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International Trade and Foreign Direct Investment: Complements or Substitutes? Empirical Evidence for India

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During the second half of the 20th century, the world economy experienced an accelerated pace of globalization. The relationship between international trade and foreign direct investment (FDI) lies at the core of the multidimensional issues of the globalization process which has transformed the structure of trade and the manner in which economic activities are conducted across international borders.

First, since 1980s there has been a rapid rise in FDI, from around US\$ 54.40 billion to an estimated US\$ 1.43 trillion in 2017. This trend is expected to continue. Second, intra-firm trade accounts for an increasing share of world trade, perhaps as much as one-third by the end of the millennium, and the international division of labour is becoming more complex. Third, the organization of multinational firms has also dramatically changed with the emergence of global value chains which have further increased the importance of intra-firm trade flows. In fact, estimates suggest that the sales of foreign affiliates of MNEs exceed the value of world trade in goods and services. The growing globalization of production process associated with a surge in flows of FDI and the rise in growth and prominence of MNEs has drawn attention to the relationship between trade and FDI.

Theoretically, the FDI explanatory approaches and general equilibrium trade models that incorporate horizontal MNEs suggest a substitution relationship. In contrast, general equilibrium trade models that incorporate vertical MNEs suggest a complementary relationship. Trade models that admit both types of MNEs (vertical and horizontal), designated as 'knowledge-capital models', support both the relationship types. However, we cannot determine theoretically whether trade and FDI are complements or substitutes. The nature of the relationship is basically an empirical issue. Factors that may be unobserved such as the organization of firm activity, size and income of host countries, proximity, transport costs and tariffs influence outcomes. Most of the existing empirical work on this topic suggests a complementary relationship, particularly between exports and FDI. However, owing to limited data availability on FDI and activities of MNEs most of the empirical work on this topic has been undertaken for developed countries such as the United States, Sweden and Japan. There is limited literature on this topic for developing countries, such as India, which are increasingly becoming important source and destination countries for FDI.

## Objective

It is in this context that this study attempts to address this gap in the literature by empirically investigating the relationship between trade and FDI for India. The analysis is conducted using dis-aggregate data at the industry-level for 10 selected manufacturing industries that have received a cumulative share of 75 percent of inward FDI in the Indian manufacturing sector over the period 2000-01 to 2014-15. As part of the analysis, we will also investigate the relationship between industry heterogeneity and international trade for the Indian manufacturing sector.

Based on the relevant theoretical and empirical literature, we will develop a model to explain the determinants of industry-level trade flows in India's manufacturing sector. Our model will incorporate industry characteristics (size of the industry, wages paid to all employees in the industry, labor productivity, capital intensity, skill intensity, economies of scale) and industry-wise FDI inflows which have an impact on the pattern and determinants of trade flows.

## Dataset Construction

The main data sources used in the study would be UN-COMTRADE, World Integrated Trade Solution (WITS), World Bank, Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry, Government of India and Annual Survey of Industries (ASI). Industry-wise disaggregated level trade data as per the United Nations' International Standard Industrial Classification of All Economic Activities (ISIC) Revision 3 would be obtained from UN-COMTRADE database from WITS, World Bank. The sector-wise FDI would be obtained from DIPP, Ministry of Commerce and Industry, Government of India. Industries in the Indian manufacturing sector in receipt of FDI inflows are categorized according to the modified sectoral classification provided by the Industries (Development and Regulation) Act (IDR Act), 1951 and published by the DIPP. For constructing all the industry-specific independent variables, we will use data from the Annual Survey of Industries (ASI), which is the most detailed and wide-ranging yearly database on organized manufacturing in India.

In order to maintain the international comparability of data and also the time series of the national data, it is essential that the data compiled as per a particular classification is convertible to the corresponding international classification and also to the corresponding national as well as earlier version of the national classification. In this regard, the study will attempt to develop a harmonized database covering disaggregated industry-level information on trade flows, investment flows and industry characteristics for the 10 selected manufacturing industries. Concordance will be conducted at multiple levels-between DIPP FDI Sectors and NIC classifications; between different NIC classifications; between ISIC Revision 3 and NIC classifications; and between DIPP FDI Sectors and ISIC Revision 3.

To the best of our knowledge, no other study has developed and used such kind of a harmonized database for examining the relationship between trade and investment for the Indian manufacturing sector.

## Policy Prescription

In India, trade and FDI policies have usually been developed separately, time and again been affected by a different set of objectives and goals, and controlled by separate, often loosely related organizations. This historical and organizational separation is not suitable for an economy where trade and FDI are closely interlinked.

The empirical evidence of either a complementary or substitutive relationship between trade and FDI will enable India reformulate its trade and FDI policy in a better and coordinated manner. The main change necessary is not to think of trade policy as merely a means to promote exports, but to look simultaneously at the issues of exports, imports, and FDI. An important element of trade policy is to recognize the inter-linkages outlined above by associating itself with FDI policy. We are hopeful that the empirical examination of the relationship between India's trade and FDI flows would bring about substantial change in the country's current thinking on trade policy.