productivity, create far more jobs than it destroys, improve access to education, ultimately foster social mobility and reduce economic disparities. For example, Munir and Bukhari (2020) argued that technological globalization plays a major role in decreasing income inequality. The findings by Acemoglu and Autor (2011) claimed that while there was a positive relationship between technological innovation and economic growth, its impact on income inequality depended on skill biased technical change, education policies and labor market institutions. Another study by Bessen (2019) which looked at how technological progress affects income inequality, found that even though the technological

progress causes a temporary upsetting in employment and income distribution, it has also increased productivity and living standards for different strata of society over time.

### **3.3 Impact of Financial Globalization**

There has been a recognition of the fact that over the past few decades, financial globalization characterized by integration of national financial markets and institutions with their global counterparts is an essential feature in the current world economy. This section of literature will discuss the crucial implications of financial globalization on income inequality among Asian nations. Jaumotte et al. (2013) found in their study of 51 countries from 1981 to 2003 that most countries experienced an increase in income inequality with the rise in financial globalization.

Munir and Bukhari (2020) also observed that Asian countries' rise in income inequalities are linked with their financial integration implying unevenly distributed benefits of financial globalization. Similarly, Giri et al. (2021) discovered that financial globalization, along with trade and technological advancements, exacerbated income imbalances in India from 1982 to 2018.

Lee (2014) while analysing the impact of financial integration, on income distribution and poverty and concluded that financial globalization exacerbates income disparity and poverty. Similarly, Khan et al. (2021) found that greater openness to international capital flows accelerated the rise of income inequality globally. Contrarily, some studies present opposing views. Milanovic (2005) studied the relationship between openness and wealth distribution in 95 low, middle, and high-income countries, finding that while trade worsened income disparity, while financial stability and integration reduced it. Delis et al. (2014) found that financial globalization reduces income inequality, while Agnello et al. (2012) deemed its impact insignificant. Bumann and Lensink (2016) also argued for an income inequality-reducing effect of financial globalization.

### **3.4 Role of Financial Development**

In conclusion, a variety of viewpoints on the connection between globalization and income inequality are presented in the literature, with a focus on the complex roles played by technology and financial factors. While some studies highlight exacerbating effects, others underscore the potential for globalization, particularly in trade, to alleviate income inequality. There is a notable gap in the empirical literature regarding how a country's financial development (such as improving banking, credit access, and stronger financial markets)



influences the impact of globalization on income inequality. Existing studies (Mishkin, 2006; Bittencourt et al., 2019; P. Sethi et al., 2021) suggests that financial development by improving allocation of resources, reducing credit constraint, access to financial services will help the poor and reduce income inequality. Therefore, globalization in higher financially developed countries can possibly improve the outcomes of globalization. The existing research landscape has not sufficiently delved into the intricate dynamics between financial development and the consequences of globalization for income distribution. This void underscore the need for comprehensive empirical investigations to unveil the nuanced interactions and potential mediating role of financial systems in shaping the effect of globalization on income inequality.

Given the growing importance of financial development, this research aims to explore how financial development shapes globalization's impact on income inequality in Asian countries? As observed in the literature, while globalisation of various types may have mixed effects on the income inequality depending on the circumstances, we expect that the financial development of a country can help improve the outcome associated with globalisation's impact on income inequality. This study, therefore, aims to explore following hypothesis.

H1: Financial development helps a country achieve a better outcome with respect to the impact of trade globalization on income inequality

H2: Financial development helps a country achieve a better outcome with respect to the impact of technological globalization on income inequality

H3: Financial development helps a country achieve a better outcome with respect to the impact of financial globalization on income inequality

### **3.5 Control Variables**

This analysis incorporates urbanization together with GDP per capita as control variables to consider their effects on income disparity (Munir and Bukhari, 2020; SenGupta, 2021) along with different forms of globalization. A general conventional assumption is that urbanization fuels income disparities because of the prevailing economic pattern whereby cities create huge gaps in income distribution across classes. Typically during city growth phases, the centers of economic activities are established where few individuals benefit from industries associated with urbanization such like technology or services that attract high wages but do not employ many low-skilled workers. In addition, this may increase income inequality between rural regions and

those residing within cities resulting into a dualistic society. Conversely one expects that increases in GDP per capita will reduce inequality between groups. A higher level of GDP per capita implies significant development potentials as well as improved living conditions, translating into more egalitarian distribution of earnings throughout a population. Thus, while urbanization may lead to greater proportions of the population with small earnings, higher gross domestic product per capita implies a fairer income allocation (Bergh et al., 2008; Villanthenkodath et al., 2024).

## **4. Data, Methodology and Empirical model**

The current section describes the data source and definition, discusses the methodology applied for estimating the empirical model.

### **4.1 Data: Source and Definition**

This study employs yearly data from 2007 to 2019 for 22 Asian countries to test our hypotheses regarding how financial development mediates effects of different form of globalization on income disparity. Data were primarily sourced from the World Development Indicators (WDI), World Bank and the IMF database. The World Bank database provides detailed information on individual countries sourced from officially recognized international sources. It includes data on country's trade, capital inflows and technology, GDP per capita and urban population. Our sample comprises countries from the ASIA. Income inequality (INQ) is quantified using the Gini coefficient, the most widely utilized index for measuring income inequality (Foster, Seth, Lokshin, & Sajaia, 2013, p. 13). We obtain the income inequality measures from the Standardized World Income Inequality Database (SWIID) by Solt (2020) (P. Sethi, S. Bhattacharjee, D. Chakrabarti et al., 2021). Trade globalization is calculated as the sum of exports and imports divided by GDP, while financial globalization is measured as net private capital flows divided by GDP. Technological globalization is calculated as high tech export divided by GDP. The analysis incorporates additional control variables in accordance with Munir and Bukhari, 2020, SenGupta S (2021) i.e. GDP per capita and urban population. In this study, we introduce a dummy variable, 'DUMMY\_FinDevt,' which takes a value of 1 if a country's financial development index is greater than 0.5, defining that country as financially developed. Conversely, if a country's financial development index is less than 0.5, the dummy variable takes a value of 0, indicating that the country is financially underdeveloped. The data on financial development

index is obtained from IMF Database. Table 8 summarizes all dependent, independent and control variables used in the paper.

**Table 8: Definition and Source of Variables**

<b>Variable Name</b>	<b>Measurement</b>	<b>Data Source</b>
Income Inequality (INQ)	Gini Coefficient	Standardized World Income Inequality Database (SWIID)
Financial Development Index (FinDIndex)	Financial Development Index	IMF Database
Dummy for Financial Development ('DUMMY_FinDevt)	Takes a value of 1, if FinDIndex is greater than 0.5, and 0 otherwise	Constructed
Trade Globalization (TradeG)	Sum of exports and imports as a share of GDP	WDI, World Bank
Technological Globalization (TechG)	High Tech Export as a share of GDP	WDI, World Bank
Financial Globalization (FinG)	Net Private Capital Flows as a share of GDP	WDI, World Bank
GDP Per Capita (GDPPC)	Total GDP divided by total population	WDI, World Bank
Urbanization (URBN)	Urban population as a share of total Population	WDI, World Bank

## 4.2 Empirical Model

Our empirical models estimate the effects of three distinct forms of globalization—trade, technological, and financial—on income inequality separately. Additionally, they seek to understand how these forms of globalization interact with financial development to influence income inequality in Asian countries. As discussed earlier, we construct a dummy variable, 'DUMMY\_FinDevt,' which is assigned a value of 1 for financially developed countries, and 0 otherwise. To capture the combined impact of financial development and globalization, we introduce an interaction term. To assess the effects of different dimensions of globalization [i.e. technological globalization, trade globalization, and financial globalization] and their interaction with financial development on income inequality, we estimate the following three models:

**Model 1:**  $\text{LINQ}_{it} = \beta_0 + \beta_1 \text{LTradeG}_{it} + \beta_2 (\text{LTradeG}_{it} * \text{DUMMY\_FinDevt}) + \beta_3 \text{LGDPPC}_{it} + \beta_4 \text{LURBN}_{it} + \varepsilon_{it}$

**Model 2:**  $\text{LINQ}_{it} = \alpha_0 + \alpha_1 \text{LTechG}_{it} + \alpha_2 (\text{LTechG}_{it} * \text{DUMMY\_FinDevt}) + \alpha_3 \text{LGDPPC}_{it} + \alpha_4 \text{LURBN}_{it} + \varepsilon_{it}$

**Model 3:**  $\text{LINQ}_{it} = \gamma_0 + \gamma_1 \text{LFinG}_{it} + \gamma_2 (\text{LFinG}_{it} * \text{DUMMY\_FinDevt}) + \gamma_3 \text{LGDPPC}_{it} + \gamma_4 \text{LURBN}_{it} + \varepsilon_{it}$

Where LINQ denotes income inequality, while LTradeG represents trade openness and is used to measure trade globalization. DUMMY\_FinDevt is a dummy variables which is assigned a value of 1 for financially developed countries and 0 otherwise. LTechG stands for technological globalization, and LFinG indicates financial globalization. Additionally, two control variables are included: LGDPPC, which stands for GDP per capita, and LURBN, which represents urbanization. All variables, except the dummy, are taken in natural logarithm, as indicated by the prefix L.

### 4.3 Methodology

The study makes use of a panel data methodology to examine how globalization affects income distribution. Panel data offers several edge over time-series and cross-sectional data, including control for individual heterogeneity, a larger number of data points, greater degrees of freedom, and a reduction in collinearity between independent variables, thus enhancing the accuracy of econometric estimates. Panel data can be used in a number of ways to lessen the severity of significant econometric issues that frequently occur in empirical research (Hsiao, 2014). When studying more complex behavioral models, panel data can more accurately identify and quantify effects that are difficult to discover in pure cross-section and time-series data (Wooldridge, 2010; Baltagi, 2013).

In this situation, straightforward estimate methods such as pooled OLS are probably going to be ineffective because they don't account for and compensate for the unobservable individual country effects. Given the panel dataset structure, which encompasses observations across multiple countries over time, employing a Fixed Effects (FE) model holds notable advantages for analyzing the relationship between globalization and income inequality (SenGupta S, 2021, Plümper, T., & Troeger, V. E., 2007). FE models are particularly well-suited for addressing the nuances inherent in panel data analysis, especially when dealing with

unobserved time-invariant country-specific factors (Mundlak, Y., 1978, Wooldridge, J. M., 2010)). This is to say that FE models use country-specific intercepts so as to control for possible biases that arise from unobserved variables which have not changed within each country over time (Baltagi, B. H., 2008). This feature is crucial for capturing the heterogeneity across countries and preserving temporal variation within each country over the study period. Additionally, FE models allow for the identification of country-specific trends or shocks, thus enabling a nuanced understanding of the factors driving income inequality dynamics within individual countries. Overall, given these strengths, employing a Fixed Effects model emerges as a suitable and robust approach for investigating the complex relation between globalization and income disparity within a panel dataset framework.

## 5. Results and Discussion

Table 9 indicates the dataset comprises 286 observations detailing various economic and social indicators. Among these, the Gini coefficient stands out as a measure of income inequality among the population, averaging approximately 43.18 with values ranging from 34.2 to 52.3. The Financial Development Index, reflecting the maturity of financial systems, has a mean value of around 0.446, spanning from 0.082 to 0.908. Technological Globalization, capturing the diffusion of technology across countries, averages at about 0.056, ranging from 0.0003 to 0.6386. Trade Globalization, quantifying the degree of global trade integration, shows a mean value of approximately 0.954, with a wide range from 0.244 to 4.373. Financial Globalization, indicating the global integration of financial markets, has an average value of around 0.103, fluctuating from -0.372 to 2.801. GDP Per Capita, a key metric of economic output per person, stands at a mean of \$20,714.64, varying from \$2,769.43 to \$102,630.90. Lastly, the proportion of Urban Population, representing the share of people living in urban areas, averages around 0.604, ranging from 0.182 to 1. These statistics paint a comprehensive picture of the economic and social landscape across the observations, offering insights into income distribution, financial development, globalization dynamics, and urbanization trends.

**Table 9 : Descriptive Statistics of Variables**

Variables	Observations	Mean	Std. Dev.	Minimum	Maximum

Income Inequality (INQ)	286	43.18	5.15	34.20	52.30
Financial Development Index (FinDIndex)	286	0.4459	0.2146	0.0821	0.9084
Technological Globalization (TechG)	286	0.0563	0.1121	0.0003	0.6385
Trade Globalization (TradeG)	286	0.9542	0.6824	0.2439	4.37
Financial Globalization (FinG)	286	0.1027	0.3227	-0.3717	2.80
GDP Per Capita (GDPPC)	286	20714.64	19089.81	2769.43	102630.90
Urbanization (URBN)	286	0.6042	0.2285	0.1819	1

Table 10 shows the results of Model 1, examining the impact of trade globalization on income inequality in Asian countries. A positive coefficient for trade globalization, suggesting that rising levels of trade globalization cause rising levels of income disparity. This outcome is consistent with previous research by Sethi's (2021), Munir and Sultan (2017), Hepenstrick and Tarasov (2015), Ali and Isse (2007), Jong-Eun Lee (2006). A possible interpretation of why trade liberalization has a harmful effect on income distribution is the fact that trade globalization has driven considerable skill-biased entity-induced technical change in industries most significantly affected by international competition and this is the place where much of the increase in relative demand for skilled labour seems to originate. In these sectors, high-skilled workers tend to earn higher wages due to their specialized skills and ability to adapt to new technologies and market demands (Zhu et al., 2005). By contrast workers with lower skills in relatively less-competitive sectors will end up in jobs where their wages are pushed or even join the dole queue as they simply cannot compete with lower-cost imports.

Interaction term of trade globalization with financial development has a negative coefficient, suggesting that financial development mitigates the impact of trade globalization on income inequality, which verifies the first hypothesis (H1). We also note that this negative coefficient, in absolute term, is greater than the positive coefficient associated with trade globalization, implying that although trade globalization has a positive influence on income inequality but if

the country is financially developed, the net effect of trade globalization on income inequality is negative, meaning in a financially developed country, trade globalization can reduce income inequality. This indicates that enhanced financial development can address income inequality by improving access to financial services (P. Sethi et al., 2021) for individuals and businesses across income groups. This empowerment enables marginalized populations to invest in education and assets, helping them reaping the benefits of trade globalization, thereby reducing income disparities. Financial development also fosters investment in human capital, enhancing labor productivity and employability, while supporting SMEs stimulate entrepreneurship, job creation and participate in trade activities, contributing to inclusive growth and narrowing income differentials.

Among controls, GDP per capita negatively and significantly impacts income inequality, while urbanization positively impacting the income inequality (Bergh et al., 2008; Villanthenkodath et al., 2024). The findings align with the expected outcomes: urbanization has been associated with an increase in income inequality, likely due to the concentration of wealth and opportunities in urban areas, which often exacerbates wage gaps between skilled and unskilled workers (SenGupta, S., 2021). Conversely, the rise in GDP per capita appears to mitigate this effect, contributing to a reduction in income inequality by promoting broader economic growth and fostering a more equitable distribution of income across different segments of the population.

**Table 10: Results of Model 1**

<b>Dependent Variable: Log of Income Inequality (LINQ)</b>	
<b>Variable</b>	<b>Coefficient</b>
LTradeG	0.0258**
	(2.76)
(LTradeG)*(DUMMY_FinDevt)	-0.0583*
	(-2.10)

LURBN	0.0560
	(1.29)
LGDP	-0.0372***
	(-4.41)
_cons	4.153***
	(40.78)
N	286

t statistics in parentheses; \* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Table 11, which represents the results of Model 2, shows a positive coefficient for technical globalization, suggesting that rising levels of technological globalization cause rising levels of income disparity. This outcome is consistent with previous research by Gravina and Lanzafame (2021), Giri et al. (2021), Jaumotte et al.(2013). One explanation for this results can be that, technological globalization, propelled by rapid advancements in technology, has led to significant transformations across industries enhancing productivity and efficiency. However, the adoption of new technologies often necessitates specialized skills (Giri et al., 2021; Autor, et al., 2008), creating a disparity in the labor market. Skilled workers, equipped to navigate and leverage these technologies, find themselves in high demand, commanding higher wages and enjoying greater job security. Meanwhile, those lacking these specialized skills, typically low-skilled or unskilled workers, face diminished opportunities and lower wages as their roles become increasingly automated or outsourced. This phenomenon exacerbates income inequality, widening the gap between those who can adapt to technological changes and those left behind.

**Table 11 : Results of Model 2**

<b>Dependent Variable: Log of Income Inequality (LINQ)</b>	
<b>Variable</b>	<b>Coefficient</b>
LTechG	0.00262
	(1.03)



(LTechG)*(DUMMY_FinDevt)	-0.557*
	(-1.98)
LURBN	0.0190
	(0.46)
LGDP	-0.0369***
	(-4.29)
_cons	4.118***
	(40.14)
N	286

t statistics in parentheses ; \* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Interaction term of technological globalization with financial development has a negative coefficient, suggesting that financial development mitigates the impact of technological globalization on income inequality, which verifies the second hypothesis (H2). We also note that this negative coefficient, in absolute term, is greater than the positive coefficient associated with technological globalization, implying that although technological globalization has a positive influence on income inequality but if the country is financially developed, the net effect of technological globalization on income inequality is negative, meaning in a financially developed country, technological globalization can reduce income inequality. This also indicates that financially developed countries lower the effect of technological globalization on income inequality. A strong financial system benefits a nation in many ways. Primarily, it facilitates simpler loan acquisition, particularly for startups and small enterprises. This encourages innovation and job growth even in industries where technology is causing disruptions. Second, well-established financial markets make it easier to fund training and educational initiatives (Mishkin, 2006). This assists workers in modifying their skill sets to meet the demands of an evolving labor market due to technology improvements. Finally, by ensuring a greater proportion of the population takes part in the growth brought about by new technology, financial inclusion helps close the wealth gap. All things considered, a financially developed nation is better positioned to spread the advantages of technological globalization more broadly, reducing the potential for increased income gap. Among controls, similar to the previous model, GDP per capita negatively and significantly impacts income inequality, while the urban population positively impacts income inequality (Bergh et al., 2008; Villanthenkodath et al., 2024).

**Table 12: Results of Model 3**

<b>Dependent Variable: Log of Income Inequality (LINQ)</b>	
<b>Variable</b>	<b>Coefficient</b>
LFinG	0.00163
	(0.12)
(LFinG)*(DUMMY_FinDevt)	-0.00912
	(-0.07)
LURBN	0.0106
	(0.25)
LGDP	-0.0325***
	(-3.80)
_cons	4.076***
	(40.21)
N	286

t statistics in parentheses; \* p<0.05, \*\* p<0.01, \*\*\* p<0.001

We obtain the similar results in Table 12, which shows the results of Model 3, examining the impact of financial globalization on income inequality in Asian countries. The coefficient for financial globalization is although insignificant but it is positive, suggesting that rising levels of financial globalization can lead to higher income disparity. This outcome is consistent with previous research by Hui and Bhaumik (2023), Khan et al., (2021), Jaumotte et al., (2013), and Figini and Gorg (2006). Financial globalization, while often seen as a driver of economic growth, can contribute to rising income inequality through several key mechanisms. Companies can exploit financial globalization to offshore operations and profits to countries with lower tax rates, reducing tax revenue that could be used for social programs and infrastructure, thereby disproportionately benefiting wealthy corporations and shareholders. This leads to calls for quick profits, which translate into outsourcing of jobs by companies in the developed countries having a new supply of cheap capital through the individuals in the

developing world and also through automation of jobs that were previously done by the lower skilled workers in the developed world (H. Khan et al., 2021). Some outcomes include that new jobs can also be generated; however, these jobs demand more sophisticated skills, thus disemploying some workers. Furthermore, financial globalization helps the rich to gain access to international assets, thereby deepening inequality through promoting access to financial markets by the rich (Bumann & Lensink, 2016; Jaumotte et al., 2013).

In addition, similar to the case of trade and technological globalization, the interaction term of financial globalization with financial development has a negative coefficient, suggesting that financial development mitigates the impact of financial globalization on income inequality, which verifies the third hypothesis (H3). This indicates that a country's financial development can help mitigate the negative impact of financial globalization on income inequality by better allocating resources (Mishkin, 2006; P. Sethi et al., 2021), and by enhancing access to financial services for a broader segment of the population. Financial development also allows smaller domestic enterprises and small investors to take the advantage of financial globalization by accessing international financial markets, providing them with the opportunity of diversification, risk management, access to cheaper funds, and the potential to earn greater income, thereby helping to reduce disparities among people. Among the control variables, just as in the case of Model 1 and Model 2, we find that GDP per capita negatively and significantly impacts income inequality, while urbanization positively impacts income inequality (Bergh et al., 2008; Villanthenkodath et al., 2024).

## **6. Conclusion and Policy Suggestions**

This paper investigates how different forms of globalization—trade, technological, and financial—impact income inequality in Asian countries, how those impacts are influenced when these forms of globalization interacts with a country's financial development. In other words, the paper seeks to know how financial development shapes globalization's impact on income inequality in Asian countries? This paper employs fixed effect panel data methodology which accounts for unobservable country effects, to test hypotheses and derive empirical results.

The findings show that all three modes of globalization—trade globalization, technological globalization, and financial globalization—aggravate income gap. This imply that trade globalization can lead to job displacement in certain industries and unequal wage gains favoring higher-skilled workers. Similarly, technological globalization often results in skill-

biased technological changes, widening the income gap between those with advanced skills and those without. Financial globalization may exacerbate income inequality by providing unequal access to financial markets, benefiting capital owners more than labor.

This study has also provided empirical confirmation that the financial development of a country significantly reduces the impact of all types of globalization on income inequality. In particular, the study finds that if a country is financially developed, the net effect of all types of globalization on income inequality is negative, meaning that in a financially developed country, globalization can reduce income inequality. By efficiently allocating resources, reducing credit constraints, and providing funds for investment in human capital, financial development plays a crucial role in mitigating the effects of globalization on income inequality. Among controls, the effect of GDP per capita on income inequality is found to be negative, implying that an increase in GDP per capita tends to reduce income inequality. In contrast, urbanization has a positive coefficient, which reflects that income inequality tends to worsen with urbanization.

The study highlights the need for effective financial development of a nation to reduce the negative effects of globalization on income inequality. Accordingly, it suggests implementing policies for financial inclusion, strategic globalization measures, and education and skill development programs to promote inclusive growth. Moreover, enhancing access through increasing banking channels and opening more branches in rural areas can lead to a greater degree of financial inclusion and help marginalized citizens engage more fully in economic activities. The goal of these strategies is to create an economic environment that is fairer and benefits all members of the society. The promotion of mobile banking, along with the introduction of financial literacy programs, will empower individuals with the knowledge and tools to manage their finances effectively. Likewise, setting-up a strong monitoring and evaluation framework will provide clinical evidence about the success of these financial inclusion initiatives. Additionally, the globalization strategy should target sectors where jobs can be created and skills developed. This will involve reskilling and new transition supports for industries affected by globalization, to help workers adapt to change and find new opportunities. With this, globalization can lead to more inclusive and equitable economic growth, benefiting both individuals and society as a whole.

## **References**

- Acemoglu, D., & Autor, D. (2011). Skills, tasks and technologies: Implications for employment and earnings. In *Handbook of labor economics* (Vol. 4, pp. 1043-1171). Elsevier.
- Aghion, P., & Bolton, P. (1997). A theory of trickle-down growth and development. *The review of economic studies*, 64(2), 151-172.
- Agnello, L., Mallick, S. K., & Sousa, R. M. (2012). Financial reforms and income inequality. *Economics Letters*, 116(3), 583-587.
- Ali, A. M., & Isse, H. S. (2007). Foreign aid and free trade and their effect on income: a panel analysis. *The Journal of Developing Areas*, 127-142.
- Anderson, E. (2005). Openness and inequality in developing countries: A review of theory and recent evidence. *World development*, 33(7), 1045-1063.
- Asteriou, D., Dimelis, S., & Moudatsou, A. (2014). Globalization and income inequality: A panel data econometric approach for the EU27 countries. *Economic modelling*, 36, 592-599.
- Atif, S. M., Srivastav, M., Sauyrbekova, M., & Arachchige, U. K. (2012). Globalization and income inequality: a panel data analysis of 68 countries.
- Atkinson, A. B., & Brandolini, A. (2001). Promise and pitfalls in the use of “secondary” datasets: Income inequality in OECD countries as a case study. *Journal of economic literature*, 39(3), 771-799.
- Autor, D. H., Katz, L. F., & Kearney, M. S. (2008). Trends in US wage inequality: Revising the revisionists. *The Review of economics and statistics*, 90(2), 300-323.
- Baltagi, B. H., & Baltagi, B. H. (2008). *Econometric analysis of panel data* (Vol. 4, pp. 135-145). Chichester: Wiley.
- Banerjee, A. V., & Newman, A. F. (1991). Risk-bearing and the theory of income distribution. *The review of economic studies*, 58(2), 211-235.
- Beckfield, J. (2006). European integration and income inequality. *American sociological review*, 71(6), 964-985.
- Berg, A., Ostry, J. D., Tsangarides, C. G., & Yakhshilikov, Y. (2018). Redistribution, inequality, and growth: new evidence. *Journal of Economic Growth*, 23, 259-305.
- Bergh, A., & Nilsson, T. (2008). *Do economic liberalization and globalization increase income inequality?* (No. 2008: 12). Working Paper.
- Bensidoun, I., Jean, S., & Sztulman, A. (2011). International trade and income distribution: reconsidering the evidence. *Review of World Economics*, 147, 593-619.
- Bessen, J. (2019). Automation and jobs: When technology boosts employment. *Economic Policy*, 34(100), 589-626.
- Bittencourt, M., Chang, S., Gupta, R., & Miller, S. M. (2019). Does financial development affect income inequality in the US States?. *Journal of Policy Modeling*, 41(6), 1043-1056.
- Brady, D., Beckfield, J., & Seeleib-Kaiser, M. (2005). Economic globalization and the welfare state in affluent democracies, 1975–2001. *American Sociological Review*, 70(6), 921-948.
- Bong, A., & Premaratne, G. (2019). The impact of financial integration on economic growth in Southeast Asia. *The Journal of Asian Finance, Economics and Business*, 6(1), 107-119.

- Bumann, S., & Lensink, R. (2016). Capital account liberalization and income inequality. *Journal of International Money and Finance*, 61, 143-162.
- Cabral, R., García-Díaz, R., & Mollick, A. V. (2016). Does globalization affect top income inequality?. *Journal of Policy Modeling*, 38(5), 916-940.
- Chakrabarti, A. (2000). Does trade cause inequality?. *Journal of Economic Development*, 25(2), 1-22.
- Delis, M. D., Hasan, I., & Kazakis, P. (2014). Bank regulations and income inequality: Empirical evidence. *Review of Finance*, 18(5), 1811-1846.
- Figini, P., & Görg, H. (2011). Does foreign direct investment affect wage inequality? An empirical investigation. *The World Economy*, 34(9), 1455-1475.
- Firebaugh, G., & Goesling, B. (2004). Accounting for the recent decline in global income inequality. *American Journal of Sociology*, 110(2), 283-312.
- Foster, J., Seth, S., & Lokshin, M. (2013). A Unified Approach to Measuring Poverty and Inequality.
- Galor, O., & Zeira, J. (1993). Income distribution and macroeconomics. *The review of economic studies*, 60(1), 35-52.
- Georgantopoulos, A. G., & Tsamis, A. (2011). The impact of globalization on income distribution: the case of Hungary. *Research Journal of International Studies*, (21).
- Giri, A. K., Pandey, R., & Mohapatra, G. (2021). Does Technological Progress, Trade, or Financial Globalization Stimulate Income Inequality in India?. *The Journal of Asian Finance, Economics and Business*, 8(2), 111-122.
- Gravina, A. F., & Lanzafame, M. (2021). Finance, globalisation, technology and inequality: Do nonlinearities matter?. *Economic Modelling*, 96, 96-110.
- Heimberger, P. (2020). Does economic globalisation affect income inequality? A meta-analysis. *The World Economy*, 43(11), 2960-2982.
- Hepenstrick, C., & Tarasov, A. (2015). Trade Openness and Cross-country Income Differences. *Review of International Economics*, 23(2), 271-302.
- Hsiao, C. (2022). *Analysis of panel data* (No. 64). Cambridge university press.
- Huh, H. S., & Park, C. Y. (2021). A new index of globalisation: Measuring impacts of integration on economic growth and income inequality. *The World Economy*, 44(2), 409-443.
- Hui, Y., & Bhaumik, A. (2023). Economic globalization and income inequality: A review. *Advancement in Management and Technology (AMT)*, 3(4), 1-9.
- Jaumotte, F., Lall, S., & Papageorgiou, C. (2013). Rising income inequality: technology, or trade and financial globalization?. *IMF economic review*, 61(2), 271-309.
- Kang-Kook, L. E. E. (2014). Globalization, income inequality and poverty: Theory and empirics. *Social System Studies*, 28, 109-134.
- Khan, H., Shehzad, C. T., & Ahmad, F. (2021). Temporal effects of financial globalization on income inequality. *International Review of Economics & Finance*, 74, 452-467.

- Lee, J. E. (2006). Does globalization matter to income distribution in Asia?. *Applied Economics Letters*, 13(13), 851-855.
- Meschi, E. F., & Vivarelli, M. (2007). Globalization and income inequality.
- Mills, M. (2009). Globalization and inequality. *European sociological review*, 25(1), 1-8.
- Mishkin, F. S. (2006). *The next great globalization: how disadvantaged nations can harness their financial systems to get rich*. Princeton University Press.
- Milanovic, B., & Squire, L. (2005). Does tariff liberalization increase wage inequality? Some empirical evidence.
- Munir, K., & Sultan, M. (2017). Macroeconomic determinants of income inequality in India and Pakistan. *Theoretical & Applied Economics*, 24(4).
- Munir, K., & Bukhari, M. (2020). Impact of globalization on income inequality in Asian emerging economies. *International Journal of Sociology and Social Policy*, 40(1/2), 44-57.
- Mundlak, Y. (1978). On the pooling of time series and cross section data. *Econometrica: journal of the Econometric Society*, 69-85.
- Ogunyomi, O. O., Daisi, O. R., & Oluwashikemi, R. A. (2013). Economic globalization, income inequality and economic growth in Nigeria: a static data analysis (1986-2010). *ABC Journal of Advanced Research*, 2(2), 55-68.
- Plümper, T., & Troeger, V. E. (2007). Efficient estimation of time-invariant and rarely changing variables in finite sample panel analyses with unit fixed effects. *Political analysis*, 15(2), 124-139.
- Pradhan, R. P. (2009). Causal nexus between globalization and income inequality: An empirical study in China. *Banking and Finance Letters*, 1(3), 141.
- Rimidis, M., & Butkus, M. (2023). The impact of globalization on income inequality: the mediating effect of intellectual potential. *Intellectual Economics*, 17(2), 260-291.
- Rodríguez-Pose, A. (2012). Trade and regional inequality. *Economic Geography*, 88(2), 109-136.
- Rudra, N. (2004). Openness, welfare spending, and inequality in the developing world. *International Studies Quarterly*, 48(3), 683-709.
- Sala-i-Martin, X. (2006). The world distribution of income: falling poverty and... convergence, period. *The quarterly journal of economics*, 121(2), 351-397.
- Sehrawat, M., & Giri, A. K. (2015). Financial development and economic growth: empirical evidence from India. *Studies in Economics and Finance*, 32(3), 340-356.
- Sethi, P., Bhattacharjee, S., Chakrabarti, D., & Tiwari, C. (2021). The impact of globalization and financial development on India's income inequality. *Journal of Policy Modeling*, 43(3), 639-656.
- SenGupta, S. (2021). An analysis of the globalisation and income inequality relationship in the developing economies: A Static Approach. *Asian J. Soc. Econ. Sci*, 10(1), 01-10.
- Sifat, S., & Israt, R. M. (2011). Does globalization always increase inequality? An econometric analysis in Bangladesh perspective. *Journal of Globalization Studies*, 2(2), 160-172.

- Silva, J. A., & Leichenko, R. M. (2004). Regional income inequality and international trade. *Economic Geography*, 80(3), 261-286.
- Spilimbergo, A., Londoño, J. L., & Székely, M. (1999). Income distribution, factor endowments, and trade openness. *Journal of development Economics*, 59(1), 77-101.
- Udoh, I. E., Effiong, U. E., & Ekpe, J. P. (2022). Globalization and Income Inequality in Nigeria. *International Journal of Management, Accounting & Economics*, 9(12).
- Villanthenkodath, M. A., Pal, S., & Mahalik, M. K. (2024). Income inequality in globalization context: Evidence from global data. *Journal of the Knowledge Economy*, 15(1), 3872-3902.
- Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT press.
- Zhu, S. C., & Trefler, D. (2005). Trade and inequality in developing countries: a general equilibrium analysis. *Journal of international Economics*, 65(1), 21-48.