Causality Between FDI, GNI, and Exports : Empirical Evidence from India

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Abstract

This study examined the causal relationship between India's FDI inflows, GNI, and exports and its trend during the pre and post-liberalized eras. We conducted this study based on the time-series data extracted from the World Bank database covering a period of 5 decades starting from 1970 – 2019. The study used time-series-based econometric analysis through EViews software. Johansen's cointegration and Granger causality tests were applied to identify the long-run connection and causality direction. The results of the cointegration test proved the existence of a causal relationship between FDI, GNI, and exports. The Granger causality test results indicated a bi-directional relationship between FDI, GNI, and exports. The results of this study provided new insights into FDI inflows and GNI. In addition, the outcomes of this study provided vigorous theoretical and managerial implications.

Keywords : **causality test, co-integration, exports, FDI, GNI, Granger approach**

JEL Classification Codes : C32, F10, F21, F23, F43

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The authentic evidence of the oldest foreign investments can be traced to Britain, France, and Dutch colonial practices. Many developing countries, including India, were under the colonial rule of Britain. Before India was officially under British rule, foreign investment came from the East India Company. Since the early 1980s, developing nations have considerably eased the foreign direct investment (FDI) restrictions. By now, many countries have extended the benefits available for domestic exporters to foreign investors. As a result, FDIs in these economies have increased steadily over the years (Gupta & Jaiswal, 2017; Nguyen, 2022). Developing countries like India offer much direct support in the form of automatic route with lesser investment clearance procedures and tax concessions to foreign investors intending to enhance the inward flow of FDI. In addition, foreign investors receive State and Central government support in aspects like land acquisition, land use clearance, and other regulatory issues. The establishment of export-oriented units, sector-specific industrial parks, and special economic zones proves the government's intention to create the infrastructure necessary for export business. Importantly, FDI into these special economic zones is entirely unrestricted (Reserve Bank of India, 2020).

The critical rationale behind providing so many incentives to foreign investors is that FDI can encourage capital accumulation. FDI positively impacts local industries through knowledge and productivity spillovers,

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leading to faster gross domestic product growth (GDP) growth (Kappi et al., 2021; Tabassum & Pande, 2021). Few economists do not support this logic. They think FDI inadvertently creates pressure on the scarcely available local resources, such as human resources, raw materials, and credit facilities, that ultimately crowd out investment and other resources from domestic sources. Furthermore, there is a myth that knowledge spillovers are rarely attainable, as unskilled workers cannot learn from multinationals. So, these unskilled workers cannot start businesses using backward technology.

Nevertheless, it should also be noted that many MNCs employ a very well-qualified and talented workforce. Those in high-profile positions in MNCs predominantly start new ventures. So, this myth is busted (Prashantham & Kumar, 2019). Thus, MNCs believe their lower marginal costs from firm-specific advantages may force domestic companies into oblivion. Some of the studies support this argument. Competition from foreign firms can decrease domestic productivity to a greater extent by reducing innovation and employee motivation. The damage pronounces well in the MSME and informal sector as the companies that fall in this category neither have the size nor the wherewithal to fight foreign business giants. There are concerns with FDI, and it is not a panacea to all the economic problems of the host country. The FDI comes with a business proposition and profit motive.

Besides a countable number of such results, most of the studies have proven the positive impact of FDI on the economic development of developing countries. Wealthier countries are educated, more open, have better-developed financial systems, and have political leverage in international politics to reap more benefits from FDI. As a result, policymakers started believing that FDI is a panacea for most of their economic problems. As a result, deregulation has become the norm in most developing countries. These policy initiatives provided new impetus to the growth of many economies, especially the developing economies in the world (Mukhtarov et al., 2019). As foreign money flowed into non-traditional export sectors, diversification in the Indian economy has become possible and much more noticeable. The sectors that could not attract private money benefitted hugely from FDI inflows (Muzurura et al., 2014).

In today's globalized era, multinational corporations (MNCs) move from developed nations to developing nations for business. Business giants from developing and transition economies also spread their wings in other markets to capture market, money, resources, and technology. The fact that is worth everybody's attention is that a massive volume of money as FDI has moved from developed countries into emerging economies like China, South Africa, Brazil, and India. For several decades, FDI has been a significant source of capital aggregation for transition economies (Ergano & Rambabu, 2020). Many such economies are increasingly dependent on foreign capital for economic development. Thus, the governments in these countries work on a war footing and meticulously plan their FDI policies, ensuring all the barriers and constraints to foreign investment are eliminated and the foreign capital flows are directed into such sectors that are pivotal to the economy.

Even though there is hype about the role of FDI in improving the recipient countries' gross national income (GNI), the economics literature has little evidence to prove its causal relationship. Therefore, this study focuses on the long-term causal relationship between foreign direct investment (FDI), exports, and GNI.

This research tries to address the above research gap by seeking answers to the research questions stated below:

- ***RQ1 :*** Is there a causal relationship between inward FDI, exports, and GNI of India?
- ***RQ2 :*** What is the trend of inward FDI, exports, and GNI?
- ***RQ3 :*** Is there any variation in trends of inward FDI, exports, and GNI during pre and post-liberalization periods?

This study is unique since past studies analyzed the causality between FDI and GDP, but this study examines the causality between FDI and GNI. Therefore, the GNI is considered an appropriate measure of the economic

well-being of citizens. The results of this research will provide indented support to the policymakers to frame appropriate policy measures for attracting FDI.

Literature Review

FDI is an essential contributor to the economic progress of all nations around the globe in general and emerging economies in particular. Pegkas (2015) argued that developing and transition economies show a positive inclination to FDI as they consider it a boon for economic growth. The governments in these economies would like to extract more economic mileage by leveraging the foreign capital they receive yearly. In the short run, inward FDI tremendously improved the host country's balance of payments (BoP). Kaur and Vij (2020) showed a long-run causal relationship between FDI inflows and the political stability of countries around the world. So, expectedly, many studies found that FDI was viewed and welcomed by developing countries as the catalyst of the economic engine for its contribution to the growth of critical sectors like defense and engineering (Singh et al., 2020).

Many economists believe that FDI inflows positively impact the economic performance of the host country (Deepti & Rawat, 2015; Mathad & Kumar, 2019; Syzdykova et al., 2019). Azhar and Marimuthu (2012) revealed the positive role of FDI in India's economic development, especially during the economic slowdown. Every study examining the impact of FDI on the economy's progress reinforced the results of every other similar study by reiterating the utility of inward FDI to economic growth (Bhatt, 2015; Kwon & Koh, 2019; Tang et al., 2008). FDI inflows improved financial flexibility for countries like India. Many cash-starved countries used FDI to divert their domestic money to core sectors like education, healthcare, transportation, and other primary infrastructure sectors (Banga, 2006).

India's reform measures were undertaken in industrial, financial, and trade sectors starting from the 1990s. One of the noticeable aspects of these reforms was the change in the attitude of states (regional governments). The state governments, which showed indifference to foreign capital, now compete to attract a significant share of FDI coming into India, though the policy hurdles are not entirely wiped out (Deepti & Rawat, 2015). Until now, many sectors that domestic entrepreneurs neglected received the attention of foreign investors and thereby encouraged local entrepreneurs to follow suit (Ibrahim & Muthusamy, 2014). Inward FDI flows favorably led to higher GDP per capita and industrial productivity in developing and transition economies (Wang, 2010). Syzdykova et al. (2019) pointed out that Kazakhstan, a developing economy like India, started its reform initiative earnestly just after its independence and provided incentives to foreign investments as a part of the reform measures. The focus on attracting foreign investment proved beneficial to Kazakhstan.

Moreover, according to the neoclassical growth model, FDI increased the quantity of total investment. Extant research studies examined various types of spillover benefits of FDI. One study discussed spillovers elaborately using endogenous growth models to prove how FDI fuelled the technical and knowledge skills spillover from developed economies to various sectors in the host country. These spillovers pressure domestic companies to be world-class and not the local class. The pressure on domestic companies was multi-fold. As a result of the changing business dynamics of inward FDI, domestic companies enhanced their organizational practices, improved their managerial capabilities, focused on their R&D, and were competitive in the international market. Tripti and Bandyopadhyay (2017) proved the existence of a causal relationship between macroeconomic factors such as imports, exports, GNI, the world's income, and the exchange rate.

Developing and transition economies are the most populous countries in the world. They are endowed with more labor or natural resources rather than capital and other factors of production (know-how). These labor-abundant countries face the perennial problem of unemployment and underemployment. For such countries, FDI is a significant source of direct and indirect employment in the host country (Lipsey et al., 2013; Waldkirch

et al., 2009). FDI acts as a vital substitute for international trade wherever there are trade barriers. Countries worried about imports find it comfortable to allow the free movement of factors of production, including foreign capital (Babu, 2018). Sothan (2017) highlighted that multinational companies acted as vehicles for the vast chunk of foreign investment into developing countries. FDI provides many other benefits to recipient countries (Ramamurthi et al., 2021). FDI complements domestic investments (Tang et al., 2008) by transferring global technology to the host country and business externalities through restructuring and external focus (Brooks et al., 2008).

Besides these tremendous benefits, there are some grey areas in encouraging inward FDI. Foreign investment flows into countries with either short-term or long-term motives. Also, this money chases only those sectors that are hot and profitable. In this melee, the least profitable sectors, like agriculture, do not get their rightful share of FDI. As a result, inequality among various sectors increases, and unskilled agricultural laborers lose out in competition with other semi-skilled and skilled laborers in other sectors. FDI is also one of the reasons for the fast depletion of natural resources and contamination of natural resources (Acharyya, 2009; Wang et al., 2020). Also, Mukhtarov et al. (2019) confirmed that the FDI is one of the most significant contributors to the increase in imports of the host country as MNCs require specific raw materials and machines that could be made available only by imports.

According to many research studies, FDI directly affects exports of the host countries (Vogiatzoglou & Nguyen, 2016). Nevertheless, a close observation highlights the subtle issues in attracting foreign capital as an export promotion tool. The impact of FDI on exports is not uniform across industries, and they vary significantly based on the source of such FDI (Banga, 2006). Foreign investment comes with a motive. According to Bhatt (2013), the motives may be categorized into access to the market, access to resources, and access to efficient technology. If the motive is only to capture the local market, the FDI will not contribute to the export growth of the host country.

Sultan (2013) highlighted that there is no convincing proof of the utility of FDI as an export promotion tool. If the FDI investment aims at capturing a substantial overseas market that could not be otherwise captured due to the restrictions on imports by the host country in the form of substantial tariff barriers, then FDI would not increase the export of the host country. Goswami and Saikia (2012) pointed out that many East Asian countries benefitted from the massive FDI inflows. FDI brings capital and the investor's technical and administrative expertise (Ibrahim & Muthusamy, 2014). FDI strongly influences the competitive performance of various sectors in the host country. Babu (2018) showed that superior technology transfer enabled the host country to attain a better position in production technology. The growth of local industries led to increased exports and higher foreign exchange realization for the host country. If the country can earn more foreign exchange revenue through exports, the strain on the balance of payments gets mitigated.

Export sector-focused FDI received by the host country is a major contributor to production capacity expansion, thereby achieving economies of scale in the production of various commodities (Muzurura et al., 2014). Mitic and Ivić (2016) pointed out that transition and developing countries are the biggest recipients of foreign investment. It denotes that the money flow was mostly from developed to developing and transition countries. Mukhtarov et al. (2019) argued that MNCs entering new markets brought many benefits to the host country. MNCs leveraged their balance sheets to access low-interest sources of finance, and this money was routed to expanding the production facilities in host countries. These expansions in production enabled them to achieve economies of scale, thereby becoming internationally competitive. Thus, the cost advantage derived by MNCs became the prime source of increase in the export of host countries.

The companies in the host country got an opportunity to learn the business and trade behavior of foreign multinationals as they slowly but steadily entered these foreign markets (Banga, 2006). Many studies found strong evidence of the positive role of FDI in enhancing the export competitiveness of the host country (Bhatt, 2013).

Kutan and Vukšić (2007) noted that FDI contributed to higher exports of host countries even though the domestic exporters also indirectly benefited from the inward FDI. FDI significantly contributed to India's improved export sector performance (Prasanna, 2010). Lakshmanasamy (2022) argued that several factors positively influenced India's economic performance.

The gross national product is an essential indicator of economic development, which economists around the globe have used to gauge the economic growth of the citizens of a country (Simonis, 2011). Studies showed that the GNP was positively related to exports (Semančíková, 2016). GNI in many countries has replaced the GNP. GNI is considered the better measure of the economic status of citizens of a country. Notably, the measure of GNI per capita reflects the standard of living of people comparably across economies. Therefore, one has to approach the cointegration analysis with caution when finding out the correlation of FDI with national income. One of the crucial impediments in analyzing the correlation of FDI with GDP or GNI is the problem of fixing time lag. It is challenging to gauge the effect of FDI delay in inducing or adding up to economic growth. Also, the time lag will differ for different countries; so, assuming a constant value for the time lag may not be helpful in correctly identifying the impact of FDI on economic growth (Mitic & Ivić, 2016).

Materials and Methods

The study's primary objective is to examine the causality between India's FDI (net inflows), exports, and GNI (Atlas method). This study is conducted based on the time-series data sourced from the database of the World Bank (Published on December 12, 2020). The study covers panel data for five decades, from 1970 – 2019. The study uses time-series-based econometric analysis through EViews software. The study employs the Granger causality test and Johansen's cointegration test to identify the causality, direction, and long-run equilibrium relationship. The study also analyzes the FDI, GNI, and exports trend during the pre and post-liberalized era using the independent samples *t*-test.

Empirical Analysis and Results

This section consists of the trend analysis of FDI, GNI, and exports for 1970 – 2019, as this period includes the pre and post-liberalization era. Thus, Johansen's cointegration test and Granger causality were applied to determine the long-run equilibrium relationship and causal relationship between FDI, GNI, and exports.

The Trend of FDI, GNI, and Exports for the Period from 1970 – 2019

Foreign capital, especially FDI, is crucial in supporting domestic sources of capital in economies where the domestic capital is inadequate for the growing demands. FDI plays an imperious role in providing new-found impetus to the growth and development of emerging economies like India. Table 1 and Figure 1 present India's FDI, GNI, and exports for 50 years, from 1970 – 2019.

Table 1. ***FDI, GNI, and Exports for the Period of 1970 – 2019***

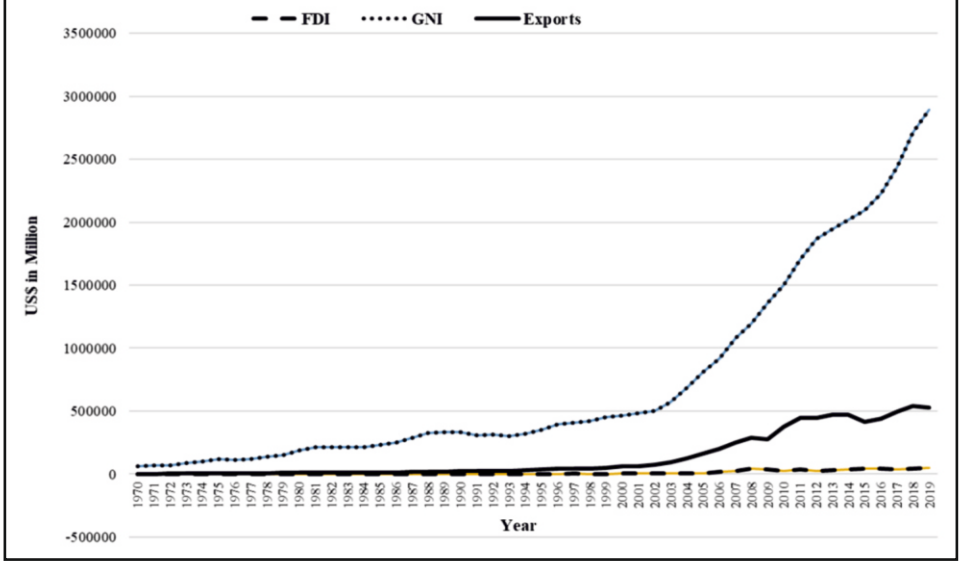
(US$ in million)

Year	FDI	GNI	Exports	Year	FDI	GNI	Exports
1970	45.46	63879.49	2361.33	1995	2143.63	354316.69	39068.86
1971	47.66	67629.47	2469.90	1996	2426.06	395271.25	40803.02
1972	17.79	71807.50	2878.17	1997	3577.33	409899.61	44459.25

1973	37.91	85739.09	3599.14	1998	2634.65	420153.30	46426.48
1974	56.97	102230.29	4808.42	1999	2168.59	454396.97	52544.41
1975	–10.33	118282.72	5560.82	2000	3584.22	467082.16	60878.40
1976	–7.71	115091.13	6868.20	2001	5128.09	485442.59	60963.53
1977	–36.06	121037.70	7754.74	2002	5208.97	500197.98	73452.73
1978	18.09	138152.46	8670.27	2003	3681.98	573893.14	90838.37
1979	48.57	152445.42	10326.38	2004	5429.25	687282.16	126647.72
1980	79.16	188583.01	11439.54	2005	7269.41	809085.09	160837.84
1981	91.92	210991.10	11485.65	2006	20029.12	916983.75	199973.92
1982	72.08	210368.65	12009.39	2007	25227.74	1081966.70	253077.32
1983	5.64	212449.38	12741.34	2008	43406.28	1195030.84	288902.15
1984	19.24	215868.74	13330.75	2009	35581.37	1358351.43	273751.84
1985	106.09	229292.23	12217.46	2010	27396.89	1505735.41	375353.47
1986	117.73	250405.92	12937.86	2011	36498.65	1704431.80	447383.95
1987	212.32	287582.80	15638.66	2012	23995.69	1870994.29	448400.54
1988	91.25	329150.40	17899.80	2013	28153.03	1941116.41	472180.43
1989	252.10	332774.15	20770.72	2014	34576.64	2020999.04	468346.04
1990	236.69	334591.61	22639.77	2015	44009.49	2097598.58	416787.83
1991	73.54	308580.88	22943.40	2016	44458.57	2226423.52	439642.79
1992	276.51	312509.84	25486.06	2017	39966.09	2443886.18	498258.56
1993	550.37	300633.05	27466.58	2018	42117.45	2713849.40	538635.20
1994	973.27	322746.41	32361.29	2019	50610.65	2893205.30	528297.77
				CAGR (%)	**15.06**	**7.92**	**11.43**

Source : The World Bank (2020).

Figure 1. ***Growth of FDI, GNI, and Exports in India***



FDI inflows in India were USD 45.46 million in 1970, USD 276.51 billion in 1992, and USD 50610.65 million in 2019. The CAGR for FDI between 1970 and 2019 was 15.06%. However, the flow of FDI in India fluctuated during the study period. India's GNI was USD 63879.49 million in 1970, reaching USD 334591.61 billion in 1990, and USD 2893205.30 million in 2019. The GNI showed an upward trend over the study period except between 1991– 94. The CAGR for GNI between 1970 and 2019 was 7.92%. India's exports were USD 2361.33 million in 1970, USD 22943.40 billion in 1991, and USD 528297.77 million in 2019. India's exports gradually increased until 2013; they decreased slightly between 2014 – 2016, only to be restored to their existing northward trend from 2017 onwards. The CAGR for GNI between 1970 and 2019 was 11.43%.

The Trend of FDI, GNI, and Exports in the Pre - and Post-Liberalization Eras : A Comparison

The structural reform measures initiated in India in 1991 drastically changed the country's economic outlook compared to other emerging economies. The opening up of the economy through liberalization, privatization, and globalization, fondly called LPG measures, ensured the smooth transition from a closed economy into a market-based economy. So, this section endeavors to analyze India's FDI, GNI, and exports during the pre and post-liberalization periods.

Table 2 indicates a substantial variation between pre and post-liberalized eras in the case of FDI, GNI, and exports since its *t*-test values are significant at a 5% level. The mean value indicates India's highest flow of FDI during the post-liberalized era. The CAGR for FDI between the pre-liberalized era (1970 – 1990) and the post-liberalized era (1991–2019) was 8.17% and 25.27%, respectively. It indicates a three-fold increase in the flow of FDI in India during the post-reform period. It is because India started attracting huge FDI across industries from various parts of the globe after the liberalization of the economy.

Interestingly, the GNI slightly decreased during the post-liberalized era. The CAGR for GNI during the pre and post-liberalized era stood at 8.20% and 8.02%, respectively. On the other hand, India's exports also slightly increased during the post-liberalized era. The CAGR for exports during the pre and post-liberalized eras was 11.36% and 11.42%, respectively.

Causality Between FDI, GNI, and Exports

This study adopts the time series analysis technique to examine the causality between India's FDI (net inflows), GNI (Atlas method), and exports. First, the stationarity of data was checked using the unit root test of the Augmented Dickey – Fuller (ADF) and Phillips – Perron (PP) tests. Then, the long-run relationship among the variables was ascertained by using the Johansen cointegration test. Furthermore, the Granger causality test was applied to identify the relationship among the variables.

Table 2. ***Variation in the FDI, GNI, and Exports in Pre and Post-Liberalized Eras***

Constructs	Era	$\bar{x}$	σ	*t*	Sig.	CAGR (%)
FDI	Pre	71.5510	78.864	–5.653	.000	8.17
	Post	18660.467	17708.606			25.27
GNI	Pre	182778.727	89257.509	–6.108	.000	8.20
	Post	1130071.164	828530.050			8.02
Exports	Pre	10400.396	5818.965	–6.061	.000	11.36
	Post	226005.853	191432.135			11.42

Table 3 divulges the descriptive statistics for the variables included in the study: FDI, GNI, and exports. The mean values of FDI, GNI, and exports are 10853.120, 732208.3, and 135451.6, respectively. These mean values are positive. The GNI has a higher standard deviation than FDI and exports, which supports the general assumption that GNI is highly volatile. Skewness for all the variables is positive and greater than 1. It denotes that the tail is on the right side, and the distribution is highly skewed. The kurtosis values for FDI and exports are 2.818 and 2.704, respectively. These values are <3. So, it is called platykurtic. The kurtosis value of GNI is leptokurtic since its value is 3.522 (>3). The Jarque – Bera statistics confirm the normal distribution of data.

Table 4 delineates the results of the unit root test. The ADF test was applied for each variable in the model to ascertain the relevancy of independent variables. FDI is stationary at level 1(0). GNI and exports are not stationary at level 1(0) and the first difference 1(1) but become stationary at the second difference 1(2). The PP test indicates that all the variables are not stationary at level 1(0). FDI and exports are stationary at first difference 1(1). GNI is stationary at second difference 1(2). The unit root tests prove that the FDI, GNI, and exports are integrated, and the time series data chosen in the study were good enough to apply the cointegration test.

Table 3. ***Descriptive Statistics of Variables***

	FDI	GNI	Exports
Mean	10853.120	732208.3	135451.6
Median	1558.450	344454.2	35715.08
Maximum	50610.65	2893205.0	538635.2
Minimum	–36.060	63879.49	2361.330
Std. Dev. *(SD)*	16281.67	786495.1	180304.1
Skewness	1.209	1.342	1.164
Kurtosis	2.818	3.522	2.704
Jarque–Bera	12.241	15.568	11.48
Probability	0.002	0.000	0.003
Sum	542656.1	36610417	6772578
Sum Sq. Dev.	1.30	3.03	1.59

Table 4. ***Results of Unit-Root Test***

Augmented Dickey – Fuller (ADF) Test			
Variable	**Level**	**1st Difference**	**2nd Difference**
FDI	–4.989 (0.0002)	–7.119 (0.0000)	–0.951 (0.7601)
GNI	2.290 (0.9999)	–1.380 (0.5840)	–6.694 (0.0000)
Exports	3.958 (1.0000)	–0.756 (0.8201)	–3.617 (0.0100)
Phillips – Perron (PP) Test			
FDI	0.640 (0.9895)	–7.119 (0.0000)	–26.799 (0.0001)
GNI	6.837 (1.0000)	–1.014 (0.7410)	–7.578 (0.0000)
Exports	1.625 (0.9994)	–4.709 (0.0004)	–13.28 (0.0000)

The appropriate lag length has been ascertained based on a VAR model with initial data before estimating a long-term equilibrium relationship between FDI, GNI, and exports using the cointegration test. Table 5 exhibits the results of the lag length selection for the VAR. This model has drawn a maximum of 3 lags. Based on the results obtained for the criteria sequential modified LR test statistic (LR), Akaike information criterion (AIC), final prediction error (FPE), Schwarz information criterion (SC), and Hannan – Quinn information criterion (HQ), a 3-year lag was chosen as suitable for this study.

Table 6 presents Johansen's cointegration test for static variables. Trace statistics and Max Eigen have been used to test the cointegration among FDI, GNI, and exports. Both tests have identified two cointegrating vectors. This result proves that a long-run equilibrium relationship is found between the FDI, GNI, and exports. However,

Table 5. ***Lag Order Selection Using VAR***

Lag	LogL	LR	FPE	AIC	SC	HQ
0	–1724.059	NA	1.66e+28	73.49186	73.60995	73.53630
1	–1545.320	327.0528	1.21e+25	66.26896	66.74133	66.44672
2	–1508.593	62.51559	3.74e+24	65.08905	65.91571	65.40012
3	–1484.293	38.25831*	1.98e+24*	64.43802*	65.61896*	64.88241*

Note. Endogenous variables : FDI, GNI, & Exports.

* indicate lag order selected by the criterion.

Table 6. ***Johansen's Cointegration Test***

Trace Test				
Hypothesized No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value at 0.05**	***p* - value**
None*	0.479312	60.98694	29.79707	0.0000
At most 1*	0.452562	29.66191	15.49471	0.0002
At most 2	0.015331	0.741596	3.841466	0.3891
Maximum Eigenvalue				
None*	0.479312	31.32502	21.13162	0.0013
At most 1*	0.452562	28.92032	14.26460	0.0001
At most 2	0.015331	0.741596	3.841466	0.3891

Note. * denotes rejection of the hypothesis at the 0.05 level.

Table 7. ***Results of the Granger Causality Test***

Null Hypotheses	***F* - Statistic**	***p* - value**	**Decision**
FDI has not Granger caused GNI	4.41356	0.0181	Reject
GNI has not Granger caused FDI	7.51160	0.0016	Reject
FDI has not Granger caused Exports	17.6251	0.0000	Reject
Exports have not Granger caused FDI	7.52153	0.0016	Reject
GNI has not Granger caused Exports	4.28942	0.0200	Reject
Exports have not Granger caused GNI	5.05345	0.0107	Reject

these test results have not indicated the nature of the relationship. So, the Granger causality has been applied to determine the direction of the relationship among all three variables.

The results of the Granger causality test in Table 7 divulge a causal bidirectional relationship between FDI and GNI, FDI and exports, and GNI and exports since their probability values are significant at the 0.05 level. So, the results from this analysis do not support any of the above hypotheses.

Discussion

In India, the flow of FDI substantially increased during the post-liberalized era. Due to liberalization, India is currently the world's fifth-largest and second-speediest growing economy among the major economies (The World Bank, 2020). The results from this study indicate that the economic reform measures initiated in the year 1991 made a significant impact on the FDI inflows in India. This result is in line with the findings of Khan (2014), Masharu and Nasir (2018), Syzdykova et al. (2019), and Merajothu (2020). This study reaffirms that FDI influences India's GNI and exports.

It is also found that the FDI has a bidirectional causal effect on GNI. This causal relationship implies that FDI has impacted GNI. The same result is reported by Simonis (2011) and Mitic and Ivić (2016). Hence, this positive relationship indicates that FDI positively influences the income of a nation's people and businesses. In other words, it indicates that the citizens of India have benefitted from FDI inflows. This finding shatters the myth that FDI benefits foreign investors. It is proven beyond doubt that Indian companies and people benefitted from FDI inflows. Also, the causal bidirectional relationship shows that GNI influences the FDI inflows. This finding justifies the assumption that a massive market in India is one of the determining factors for foreign investors when making their investment decisions in the Indian market.

The study observes a bidirectional causality relationship between FDI and exports. Therefore, it can be inferred that FDI has had a long-term positive influence on exports and vice-versa. This result is supported by several previous studies carried out by Tekin (2012), Sultan (2013), Vogiatzoglou and Nguyen (2016), Popovici and Călin (2016), Babu (2018), Muzurura et al. (2014), Mukhtarov et al. (2019), and Fadol (2020). So, the Indian government providing incentives and other benefits to foreign investors to attract FDI to boost the export sector is well justified.

The study also highlights that the causality between GNI and exports is bidirectional. It implies that exports influenced the income of Indian citizens and businesses and vice-versa. This result corroborates with the results of an earlier study conducted by Semančíková (2016). As the income of the country's citizens increases, they tend to trade more, as international trade benefits all the parties engaged in it.

Theoretical Implications

This research unearths the causality between FDI, exports, and GNI of India. Previous studies have focused on identifying the causal relationship between various macroeconomic factors. Exchange rate, inflation, GDP, exports, and FDI are some of the significant variables repeatedly analyzed to determine the long-run relationship between them. Though the GNI is the most relevant parameter to gauge the development of citizens of an economy, it was not neglected by researchers in the past. So, to further extend the research on the causal relationship between macroeconomic variables, this study rightly chose variables such as FDI, exports, and GNI. First, it identifies the positive effect of economic reforms on attracting more FDI by India. Second, this study reveals that FDI and GNI have a causal relationship bidirectionally, which implies that FDI benefits foreign investors and local citizens. Third, our study is original in identifying the long-run equilibrium relationship between FDI, exports, and GNI.

Managerial Implications

The findings of this research have manifold implications for foreign investors and export-oriented business organizations across the globe. We suggest readers pay attention to three critical managerial implications. First, exporters can use the study findings to decide on exporting as a foreign market entry strategy and attracting FDI as a source of fundraising for expansion. Second, due to the bidirectional causal relationship between FDI and GNI, foreign direct investments into India shall be done only long-term and will be more beneficial only during the uptrend in GNI. Third, this study highlights the positive impact of economic reforms in the form of higher FDI inflows. Hence, policymakers must continue framing policies that reduce barriers to investment and trade.

Conclusion

Emerging and transient economies crave foreign capital to develop their domestic economy. Foreign capital includes foreign portfolio investment and foreign direct investment. Among these two, the FDI is the most preferred form of investment for fast-growing economies as it is considered a long-term investment. In contrast, foreign portfolio investments are prone to fly-by-night operations. This study aims to determine the long-run causal relationship between FDI, GNI, and exports of India during the span of five decades covering 1970 – 2019. The study results of the cointegration test prove the existence of a long-run equilibrium relationship among these variables. The Granger causality test results indicate a bi-directional relationship between FDI, GNI, and exports. This study recommends continuing to provide tax and other non-financial benefits to foreign investors as FDI directly affects the GNI and exports. Attracting FDI can be one of the policy measures of export promotion due to its bidirectional causal relationship. Promoting Brand India by highlighting the vast market is also recommended because it is found that GNI also has a role in attracting FDI and export performance of India. It is concluded that among emerging economies, India has tremendously benefitted from inward FDI, and the economic reform measures have hugely contributed to the well-being of the citizens of India.

Limitations of the Study and Suggestions for Future Research

This research has a few limitations. First, this study has considered only three variables: FDI, GNI, and exports. The other macroeconomic variables, that is, inflation, interest rate, country image, exchange rate, commodities prices, taste, and preferences of people and beliefs, also strongly affect the above three variables chosen in this study. Hence, the inference on the results needs to be done keeping the above points in mind. Also, the results of this study may extend to only those countries that exhibit similar economic and other characteristics. So, we suggest that researchers in the future extend this research by including more variables in different economies to reveal hidden long-run equilibrium relationships between them.

Authors' Contribution

Dr. G. Yoganandan: Writing – original draft, visualization, validation, supervision, software, resources, project administration, methodology, investigation, funding acquisition, formal analysis, data curation, conceptualization.

Dr. M. Vasan: Data curation, formal analysis, investigation, methodology, software, validation, writing – original draft, writing – review & editing.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this manuscript.

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