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TRIANGULAR DYNAMIC CAUSAL RELATIONSHIPS OF EXPORTS, FDI AND EXCHANGE RATE: THE INDIA-US CASE

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Abstract

This study examines a dynamic triangular relationship among FDI, exports and exchange rate in the India-US bilateral context using quarterly nominal data from 1993 through 2012. DF-GLS, Ng-Perron and KPSS tests confirm nonstationarity in each variable with I(1) behavior. Both λ_{trace} *and* λ_{max} *tests confirm cointegration among the variables. Vector error-correction models depict long-run causal flows with net-positive interactive short-run feedback effects.*

Keywords: *Cointegration, Error-Correction, Feedbacks, Long-run, Short-run*

JEL Classification Code: *F10, F30*

I. INTRODUCTION

India introduced economic reforms in 1991 that broadly changed the course of the Indian economy and led to its increasing integration with the rest of the world. The resulting higher FDI inflows and trade flows accelerated economic growth in India. The India-US economic relationship has been expanding since 1991. The USA is the largest trading partner of India, although the bilateral trade volume is still fairly small as compared to US trade with South Korea. The USA is one of the largest foreign direct investors in India. The US FDI inflows into India constitute around 10 percent of total actual FDI received by India.

India emphasizes export-led growth and the role of foreign direct investment to spur economic growth, as reflected in sequels of trade liberalization and incentive measures. Both are interconnected and linked to changes in exchange rate. The changes in them also influence the exchange rate movement and vice versa. Exports and FDI are seemingly positively correlated. In sum, the dynamic relationship among these three variables in an increasingly opening economy is very important and triangular as each variable is a cause and effect. Today, India is the second fastest growing economy and the USA is the largest economy in the world. So, their

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bilateral economic relationship in the above triangular context merits an in-depth empirical investigation.

India has been an attractive FDI destination ranking itself second from top only after China in terms of the 2012 FDI confidence index. The major attracting factors include large population of aboutover 1.2 billion, cheaper labor force, high-tech talents, expanding middle class, political stability and English language advantage. A primary reason for India being an emerging economic powerhouse is often related to the role of FDI. India has been ranked in rotating top second and third positions on the A.T. Kearney index of globalization since 2004.

To add further, India received large FDI inflows as a major contributor to its robust domestic economic growth. The attractiveness of India as a preferred investment destination could be ascertained from the large increase in FDI inflows to India reflected the impact of liberalization of the economy since the early 1990s as well as gradual opening up of the capital account. As part of the capital account liberalization, FDI was gradually allowed in almost all sectors, except a few on grounds of strategic importance, subject to compliance of sector-specific rules and regulations. The large and stable FDI flows also increasingly helped finance the current account deficit over the period. During the recent global crisis, when there was a significant deceleration in global FDI flows during 2009-10, the decline in FDI flows to India was relatively moderate.Gross FDI equity inflows to India moderated to US$ 20.3 billion during 2010-12 from US$ 27.1 billion in the preceding year due to global recession.

For India, exports generate the foreign exchange required to finance the import of goods and services; to obtain economies of specialization, scale and scope in production; and to learn from the experience in export markets. Export success can serve as a measure for the competitiveness of India's industries. The comparative advantage still lies in primary commodities and unskilled-labor-intensive manufactures. India needs to upgrade its primary and labor-intensive exports more into higher value-added items, and has to move into new andmore advanced export-oriented activities. However, India has been gradually moving in this direction by attracting FDI into export activities and upgrading these activities over time.

India found in FDI a potential non-debt creating source of finance and a bundle of assets, *viz*., capital, technology, foreign market access, employment, skills, management techniques, and environment for cleaner practices. They could mitigate the problems of low income growth through higher saving, investments, and exports. FDI inflows would also help India in the expansion of production and trade, and increase opportunities to enhance the benefits that could be drawn from greater integration with the world economy. In other words, FDI would broaden the opportunities for India to participate in international specialization and other gains from trade. Besides FDI, export orientation has also been hailed as an engine of growth.

Rapidly expanding trade and commerce strengthen the multi-pronged India-US relationship. The bilateral trade rose sharply from a modest amount of $5.6 billion in 1990 to $62.9 billion in 2012 recording an impressive 1023.2 percent growth in a span of 22 years. India's major export items to USA consist of textiles, precious stones and metals, pharmaceutical products, organic chemicals, mineral fuel, machinery, iron and steel products and electrical machinery. US major export items to India include precious stones and metals, machinery, aircraft and spacecraft, electrical machinery, optical instruments and equipment, miscellaneous chemical products, organic chemicals and mineral fuel, oil, etc. India moved up from 25th position to 12th position as one of the largest trading partners of the USA due to an astounding quadrupling of bilateral trade since 2000. However, India's trade deficit with USA has been huge and expanding.

The Rupee-Dollar exchange rate is an important indicator of investor sentiment and can significantly impact exports. Overall, the exchange rate was stable for 2006-2011. During 2012, Rupee started weakening against US dollar and got even worse toward the end with enormous downside risk. The trends in US FDI to India, Rupee-Dollar exchange rate and India's exports to USA are depicted in Appendix-A.

The sole focus of this empirical study is to explore the triangular dynamic causal relationships of the aforementioned variables in the India-US context. For time series property of data, possible long-run convergence and causality, and short-run feedback effects, some relatively recent developments in the cointegration methodology are appropriately applied. The remainder of the paper is structured as follows. Section II briefly reviews the related literature. Section III outlines the empirical methodology. Section IV reports empirical results. Section V offers conclusions and policy implications.

II. BRIEF REVIEW OF RELATED LITERATURE

Numerous articles in the existing vast literature on this issue examine bivariate relations either theoretically or empirically between GDP and exports, GDP and FDI, exports and FDI, exports and exchange rate, and FDI and exchange rate. Several papers study individual country examining Granger causality of real GDP, exports and FDI in bivariate contexts. Liu, Burridge, and Sinclair (2002) find bidirectional causality between each pair of real GDP, real exports, and real FDI for China using seasonally adjusted quarterly data from 1981:1 to 1997:4. Kohpaiboon (2003) finds that under export promotion (EP) regime, there is a unidirectional causality from FDI to GDP for Thailand using annual data from 1970 to 1999. Alici and Ucal (2003) find only unidirectional causality from exports to output for Turkey using seasonally unadjusted quarterly data from 1987:1 to 2002.4. For Greece, Dritsaki, Dritsaki and Adamopoulos (2004) find a bidirectional causality between real GDP and real exports, as well as unidirectional causalities from FDI to real exports, and from FDI to real GDP.They use annual IMF data from 1960 to 2002. In addition, Ahmad, Alam, and Butt (2004) find unidirectional causalities from exports to GDP and from FDI to GDP for Pakistan using nominal annual data from 1972 to 2001.

For a group of countries, Nair-Reichert and Weinhold (2000) find that FDI, not exports, causes GDP using data for 24 developing countries from 1971 to 1995.They implement mixed fixed and random models. Makki and Somwaru (2004) find a positive impact of exports and FDI on GDP using World Development Indicators database of 66 developing countries.Sample periods are truncated over ten-year periods: 1971-1980, 1981-1990, and 1991-2000.They apply the instrumental variable method. Cuadros, Orts, and Alguacil (2004) find unidirectional causalities from real FDI and real exports to real GDP in Mexico and Argentina as well as unidirectional causality stemming from real GDP to real exports in Brazil.They employ seasonally adjusted quarterly data for Mexico, Brazil, and Argentina from late 1970s to 2000. In addition, Cho (2005) finds only a strong unidirectional causality from FDI to exports, using annual data for nine countries spanning over 1970 to 2010. Makki and Somwaru (2004) only examine the one-way determinants of FDI rather than the two-way causality linkages between GDP, exports, and FDI.

The direction whether FDI causes exports or exports cause FDI is also a matter of dispute (Petri and Plummer, 1998). The Heckscher-Ohlin theorem in the trade theory indicates that FDI as a factor of production is a substitute rather than a complement of commodity trade. However, the New Trade Theory predicts that FDI and trade are complementary between asymmetric countries and substitute between symmetric countries (Markusen and Venables, 1998). They also depend on whether FDI is market-seeking (substitutes) or efficiency-seeking (complements) as in (Gray, 1998).Trade-orientation or anti-trade-orientation (Kojima, 1973) also determines the above.The early product life-cycle stage (substitute) or the mature stage (Vernon, 1966) too explain the above. The nexuses as stated earlier have been studied separately using methods of correlation, regression, or Granger's bivariate causality tests. The empirical literature on causal relationship between FDI and exchange rate is relatively scant and less emphatic. In brief, Kosteletou and Panagiotis (2000) examine the linkage between FDI flows and exchange rate regimes (ERRs) in a simultaneous equation model for a large sample of industrial countries based on annual data over the 1960-1997 period and establish that for most countries, real exchange rate appreciation associated with flexible ERR induces FDI inflows. Shafer and Loopeska (1983) examine the performance of key macroeconomic variables under different ERRs and find that the ERR microscopically affectsFDI inflows to many LDCs. Alba, Park and Wang (2009) investigate with panel data from the wholesale trade sector model the impact of exchange rate on FDI and the interdependence of FDI overtime in the context of US with the two-state Markov process. They establish that under favourable FDI environment, the exchange rate has a positive and significant effect on the average rate of FDI inflows.

To add further, Greenway *et al.* (2004) and Kneller and Pisu (2007) suggest that Multinational Corporations (MNCs), especially export-oriented ones, appear to generate positive export spillovers and significantly increase the probability of exporting for domestically-owned firms operating in the same industry. Conversely, Barrios et al. (2003) study the case of Spain and find no evidence of export spillovers to local firms from the existing MNCs. Likewise, Ruane and Sutherland (2004) find no evidence of export spillovers from MNCs to local firms in Ireland. Prasanna (2010) finds significant impact of FDI inflows on India's exports and suggests policy reassessment to reap maximum and long-term benefits.

The conceptual complexity of export-exchange rate nexus leads to mixed empirical findings and inconclusive statements. In brief, a currency undervaluation is sometimes found to have a positive impact on exports (e.g. Freund and Pierola 2008, and Berg and Miao, 2010), but the size and persistence of these effects are not consistent across different studies (e.g. Haddad and Pancaro 2010). As Berman *et al.* (2012) highlight, movements of nominal and real exchange rates also tend to have a modest effect on other aggregate variables related to exports such as import prices, consumer prices, and the volumes of imports. The lack of sensitivity of prices to exchange rate movements has been documented by Campa and Goldberg (2005; 2010).

A few studies have considered a trivariate nexus as an interactive and reinforcing system with ultimate implications for economic development. Notably, Won and Hsiao (2008) study FDI-Exports-Economic Growth nexus for panel causality in the context of seven Asian newly industrializing economies (India, Korea, Malaysia, Philippines, Taiwan, Thailand and Singapore) over 1981-2005. They find that FDI has direct unidirectional effect on GDP and also indirectly through exports, exports also cause GDP and there also exists bidirectional causality between exports and GDP for the group.

In general, the causal relations vary for differences in sample periods, econometric methods, treatment of variables (nominal or real), data transformation, one-way or two-way linkages, and the presence of other related variables or inclusion of interaction variables in the estimation equation. The results thus may be bidirectional, unidirectional, or no causality relations. Therefore, it is very important that the assumptions, the treatment of variables, the sample period, estimation models and methods be clearly indicated

III. EMPIRICAL METHODOLOGY

The estimating three base equations are specified as follows:

$$ETUS_t = \alpha_0 + \alpha_1 RPUS_t + \alpha_2 FDID_t + e_t \quad (1)$$

$$RPUS_t = \beta_0 + \beta_1 ETUS_t + \beta_2 FDID_t + u_t \quad (2)$$

$$FDID_t = \pi_0 + \pi_1 RPUS_t + \pi_2 ETUS_t + v_t \quad (3)$$

where, ETUS = India's exports to USA, RPUS = Indian Rupee per US dollar and FDID = India's inward FDI flow from the USA.

To test for unit root (nonstationarity) in the variables, the modified Dickey-Fuller test, the modified Phillips-Perron test (Elliot et al. 1996; Ng and Perron 2001) and their counterpart KPSS (Kwiatkowski, Phillips, Schmidt and Shin 1992) test for no unit root (stationarity) are implemented instead of the standard ADF and PP tests for their high sensitivity to the selection of lag-lengths. It is important to examine the time series properties of variables since an application of the Ordinary Least Squares (OLS) to estimate a model with nonstationary time series data results in the phenomenon of spurious regression (Granger and Newbold, 1974) invaliditating the inferences through the standard t-test and joint F-test (Phillips, 1986). To be cointegrated, variables must possess the same order of integration, i.e., each variable must become stationary on first-order differencing depicting I(1) behavior.

Second, the cointegration procedure, as developed in Johansen (1988, 1992, 1995) and Johansen and Juselius (1990) is implemented that allows interactions in the determination of the relevant macroeconomic variables and being independent of the choice of the endogenous variable. It also allows explicit hypothesis testing of parameter estimates and rank restrictions using likelihood ratio tests. The empirical exposition of the Johansen-Juselius methodology is as follows:

$$\Delta V_t = \tau + \Omega V_{t-1} + \Sigma_{j=1}^{k-1} \Omega_j V_{t-j} + m_t \tag{4}$$

where, V_t denotes a vector of ETUS, RPUS and FDID, and $\Omega = \alpha\beta'$. Here, α is the speed of adjustment matrix and β is the cointegration matrix. Equation (4) is subject to the condition that Ω is less-than-full rank matrix, i.e., r < n. This procedure applies the maximum eigenvalue test ($\lambda_{\max}$) and trace test (λ_{trace}) for null hypotheses on r. Both tests have their trade-offs. λ_{max} test is expected to offer a more reliable inference as compared to λ_{trace} test (Johansen and Juselius, 1990), while λ_{trace} test is preferable to λ_{max} test for higher testing power (Ltkepohl, *et al.*, 2001)). However, the Johansen-Juselius test procedure is also not immune to supersensitivity to the selection of lag-lengths. The optimum lag-lengths are determined by the AIC (Akaike Information Criterion), as developed in Akaike (1969).

Third, on the evidence of cointegrating relationship among the variables, there will exist an error-correction representation (Engle and Granger, 1987). The corresponding vector error-correction models take the following forms:

$$\Delta ETUS_t = \beta_1 e_{t-1} + \Sigma_{i=1}^{k} \phi_i \Delta ETUS_{t-i} + \Sigma_{j=1}^{k} \delta_j \, \Delta RPUS_{t-j} + \Sigma_{j=1}^{k} \psi_j \Delta FDID_{t-j} + e_t' \tag{5}$$

$$\Delta RPUS_t = \vartheta_1 u_{t-1} + \Sigma_{i=1}^{k} \vartheta_{2i} \Delta RPUS_{t-i} + \Sigma_{j=1}^{k} \vartheta_{3j} \Delta ETUS_{t-j} + \Sigma_{j=1}^{k} \vartheta_{4j} \Delta FDID_{t-j} + u_t' \tag{6}$$

$$\Delta FDID_t = \alpha_1 v_{t-1} + \Sigma_{i=1}^{k} \alpha_{2i} \Delta FDID_{t-i} + \Sigma_{j=1}^{k} \alpha_{3j} \Delta ETUS_{t-j} + \Sigma_{j=1}^{k} \alpha_{4j} \Delta RPUS_{t-j} + v_t' \tag{7}$$

Equation (5) corresponds to original equation (1). Here, e_{t-1} is the error-correction term of equation (5). If β_1 is negative and statistically significant in term of the associated t-value, there is evidence of a long-run causal flow to the dependent variable from the relevant explanatory variables. If δ_j's, ϕ_i's, and ψ_j's do not add up to zero, there are short-run interactive feedback relationships in equation (5). Similar analogies apply to VECM (6) and VECM (7) that correspond to equations (2) and (3), respectively.

Again, quarterly data from the first-quarter of 1993 through the final quarter of 2012 are employed. They are obtained from various issues of International Financial Statistics (IMF) and the Reserve Bank of India Website. All variables are in nominal terms. The use of quarterly data may help partially overcome the problem of relatively short period of years for a meaningful cointegration analysis (Zhou, 2001).

IV. EMPIRICAL RESULTS

The usual data descriptors are reported as follows:

Table 1
Descriptive Statistics

	ETUS	*PRUS*	*FDID*
Mean	1136.786	60.08763	2636.236
Median	906.9500	61.30150	1144.500
Std. Dev.	637.2539	8.837899	3238.462
Skewness	0.583369	-0.302206	1.666104
Kurtosis	2.066539	2.189574	4.935109
Jarque-Bera	6.697872	13.066308	44.54476
Probability	0.035122	0.015854	0.000000

As observed in Table 1, mean-to-median ratios depict a lack of some normality in the data distributions for US FDI inflows to India and India's exports to USA excepting the bilateral exchange rate (Rupee per US Dollar). The standard deviation of FDI is relatively very high as compared to that of exports and exchange rate. FDI also shows excess Kurtosis as compared to other two variables. The distribution of exchange rate is slightly skewed to the left while other two variables are skewed to the right. However, the Jarque-Bera statistics confirm normality in the data distribution of each variable for the sample period.

To have a glimpse of the comovement between variables, correlation Table 2 is provided as follows:

Table 2
Correlation

	ETUS	*PRUS*	*FDID*
ETUS	1.000000	0.811452	0.804631
RPUS	0.811452	1.000000	0.651954
FDID	0.804631	0.651954	1.000000

The above Table reveals considerably high positive association between India's exports to USA and US FDI inflow to India. The positive association between bilateral exchange rate and India's exports to USA is almost of the same magnitude. The same between US FDI to India and bilateral exchange rate is relatively moderate. Such comovements between variables in the same direction signify mutually reinforcing interactions within the triangular system.

To ascertain nonstationarity or stationarity of time series variables, DF-GLS, Ng-Perron and KPSS tests are implemented. The first two tests are for unit root (nonstationarity) and the KPSS test is their counterpart for no unit root (stationarity). The above tests results are as follows:

Table 3
Unit Root Tests

Series		*Level*			*First Differences*	
	DF-GLS	*Ng-PERRON*	*KPSS*	*DF-GLS*	*Ng-PERRON*	*KPSS*
ETUS	-1.0342	-1.5302	1.0825	-6.8537	-20.2031	0.1484
RPUS	-0.0667	-0.13099	1.0470	-8.0709	-34.9758	0.0898
FDID	-1.9198	-0.9309	0.7902	-10.7922	-46.5297	0.1727

*The modified Dickley-Fuller (DF-GLS) critical values are -2.653 and -1.954 at 1% and 5% levels of significance, respectively. The Modified Phillips-Perron (Ng-Perron) critical values are -13.00 and -5.70 at 1% and 5% levels of significance, respectively. The KPSS critical values are 0.700 and 0.347 at 1% and 5% levels of significance, respectively.

A close look at Table 3 confirms that all three variables in levels are nonstationary in terms of both DF-GLS and Ng-Perron tests as they fail to reject the null hypothesis of unit root at 5 percent level of significance. The same inference is drawn from the KPSS test since it rejects the null hypothesis of no unit root at the aforementioned level of significance. Moreover, stationarity is restored in each variable on first-differencing displaying I(1) behavior.

Logically, the Johansen-Juselius procedure is implemented. and tests results, as computed, are reported as follows:

Table 4
Cointegration Tests

Trend assumption: Linear deterministic trend (restricted)

Series: ETUS, RPUS and FDID

Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	*Eigenvalue*	*Trace Statistic* (λ_{trace})	*0.05 Critical Value*	*Prob.***
None	0.298162	50.18634	42.91525	0.0080
At most 1*	0.246320	25.95669	25.87211	0.0517
At most 2*	0.086523	16.244332	12.51798	0.0299

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

*denotes rejection of the null hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	*Eigenvalue*	*Trace Statistic (λ_{max})*	*0.05 Critical Value*	*Prob.***
None	0.298162	24.42965	25.82321	0.0755
At most 1*	0.246320	19.51236	19.38704	0.0480
At most 2*	0.086523	16.244332	12.51798	0.0299

Max-eigenvalue test indicates one cointegration at the 0.05 level

*denotes rejection of the null hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table 4 shows that both λ_{trace} and λ_{max} tests clearly reject the null hypothesis of no cointegration since their calculated values are significantly higher than their respective critical values at 5 percent level significance. Thus, the above confirm converging long-run relationships among the three variables under study.

Finally, the estimates of VECMs (5) through (7) are reported as follows:

$$\Delta ETUS_t = +0.1753 e_{t-1} - 0.5312 \Delta ETUS_{t-1} + 0.2276 \Delta ETUS_{t-2} + 36.5670 \Delta RPUS_{t-1}$$

(-2.0737) (-3.7652) (1.7694) (3.5568)

$$+11.3176 \Delta RPUS_{t-2} - 0.0080 \Delta FDID_{t-1} + 0.0224 \Delta FDID_{t-2} \text{ —(5)'}$$

(1.0414) (-0.5841) (1.6807)

$$\bar{R}^2 = 0.6260, F = 17.2612, AIC = 13.0050$$

$$\Delta RPUS_t = -0.0004 u_{t-1} + 0.0019 \Delta RPUS_{t-1} + 0.0015 \Delta RPUS_{t-2} + 0.0628 \Delta ETUS_{t-1}$$

(-0.3520) (1.0672) (0.8807) (0.4771)

$$+0.1487 \Delta ETUS_{t-2} + 0.0003 \Delta FDID_{t-1} - 0.0004 \Delta FDID_{t-2} \text{ — (6)'}$$

(1.0684) (1.4939) (-0.2509)

$$\bar{R}^2 = 0.0284, F = 0.7313, AIC = 4.2893$$

$$\Delta FDID_t = -2.5573 v_{t-1} - 4.2626 \Delta FDID_{t-1} - 3.7139 \Delta FDID_{t-2} + 19.7665 \Delta ETUS_{t-1}$$

(-3.4186) (-3.4144) (-3.2631) (0.2173)

$$+75.8677 \Delta ETUS_{t-2} - 0.0508 \Delta RPUS_{t-1} - 0.0248 \Delta RPUS_{t-2} \text{ —(7)'}$$

(0.7889) (-0.4194) (-0.5216)

$$\bar{R}^2 = 0.1986, F = 3.4067, AIC = 17.3657$$

Equation (5)' that corresponds to VECM(5) reveals considerable long-run causal flow from changes in the lagged-independent variables to the current change in India's exports to USA. This inference is based on the expected negative sign of the coefficient of the error-correction term (e_{t-1}) and its statistical significance in terms of the associated t-value as reported within parenthesis. However, its low numerical value indicates slow pace of adjustment toward long-run equilibrium within the trivariate system. Moreover, the net interactive short-run feedback effect is positive. $\bar{R}^2$ shows that nearly 63 per cent of the current change in the dependent variable is due to the changes in the lagged-independent variables. As expected, the joint F-statistic at 17.2612 confirms overall significance of the estimated VECM (5).

Likewise, equation (6)' corresponds to VECM (6). In this case, the coefficient of the error-correction term (u_{t-1}) has the expected negative sign but it is statistically highly insignificant in terms of the associated t-value. As a result, there is no discernible long-run causal flow to the current change in the bilateral nominal exchange rate from the changes in the lagged-independent variables. The net short-run interactive feedback effect is positive, but statistically highly insignificant in terms of the joint F-statistic. shows that the explanatory power of the estimated regression is quite insignificant.

Finally, equation (7)' corresponds to VECM (7). The long-run causal flow to the current change in FDI is comparatively very strong. This observation is based on the expected negative sign of the coefficient of the error-correction term (v_{t-1}) including its relatively high numerical magnitude and high statistical significance in terms of the associated t-value. However, the net short-run interactive feedback effect is positive. $\bar{R}^2$ explains merely 20 percent of the current change in FDI due to the lagged regressors in first-difference. The F-statistic in this case is moderately high.

V. CONCLUSIONS AND POLICY IMPLICATIONS

In the India-US case, FDI, exports and exchange rate comove quite closely. They are nonstationary in levels revealing I(1) behavior. The variables within the trivariate dynamic system are cointegrated as evidenced by both and tests. The estimates of VECMs portray a clear picture of long-run causal flows and short-run interactive dynamics within the trivariate system. Table 5 summarizes the results of the estimated VECMs (5) through (7) as follows:

Table 5
Summary of the Results

VECM	*Long-Run causal Flow*	*Significance*	*Net Short-Run Feedback*	*Significance*
(5)	Considerable in magnitude	Moderate	Positive	High
(6)	Very marginal	Insignificant	Positive	Negligible
(7)	Strong	Significant	Positive	Moderate

For policy purposes, India should encourage further FDI inflows. Furthermore, FDI should be channeled into export-oriented manufacturing sector. To minimize downside risk of exchange rate instability, prudent monetary policy is imperative.

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Appendix

Figure 1: India's Export to USA and Rupee Dollar Exchange Rate

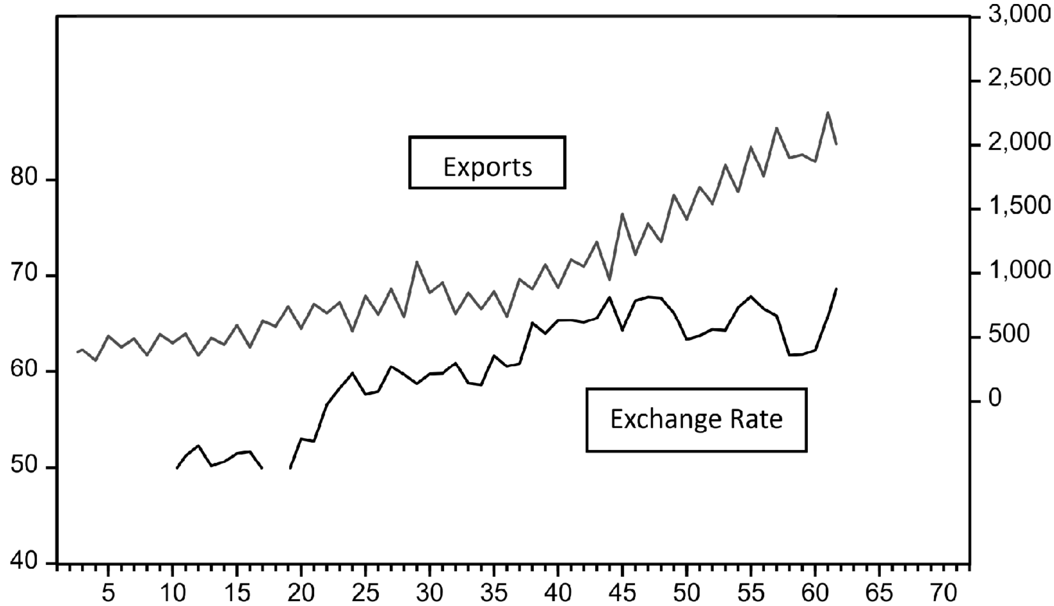

Figure 2: US FDI to India and India's Export to USA