

# **Working Paper 292**

## **The potential for involving India in regional production networks: Analyzing vertically specialized trade patterns between India and ASEAN**

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## Abstract and Summary

At a time when regional production networks have been resurgent, especially in Asia, why has India's integration in regional markets had not been deeper? Using highly disaggregated trade data and an analysis of industry perspectives based on semi-structured interviews with a sample of firms and industry associations relevant to India's trade with ASEAN, the paper found that despite low volumes, vertically specialized trade has been growing between India and ASEAN. Overall, there is significant potential for deepening India's engagement in ASEAN by expanding intermediates exports in the machinery sector, building on its strong

performance in the chemicals sector by expanding the export of higher value specialty chemicals, and in general attempting to move up the value chain in the parts, components and assembled goods exported in the road vehicles and transport equipment product categories and telecommunications and sound recording equipment segments where network exports (assembled end products) are important. There is tremendous underexploited potential for growth in electronics and related equipment categories (HS 85).

Our field level interviews bore out some of these emerging trends and showed that while East Asia and ASEAN are seen as important destinations for Indian exports, deeper integration is affected by three factors: (i) Indian firms' preoccupation with the large domestic market over exports; (ii) the low value addition in Indian manufacturing which translates into low-value component exports and a high degree of reliance on expensive imports; and (iii) a variety of impediments that add to production costs, such as: sub-optimal scales of production in key intermediate sectors, a near total lack of quality inputs (high quality steel, electronics, quality plastics), precision and high quality tooling, the complete absence of the electronics hardware sector (including semiconductor devices), and a lack of serious R&D or skill development. These structural deficits are compounded by policy costs imposed on firms by the disabling lack of reliable power supply, inadequate infrastructure and logistics, high interest rates and land costs, and an unstable policy environment. Although some firms have found innovative ways to cope, the costs are high.

The broader point is that upgrading within regional production networks requires domestic capability formation. In addition to mitigating supply side bottlenecks and behind the border problems, however, this calls for attention to demand side factors and policy inducements that can ratchet up production quality, standards, deepen collaborative and competitive capabilities and generate learning that can create the conditions for upgrading in an institutional context of production sharing.

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**The potential for involving India in regional production networks:  
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## **1. Introduction**

The rise of value chains and global production networks is a central feature of international trade today. The deepening economic interdependence between globally dispersed firms and workers is reflected in the fragmentation of production and the distribution of value adding activities across global geographies. Consequently trade involves not only an exchange of end products, but of parts and components that go into making them (Feenstra 1998, Gereffi 1994, 1999, Kemeny and Rigby 2010). These patterns of exchange are not easily captured by standard trade models that are based on classical patterns of specialization and comparative advantage. As a result, in recent years, a growing new literature has emerged that focuses on vertically disintegrated trade flows and on intermediates trade to measure the complex ways in which value is added as a product moves along spatially dispersed networks from input stage to distribution (Koopman et. al 2011, Atukhoralala 2010, Sturgeon and Memedovic 2012, Gereffi et. al, 2013, Hummels et al 2001).

These patterns of trade have major implications for industrial policy, for the ways in which nations compete, create jobs and develop. Recent research shows that the fastest growing economies are those that have a complex mix of specializations centred not only on finished products and entire sectors, but on an ‘unbundled’ set of tasks and capabilities that can feed into multiple sectors and multiple products embedded in national as well as global production regimes (Hidalgo and Hausmann 2008, Rodrik and Hausmann 2003, Kemeny and Rigby 2010, Baldwin 2006, Gereffi 1994, 1999). Many have described this as vertically specialized trade or ‘task trade,’ that is associated with the rise in parts and components (P&C) and intraindustry trade rather than final products alone (Kemeny and Rigby 2010, Jiang and Milberg 2012).

It is widely acknowledged that P&C trade has grown much faster than total manufacturing and has played an important role in the expansion of international trade during the last three decades (Feenstra 1998, Gereffi 2011, Millberg and Scholler 2008, Grossman and Rossi-Hansberg 2011). During 1992/3-2006/7, world manufacturing exports increased three-fold from US\$ 2651 billion to US\$ 8892 billion, while world exports of P&C rose five-fold from US\$ 511 billion to US\$ 2405 billion. This resulted in a substantial increase in the share of P&C in total manufacturing exports from around 19 per cent to 27 per cent during the same period (Athukoralala 2010). By 2007, trade in intermediates accounted for nearly 60 per cent of world trade in manufacturing compared to just over 50 per cent in 1990. For services, trade in intermediates stood at nearly 70 per cent in 2007 ((Miroudet et. al 2009, Millberg and Jiang 2012).

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Organizationally, trade fragmentation is anchored in production networks and governed by the global value chains that run across them. Although the development of production networks is a global phenomenon, their growth in East Asia and China has been particularly impressive. The deeply embedded regional trade linkages between partner nations in production networks have enabled the region to maintain a full value sourcing network that has mitigated trade diversion and contributed to regional growth and national industrial development (Medvedev 2012, Liden 1998). In the last two decades East Asia has been one of the fastest growing and dynamic economic regions in the world. Its share in world manufacturing trade increased from about 28 per cent in 1992-93 to 34 per cent in 2006-07 and some economies, such as China, have become leading exporters in the world. A large proportion of East Asian trade in manufactures is intra-regional and this is due largely to the predominance of production networks across the sub-region. It is on account of this factor that the share of intra-regional exports of P&C increased at a rate higher than that of global exports of P&C of the sub-region, from 23.6 to 47.6 per cent during 1992-93 to 2006-07 (Athukorala 2010).

The picture for India is quite different. Until the introduction of economic reforms in 1991-92 India remained outside the mainstream of industrial development in the region. Even after almost two decades of reforms, manufactures constitute only about 15 per cent of GDP and even though India's share in global trade has tripled between 1990 and 2011, it is still less than two per cent and India's share of world trade in manufactures is just one per cent. The experience of East Asia suggests that one of the important reasons for this is the lack of participation by India in regional production networks. In 2006-07, India's share in world exports of P&C was only 0.4 per cent, far less than most other developing economies in East Asia such as China, Philippines, Indonesia, Malaysia, and Thailand. China's early engagement in global production sharing is evident from the fact that parts and components accounted for 31 per cent of China's non-fuel merchandise imports and 15 per cent of its exports soon after it joined the WTO, compared to only 12 and 6 per cent for India respectively during that time (Dimaranan et al. 2004).

This paper uses the lens of Indo-ASEAN trade to investigate why India's participation in regional production networks has not been deeper. What explains the persistent inability of Indian manufacturing to become more regionally embedded? India and ASEAN signed a wide-ranging free-trade agreement in 2009 (AIFTA) creating the potential for a possible opening toward production sharing. But data show that levels of trade, especially in components and assembled goods remain low. An understanding of the dynamics of vertically specialized trade between India and ASEAN can help shed light on the emerging ties between Indian and East Asian production networks. It can also shed light on the implications of these linkages for India's own industrial development trajectory, its goals of industrial job creation and the fostering of backward and forward linkages in production domestically, and within the wider region.

A secondary concern of the paper is the low employment intensity of Indian manufacturing, particularly in light of several rounds of policy reforms that have taken place since 1991-92 and the rapid growth of demand in the domestic market. Some of the standard factors assumed to inhibit the global competitiveness of Indian manufacturing are well known, for example, inadequacy in a wide range of supply side factors such as under-developed physical infrastructure including power supply and transportation networks, lack of labor flexibility, and a swath of policy deficits such as complexities of internal taxation, lack of availability of developed land for industry, delays in a wide variety of clearances ranging from

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