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India's Economic Reforms and APEC Supply Chain Trade

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Executive Summary

- *This paper analyses India-APEC global supply chain trade performance and its links to India's business environment, particularly economic reforms.*
- *Total India-APEC supply chain trade grew rapidly from a low base to US $44 billion in 2014, dominated by a few manufacturing segments and major APEC economies.*
- *Past growth of India-APEC supply chain trade may be attributed to India's opening to trade and investment, competitive wages and a large domestic market.*
- *The moderating growth in China presents more opportunities for India to replace China in segments of supply chains. India-APEC supply chain trade is thus projected to rise to US $60 billion by 2020. However, if various downside risks arising from a slower new normal world economy are not successfully managed, this expansion may be pegged back.*

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- *Comparisons with successful supply chain traders in East Asia suggest that reforms in 'behind-the-border' regulations in India are essential. Key areas include: services trade, business start-up, tax policy, power generation and roads, and labour markets.*
- *Global supply chains are a productive pathway to enhance India-APEC economic ties and press the case for India's APEC membership.*

1. Introduction

India's trade diplomacy has had partial success in developing economic relations with Asia and the Pacific. In 1991, the government of Narasimha Rao adopted a 'Look East Policy', along with historic economic reforms, to strengthen relations with East Asia. This brought founding membership of the East Asia Summit and several somewhat shallow free trade agreements (FTAs) with East Asia (see Wignaraja, 2012). In 2014, the government of Narendra Modi announced an 'Act East Policy' to signal a more pro-active approach to economic relations with East Asia (Parmeswaran, 2014; De, 2016), and initiated new reforms in 2014-2015 (Bhagwati and Panagariya, 2014). Yet, an economically rising India is not a member of the influential Asia-Pacific Economic Community (APEC) forum, which has brought the United States into constructive economic engagement with East Asia (Ayres, 2014). The signing of the Trans-Pacific Partnership (TPP) in 2016 – involving 12 Asia-Pacific economies who are all APEC members – has increased pressures on India to avoid being disadvantaged by this emerging trade agenda (Gupta, 2015; Palit, 2015).

Meanwhile, Indian firms have been quietly participating in global supply chain (GSC) trade (Sen and Srivastava, 2012; Hoda and Kumar Rai, 2014). This form of market-led international specialisation across geographical space has important implications for India-APEC economic integration and for the direction of future Indian reforms. The transition to slower new normal world growth since the global financial crisis in 2008 is likely to have altered the pace of India-APEC GSC trade. However, there is an absence of research on the post-crisis performance of India-APEC GSC trade, and the role played by India's business environment.

This paper analyses the performance of India-APEC GSC trade and its links to the business environment in India. Using the so called gross trade approach (see Athukorala, 2011), it maps the growth and pattern of India-APEC trade by commodities and trading partners since 1991.

The mapping exercise highlights the impact of the global financial crisis on India-APEC performance and projects the value of India-APEC trade through to 2020. Following a well-established tradition of policy benchmarking (see Lall, 1990; Dabla-Norris *et al.*, 2013), the paper then examines various policy and non-policy indicators to identify impediments in India's business environment, compared with successful GSC trading economies in East Asia.

Section 2 of this paper maps India-APEC GSC trade performance. Section 3 briefly outlines India's reforms and its quest for APEC membership. Section 4 compares India's business environment with that of East Asia. Section 5 concludes.

2. Growth of GSC Trade with APEC

GSC trade is sometimes referred to as production networks, production fragmentation, or global value chains, but these terms essentially denote the same basic concept, with subtle differences. It entails a sophisticated form of industrial organisation which is different from a textbook idea of a single large vertically integrated factory in any one country. It involves different production stages, such as design, assembly and marketing, across different countries, linked by a complex web of trade in intermediate inputs and final goods (Jones and Kierzkowski, 1990).[2] A lead company, usually a multinational corporation coordinates the different production stages in GSC trade.

GSC trade has been interwoven with the globalisation of trade and investment in the late 20th century. As Baldwin and Lopez-Gonzales (2015) observe:

> "Internationalization of production has given rise to complex cross-border flows of goods, know-how, investment, services and people – call it supply-chain trade for short…Among economists, however, it is typically viewed as trade in goods that happens to be concentrated in parts and components (Baldwin and Gonzales, 2015, p. 1683).

Early signs of GSC activity were visible around the 1970s in the clothing and electronics industries. It has since penetrated many industries including other consumer goods, food processing, automotives, aircraft and machinery. The role of services in GSC trade (e.g.

[2] Dedrick, Kraemer, and Linden (2010) illustrate the assembly of the iPod from hundreds of parts and components across the planet and the role of Apple as the coordinator of the network.

engineering services, information technology services, and professional services) is increasingly important to support production fragmentation, but has been underestimated due to serious data problems.

The mainstay of empirical work on GSC trade by international economists has involved defining trade in parts and components using national trade data from the UN Comtrade Database (e.g. Athukorala, 2011). This so-called gross trade approach affords comprehensive, consistent and recent time series coverage of parts and components trade for nearly all countries in the world. More recently, with the development of similar international input-output tables for some countries, there has been growing interest in measuring trade in value added (e.g. WTO and IDE-JETRO, 2011). Growth in the measured degree of imported input dependence between two points in time is interpreted as an indicator of GSC trade. However, input-output tables are either lacking or dated for several APEC economies.

Evidence based on the gross trade approach shows that India is a latecomer to GSC trade and below its potential in world supply chain exports, despite an increase in such trade after the global financial crisis. India's share of world supply chain exports doubled from 0.5% to 0.8% between 2001-2004 and 2009-2013 (Wignaraja, 2016). Meanwhile, the participation of APEC economies in GSC trade was significantly greater than elsewhere in the early 2000s and has risen since the global financial crisis. APEC economies collectively accounted for over half of world GSC exports (54.9%) in 2001-2004. This figure rose to 59.3% in 2009-2013, in the aftermath of the crisis. By 2009-2013, the People's Republic of China was APEC's leading GSC trader with 25% of world GSC exports. ASEAN members of APEC (with a combined share of 9.9%) come next, and are followed by Japan (7.9%) and the US (6.8%)[3]. The Republic of Korea (4.9%) and Mexico (4.1%) also had notable shares.

Mapping India-APEC GSC Trade

This paper applies the gross trade approach of Athukorala (2011) to examine the growth and patterns of parts and components trade between India and APEC economies. There is no unique method to decompose international trade data into parts and components and final assembled

[3] The GSC trade figures for Japan and the US seems understated as Japanese firms and US firms are present in GSC trade in other East Asian economies.

goods. A simple and approximate way is to list specific items in which GSC trade is significantly concentrated and to use the total value of these items as an indicator of a country's GSC trade. Based on Athukorala (2011), this paper selects several items under chemicals, machinery and transport equipment, and miscellaneous manufacturing (see Table 1).

India-APEC GSC trade has grown rapidly from a low base since 1991. Figure 1 shows the annual value of India's total GSC exports and imports to APEC economies (in current US dollars) from 1991 to 2014, with a projection from 2015 to 2020. In 2014, the total value of India's GSC exports to APEC was $13.5 billion (up significantly from a minuscule $286 million in 1991), while the value of India's imports from APEC was $30.3 billion (up from $2 billion in 1991). Interestingly, both India-APEC GSC exports and GSC imports fell during the crisis in 2008 and 2009, but soon recovered to pre-crisis levels. Explanations for slowdown and upturn in India-APEC GSC trade performance since the crisis are discussed below.

Looking at the growth rates (in current US dollar terms) further illustrates trends in India-APEC trade. During 1991-2014, India's total GSC exports to APEC grew at 18.2% per year while total Indian imports from APEC economies grew at 12.6%. A breakdown by sub-period suggests that India's total exports to APEC grew rapidly during the 1990s and slowed down in the 2000s. A marked export growth slowdown is visible from 17.8% per year in 2001-2010 to 7.9% per year in 2011-2014. The growth of India's total imports from APEC has been more volatile than export growth. India's imports from APEC accelerated between the 1990s and the first decade of the 2000s from 12.2% to 17.7%. Thereafter import growth slowed to a virtual standstill (0.1% per year during 2011-2014).

The slowdown in India-APEC trade reflects cyclical and structural factors in the aftermath of the global financial crisis. Global trade has slowed and fallen below global GDP growth, while global FDI flows are below peak levels before the crisis. Growth has moderated in the China – the leading player in APEC's GSC trade – as the country continues to shift away from an export-led investment model towards domestic consumption and services. Global GSC trade has been shortening and there are domestic pressures to re-shore production in advanced economies (including in the US). Aging populations in East Asia have altered consumption and demand patterns. Trade protectionism, particularly murky non-tariff measures, are increasing.

Table 1 shows the shares of leading items in India's GSC trade with APEC economies at the one and two-digit standard international trade classification (SITC) level for 1991-1994, 2001-2004 and 2011-2014. The commodity composition of India's GSC exports with APEC economies has been relatively stable at the one-digit SITC level over the period, with little sign of diversification.[4] Most of India's GSC trade with APEC economies is occurring in machinery and transport equipment products (SITC 7), which make-up over 90% of both GSC exports and imports in 2011-2014 (up slightly from shares in 1991-1994). The remainder consists of resource based products and miscellaneous manufacturing products as well as small shares of chemical products.

At the two-digit SITC level, the main products in India's machinery and transport equipment GSC exports are road vehicles with 21.1% in 2011-2014 (down from 27.2% in 1991-1994), other transport equipment 9.6% (up from 1.2%), general industrial machinery with 18.4% (up from 11.7%), power generating machinery with 14% (up from 8%), and ICT products with 12.4% (down from 22.2%). India's machinery and transport equipment GSC imports largely consist of ICT products with 27.6% (up from 24.8%), general industrial machinery with 14.4% (down from 15.9%), power generating machines with 13% (down from 10.4%) and electrical goods with 10.8% (up from 6.7%).

A handful of major APEC economies dominate India-APEC GSC trade with shifts among the players over the period (see Table 2). The US dominates India's GSC exports to APEC with a share of 58.7% in 2011-2014 (up from 46.2% in 1991-1994). Collectively ASEAN economies are second with 15.8% but has declined in importance from 30.4%. Japan is third with 6.2% and has risen in importance from 3%. China is fourth with 4.9% but up significantly from a tiny 0.3%. Australia, Canada and Russia are other notable destinations for India's GSC exports. Meanwhile, the major players in India's GSC imports are China with 30.8% (up from 0.8%) and the US with 24% (down from 40.3%). Japan comes third with 19.3% (down from 46.2%).

[4] A similar conclusion is reached by a study on high value added manufacturing (HVM) in India. Kathuria *et al.* 2014) suggests that India's HVM activities have been dominated by a few sectors like pharmaceuticals, auto-components and chemicals with little movement over time. The study argues that "… India lacks a dedicated focus for the development of HVM. For example, despite the potential in electronics and IT hardware, manufacturing is close to absent in India. Imports fill the breach, while the limited manufacturers of electronics and IT hardware in India deal with several business challenges, discouraging private enterprise" (Kathuria *et al.* 2014, p. 24).

ASEAN economies come fourth with 13.4% (up from 6.4%). Korea is the only other notable provider of GSC imports to India having gained in share over the period.

An important driver of increased India-APEC GSC trade in the future is likely to be the opportunities presented by the growth moderation and structural shifts in China. Abiad *et al.* (2016) suggest that some well-positioned developing economies can benefit from the China's shrinking labour force, rising labour costs and shift to consumption-based growth. In this vein, India faces the interesting prospect of replacing China in segments of GSC trade, as global demand rises for a range of products that China currently produces from clothing to consumer electronics.

Accordingly, India-APEC trade is projected though to 2020 using the Hodrick-Prescott Filter[5] contained in the E-Views Econometrics Package (see Figure 1). The projections suggest a reasonably positive outlook for India-APEC GSC trade (particularly for exports) in the medium term. By 2020, India-APEC GSC exports are expected to rise to $23.6 billion and imports to $36 billion. However, risks to the India-APEC GSC trade outlook are tilted to the downside and could arise from conditions associated with an evolving new normal world economy. These include the unlikely event of a sudden fall in China's growth and a sharp fall in regional demand, destabilising capital flows from an eventual rise in US interest rates and rising trade protectionism. If these risks are not successfully managed, the expansion of India-APEC GSC trade may be pegged back.

3. India's Policy Reforms and APEC Membership

Sluggish growth and balance of payments difficulties due to its inward-oriented import substituting industrialisation strategy, prompted India to switch to an outward-oriented market-friendly development strategy in 1991. The Rao government introduced a package of reforms to reduce barriers to trade and foreign direct investment (FDI), and permit a greater role for the

[5] It is a data smoothening technique commonly used in macroeconomics to remove short-term fluctuations that are associated with the business cycle, thereby revealing long-run trends. The use of the Hodrick-Prescott Filter presumes that deviation from potential trade is relatively short term and tend to be corrected fairly quickly.

market mechanism in resource allocation. The 1991 reforms were followed by deeper reforms over time, leading to four key changes as follows.[6]

First, in a sweeping liberalisation on the trade front, import licensing on machinery and raw materials was abolished in 1991. Licensing on consumer goods was abolished in 2001. This meant that import tariffs became the main protective instrument after 1991.

Second, a gradual reduction in the dispersion of high and variable import tariffs, which had risen significantly in the 1980s, also began in 1991. Tariff reform focused on a gradual compression of the top tariff rates, with simultaneous rationalisation of the tariff structure via a reduction in the number of tariff bands.

Third, a depreciated exchange rate was maintained to boost export competitiveness, and better access to foreign exchange for exporting was introduced. The dual exchange rate was unified and current account convertibility commenced in 1994 in line with International Monetary Fund (IMF) Article VII obligations.

Fourth, restrictions on foreign ownership were gradually liberalised. A system of automatic clearance for FDI proposals fulfilling various conditions (e.g., ownership levels of 50%, 51%, 74%, and 100%) as well as new sectors were opened up to foreign ownership (e.g., mining, banking, telecommunications, and various other services). Subsequently, 100% foreign ownership was permitted in manufacturing with some exceptions such as defence related sectors. In 2005, a Special Economic Zones Act was passed to promote exports from both foreign and local enterprises more systematically.

In May 2014 the Modi government – campaigning on a program of economic revival – was elected with a big parliamentary majority. A balanced approach was the program's strength, combining support for agriculture and business. It also focuses on better education, jobs, better energy management and infrastructure. Some initial steps were taken to make doing business easier and reduce red tape and subsidies, such as scrapping fuel subsidies, simplified labour rules, reduced paperwork and inspections of factories, liberalisation of foreign equity limits in the insurance sector and announcing public-private partnerships for infrastructure.

[6] Comprehensive assessments of India's reforms can be found in Panagariya (2007), Kowalski (2009), Wignaraja (2012), and Bhagwati and Panagariya (2014).

In the first full year budget in February 2015, Finance Minister Arun Jaitley focused on the four key areas of growth, inclusion, fiscal prudence and tax rationalisation. The budget aimed to promote growth through its focus on infrastructure and ease of doing business. Some of the reforms from the budget include:

- Building five "ultra-mega" power projects of 4,000 megawatts (MW) to ease the energy crisis;
- Raising spending on infrastructure by US $11.3bn to boost growth
- Tax reforms such as implementing a uniform countrywide goods and services tax (GST), replacing the wealth tax by a surcharge on the super-rich and reducing corporation tax by 25% by 2019;
- Creating a "universal social security" that would give poor Indians access to subsidised insurance and pensions
- Reducing the fiscal deficit to 3 per cent of GDP by the financial year ending March 2018

Created in 1989, APEC has emerged as the leading cross-regional forum for discussions of voluntary trade opening and facilitation (Yamazawa, 2012). The grouping covers East Asia, Australia and New Zealand, the Americas and Russia. While APEC is not a formal trade negotiating organisation, Indian membership would bring mutual economic benefits (see Gupta, 2015). With a growing middle class and dynamic firms, India offers a large potential market and production base for APEC economies. Increased access to the Indian market may be enabled by voluntary trade opening and facilitation under APEC's Bogor Goals and related peer review processes. The benefits for India include advancing its Act East Policy at the APEC leaders' meeting, sharing data and good practices on trade liberalisation at officials' meetings, trade policy training for officials, and business networking at the APEC Business Advisory Council (ABAC).

Another reason for India to join APEC is that 12 APEC members agreed on a Trans-Pacific Partnership (TPP) in 2015. This deal is expected to create the world's largest trading bloc (covering some 40% of world GDP) with high standard trade rules for members. India has not yet indicated whether it has interest in pursuing TPP membership in the future. If the TPP comes into force, India is likely to experience notable economic costs from being left out (Palit, 2015). If the TPP operates according to its design, it could divert trade, manufacturing and services

from India to TPP members. Largely duty-free access will become available to TPP members while India will continue to face high tariffs in these TPP markets. In addition, existing preferential tariffs that India enjoys with many TPP members through current bilateral and FTAs[7] can be neutralised post-TPP. Furthermore, Indian exporters will need to comply with higher sanitary and phytosanitary as well as quality standards being adopted under the TPP. Agriculture, processed food and pharmaceuticals, among others, could be affected.

However, critics claim that India is not ready for APEC membership. They point to the country's tough negotiating positions in the World Trade Organization (WTO) Doha Round, limited trade and investment liberalisation since the 1991 reforms, and the risk that consensus decisions within APEC may be impeded (see Ayres, 2014). India has recently recognised the gap in its trade diplomatic efforts. Signalling a more proactive economic approach towards Asia and the Pacific, the government of Prime Minister Modi announced a new Act East Policy and new reforms in 2014 (Parmeswaran, 2014; De, 2016).

4. Business Environment: Cross-Country Comparisons

To make the task manageable, it is interesting to examine some of the binding constraints to GSC trade in India which can be influenced by policy. This can be usefully done in a cross-country context to highlight differences in the business environment in India and high performing East Asian economies in GSC trade. Studies by Lall (1990) and Dabla-Norris *et al.* (2013), among others, suggest that it is profitable to benchmark economic performance and economic policies across countries. Drawing on this tradition of research, the cross-country benchmarking exercise below compares various indicators of India's business environment with those of successful East Asian entrants to GSC trade to highlight gaps in India's business environment. These indicators are examined under four headings: (i) trade and investment

[7] Palit (2015) suggests that preference erosion effects from TPP for India may be significant as the country has bilateral FTAs with Asian TPP members (Japan, Malaysia and Singapore), an ASEAN-India FTA with other ASEAN TPP members (Brunei and Viet Nam) and bilateral FTAs with Latin American TPP members (Chile and Peru).

regulations, (ii) behind-the-border regulations, (iii) infrastructure, and (iv) human capital.[8] The discussion below focusses on the period since the 2000s, partly due to data availability.

Trade and Investment Regulations

Open trade and investment regimes are critical for promoting international trade and investment. Lower trade and investment barriers facilitate the growth of GSC trade in several important ways, including freeing imports of parts and components, encouraging better resource allocation according to comparative advantage, realising economies of scale in production, stimulating technology transfer and building technological capabilities, and creating marketing connections with foreign buyers.

Although tariff protection has been falling in India since the 2000s, overall levels are higher than in East Asia. Import tariffs for manufactures for 2006 and 2014 for India and six East Asian economies (China, Indonesia, Malaysia, the Philippines, Thailand and Vietnam) are shown in Table 3. India's average tariff for manufactures showed a large reduction from 16.4% to 10.2% between 2006 and 2014. Nonetheless, India's 2014 double-digit average tariffs are above the 2006 figures for all the East Asian economies except Vietnam. Owing to further tariff reduction by 2014, average tariffs in the East Asian countries were even lower, at 5.5% for Malaysia, 5.7% for the Philippines, 6.7% for Indonesia, 8.3% for Thailand, 8.4% for Vietnam and 8.6% for China.

India's FDI regime has improved since the 2000s and is more open to FDI than some East Asian economies. Table 3 shows an FDI regulatory restrictiveness index from the OECD for 2003 and 2014. This tries to gauge the restrictiveness of a country's FDI regulations by considering four kinds of restrictions: foreign equity limitations, screening or approval mechanisms, restrictions on the employment of foreign labour as key personnel, and operational restrictions (e.g. restrictions on branching and on capital repatriation or on land ownership). A high score on the FDI index indicates greater restrictiveness. Two qualifications should be noted. First, while India is included, the FDI regulatory restrictiveness index only covers a limited number of East Asian

[8] The cross-country benchmarking presented in this paper was guided by previous studies. Hoda and Kumar Rai (2014) identified trade barriers, labour laws, tax policy power supply, entry and exit regulations and SME finance as key impediments to entry into production networks in India. Sen and Srivastava (2012) report similar problems as well as shallow FTAs.

economies. Second, it does not fully measure a country's investment climate. For instance, how FDI regulations are implemented and state ownership in key sectors are not captured. Bearing these in mind, India's FDI index fell significantly from 0.42 to 0.26 between 2003 and 2014. China (with a fall in its FDI index from 0.56 to 0.42) and Indonesia (with a static FDI index at 0.33 and 0.34) restrict FDI more than India. With its FDI index declining from 0.43 to 0.21, Malaysia's FDI regime is more open than India's.

However, there is evidence of important impediments to trade and investment inhibiting trade in services in India. A services trade restrictiveness index from the World Bank for 2014 is shown in Table 3. This attempts to capture the policies and regulations that discriminate against foreign services or foreign services providers as well as certain key aspects of the overall regulatory environment that have a notable impact on trade in services. A high score on the services trade index suggests greater restrictiveness. Measuring services trade restrictiveness is a difficult undertaking beset by data gaps and subjective judgments. Keeping this in mind, the data suggests that India[9] has greater restrictions on trade in services than all the East Asian economies. India's services trade index had a score of 65.7 in 2014, compared with figures for East Asia ranging from 36.6 for China to 50.0 for Indonesia. This may reflect concerns in India and the rest of South Asia about the large costs of adjustment to liberalisation of services trade on unemployment, poverty and loss of universal access to basic services (see Kelegama, 2009). India has thus adopted a cautious approach to services trade liberalisation.

Behind-the-Border Regulations

Transparent, predictable and fair behind-the-border regulations help to create an environment with low transaction costs, for firms to participate in GSC trade. India has improved somewhat in some areas of behind-the-border regulations (e.g. starting a business), but others (like taxation issues) remain a challenge. Table 3 shows data on the procedures required to start a business and the time taken (in calendar days), as well as the 'paying taxes rank' from the World Bank for 2016. The procedures include obtaining all the licenses and permits involved in formally starting

[9] According to WTO (2011), ownership limits were a particular impediment to the development of financial services in India. FDI up to 100% was permitted in other major services sectors in India. But, "specific market access conditions or permits were applicable, which in some cases may be more restrictive than an explicit cap on foreign ownership", (WTO, 2011, p. xiii). In 2014, the Modi government partially liberalized foreign ownership limits in the insurance sector – a notable area of financial services - from 26% to 49%.

up and operating a business. It takes an average of 29 days to undertake the 14 registration and post-registration procedures required to start a business in India. This seems reasonable when compared to many East Asian economies. For instance, it takes 30 days to cover the 11 procedures in China, 46 days for 13 procedures in Indonesia, 29 days for 16 procedures in the Philippines and 27.5 days for 6 procedures in Thailand. However, India's business start-up procedures lag the most efficient in East Asia. With four days required for undertaking only three procedures, Malaysia seems particularly efficient in business start-up. Vietnam also seems quite efficient – it takes 20 days for 10 procedures.

The paying taxes rank (see Table 3) covers all the taxes and mandatory contributions that a medium-sized firm must pay in a given year and the administrative burden of paying taxes and contributions. The coverage of taxation includes corporate income tax, labour taxes and social security contributions paid by the employer, property taxes and other taxes. India is ranked poorly – at 157 out of 189 global economies – on the paying taxes rank. Nearly all the East Asian economies are ranked above India. Malaysia is ranked the best globally at 31. The total tax rate (as a % of profits) in India is 60.6% compared with 40% in Malaysia. The average time taken to prepare, file and pay taxes in India is 243 hours per year[10] compared with 118 hours in Malaysia.

Infrastructure

Efficient, reliable, and seamless infrastructure fundamentally affects the GSC trade performance at firm-level and a country's ability to attract FDI (ADB and ADBI 2009). The spread of global supply chains in East Asia means that manufacturing activities have been dispersed over geographical space connected by trade in parts, components, and services. India is gradually being incorporated into GSC trade through FDI from East Asia and other APEC members. Investment in cross-border infrastructure, multimodal transport systems and logistics are critical

[10] In addition to high corporate taxes and lengthy processing times, concerns exist about the pace of tax reform during the Modi government. Mallet (2016) suggests that one gap is the government's failure to repeal a retroactive tax law introduced by the previous government of Manmohan Singh, which targeted Vodafone and Cairns Energy, among others. He says that another is the government's inability to enact a long awaited sales tax.

to facilitate India-APEC supply chain integration. Investment in domestic infrastructure in India is also important.

Data on infrastructure spending to GDP in Asian economies is surprisingly problematic. Standardised data is not available from international sources, time series are lacking, definitions vary somewhat between studies, and no breakdown is provided between cross-border and domestic infrastructure investments. Recent estimates of infrastructure spending to GDP from different sources for India and East Asia are provided in Table 4. The data shows that since the early 2000s, India has been investing a significant share of its GDP to upgrade its infrastructure, and that this investment is above that of many East Asian economies. According to Morgan Stanley Research (2014), India increased its annual infrastructure spending (as a % of GDP) from 5.9% to 6.7% between 2005-2009 and 2010-2014. This compares with 5.4% (2012) for Malaysia, 4.6% (2014) for Vietnam, 4.1% (2015) for the Philippines, 3.6% (2012) for Thailand and 3-4% (2013) for Indonesia. However, India seems to spend less on infrastructure than China (9% in 2009).

Furthermore, the quality of India's infrastructure lags behind East Asia, suggesting that the country is still in infrastructure catch-up mode. Inter-country comparisons of the quality of infrastructure are difficult due to measurement problems, statistical gaps, and the inherently subjective nature of such evaluations (ADB and ADBI 2009). Table 4 provides one such evaluation by the World Economic Forum, based on a survey of global business leaders' perceptions and available hard data indicators on ports, roads, railways, and air transport. A value of '7' in the scoring system used shows the best possible situation and '1' the worst. In terms of the quality of overall infrastructure, India (3.6) fares poorly compared to Malaysia (5.6), China (4.4), Indonesia (4.2) and Thailand (4.1). Meanwhile, India is on par with the Philippines (3.7) and Vietnam (3.3). A breakdown of India's overall quality of infrastructure indicator shows that the quality of roads (3.8) and electricity supply (3.4) are particular areas of concern to business.

Human Capital

Human capital is central to GSC trade. The cost and availability of labour determine entry into lower value labour-intensive activities such as textiles and garments. As cheaper locations join

GSC trade, those already involved must improve their capabilities or specialise in particular market segments. Upgrading labour productivity and skills becomes essential to remaining competitive.

India is fortunate to have competitive wages in manufacturing, but faces challenges in labour productivity and skills. Table 5 provides information on wages in manufacturing and wage growth, labour productivity growth and the level of labour productivity, and the educational attainments of the labour force. India has an abundant supply of cheap labour partly due to favourable demographic conditions of a young labour force. This coupled with a flexible labour market has meant that India's average monthly manufacturing wages are a fraction of that of East Asia. In 2014 India's wages were one-fifth of China's, one-sixth of Malaysia's, about one-third of those of Philippines and Thailand, 63% of Vietnam's and 73% of Indonesia's.

However, according to data from the Conference Board Total Economy Database, labour productivity (measured by GDP per person employed) growth in India has been tepid at 3.1% per year in 2012-2014 (see Table 5). Labour productivity growth in East Asia has been typically faster. Despite a long-term slowing, labour productivity growth in China was 7.2% in the same period. The Philippines had 5.8% and Indonesia 4.9%. Thailand and Vietnam also had somewhat higher productivity growth than India. Furthermore, even after a decade or more of rapid catching up, productivity levels in India and East Asia remain considerably lower than mature economies. In 2014, India's output per person was only 11% of the US level, while China's was 19%. Despite slower productivity growth, Malaysia (48% of the US level) and Thailand (24% of the US level) showed higher levels of productivity growth.

Furthermore, India suffers from a significant gap in the educational attainment of its labour force. In 2010, only 18.4% of India's labour force had secondary education and only 9.8% some kind of tertiary or vocational education. Comparing with East Asia reveals that 55.7% of Malaysia's labour force had secondary education and 29.3% had tertiary or vocational education. In the Philippines, 69% of the labour force has secondary education and 29.3% has tertiary or vocational education. Thailand has a higher figure for tertiary education than India but a lower figure for secondary education.

5. Conclusion

This paper examines India-APEC GSC trade performance and its links to India's business environment. The research presented reveals several interesting findings.

First, India-APEC GSC trade has grown rapidly from a low base. The total value of India-APEC GSC trade was about US $44 billion in 2014 (up from $2.3 billion in 1991). Such trade has slowed in the aftermath of the global financial crisis due to cyclical and structural factors.

Second, the commodity composition of India-APEC GSC trade has been remarkably stable since the 1990s with little signs of diversification over time. The bulk of India-APEC GSC trade takes place in machinery and transport equipment, including general industrial machinery, power generating machinery, ICT products and road vehicles.

Third, India-APEC GSC trade is dominated by a handful of APEC economies – notably the US, Japan, China and ASEAN. However, shifts have occurred among the players over time. A key underlying trend is China replacing the US as India's main source of GSC imports from APEC.

Fourth, the medium-term outlook for India-APEC trade seems positive (with a projection of US $60 billion by 2020), linked to new opportunities created by China's growth moderation and structural shift. India faces the interesting prospect of replacing China in segments of GSC trade as global demand rises for a range of products that China currently produces from clothing to consumer electronics. However, with an evolving new normal world economy, risks to this projection are tilted to the downside.

Fifth, comparisons with East Asia suggest that twenty-five years of economic reforms have improved some aspects of the business environment for India's GSC trade. This partly explains the rapid growth in India-APEC GSC trade since 1991. Visible progress has been achieved in India to reduce trade protection and liberalise the FDI regime. A better incentive regime, coupled with cheap wages and a large domestic market, encouraged inflows of export-oriented manufacturing FDI and participation in GSC trade.

Sixth, many challenges in the business environment remain in India. Services trade is hampered by restrictions and business tax rates, and administration is problematic. Further improvement could be made in business start-up regulations. Infrastructure spending has risen over time but

the quality of infrastructure in electricity supply and roads is poor. Wages in manufacturing are competitive but labour productivity and labour force skills are low.

The Modi government's 2014-2015 reforms are important steps towards improving the business environment for India-APEC GSC trade. However, reform efforts need to be sustained and deepened in several key areas to increase the country's role in APEC GSC trade. The research highlights the following reform priorities: liberalising services trade, overhauling tax policy and administration, cutting regulations to start a business, investing in the power sector and roads, and upgrading labour productivity through education and training.

Implementing deep reforms to support larger GSC trade will put a rising India firmly on the APEC's radar. It will signal that India is serious about APEC membership, and open the door for the associated windfall of the country eventually joining the TPP.

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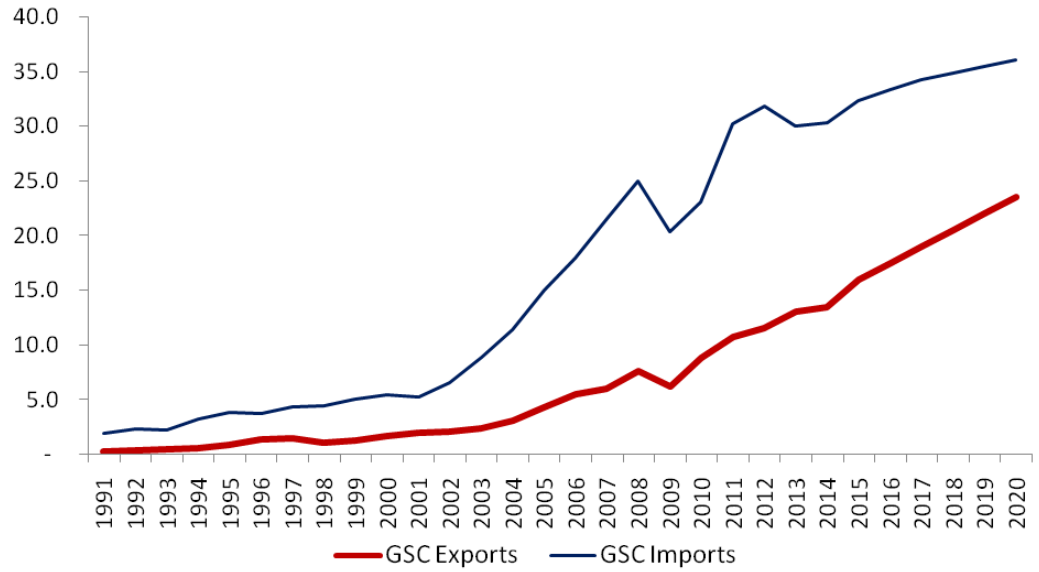
Figure 1. India's GSC Trade with APEC Economies (US$ Billion)



Source: UN Comtrade Database.
Note: Projections for 2015-2020 were estimated using the Hodrick-Prescott Filter in EViews.

Table 1. India's GSC Trade with APEC Economies by Commodity

Commodity	Values in US$ Million (2014)		Share of GSC Exports (%)			Share of GSC Imports (%)		
	Exports	Imports	1991-1994	2001-2004	2011-2014	1991-1994	2001-2004	2011-2014
Chemicals (SITC 5)	7	91	0.1	0.1	0.1	0.4	0.5	0.3
Resource based products (SITC 6-SITC 68)	720	1,454	7.9	5.9	5.3	2.7	3.1	4.4
Machinery and transport equipment (SITC 7)	12,418	27,322	89.0	84.4	91.2	89.7	86.3	90.5
Power generating machines (71)	2,132	3,667	8.0	8.9	14.0	10.4	6.2	13.0
Specialized industrial machines (72)	687	1,629	4.4	4.3	5.2	8.8	3.6	5.8
Metal working machines (73)	116	698	2.3	2.4	1.0	1.4	1.0	2.6
General industrial machinery (74)	2,776	4,314	11.7	12.4	18.4	15.9	10.3	14.4
ICT products	1,645	8,204	22.2	23.7	12.4	24.8	49.6	27.6
Office machines and automatic data processing machines (75)	303	3,555	9.3	13.7	3.1	5.6	21.4	11.5
Telecommunication and sound recording equipment (76)	64	1,296	1.5	1.9	0.5	5.2	17.1	3.7
Semiconductors and semiconductor devices (772+776)	1,278	3,353	11.4	8.2	8.9	14.0	11.1	12.4
Electrical goods (77-772-776)	1,088	3,228	12.1	15.3	9.3	6.7	8.4	10.8
Road vehicles (78)	2,964	3,048	27.2	15.6	21.2	15.0	3.8	10.3
Other transport equipment (79)	1,011	2,534	1.2	1.8	9.6	6.6	3.6	6.0
Miscellaneous manufacturing (SITC 8)	358	1,446	3.0	9.6	3.4	7.2	10.1	4.8
Professional and scientific equipment (87)	243	925	0.6	1.6	2.6	5.7	2.5	3.2
Photographic apparatus (88)	27	125	0.7	0.3	0.2	0.9	0.6	0.4
Total US$ million	**13,502**	**30,313**						

Source: UN Comtrade Database.

Note: Commodity classification is based on the list of parts and components by Athukorala (2011).

Table 2. India's GSC Trade with APEC Economies

	Values in US$ millions (2014)		APEC Share of Total India's GSC Exports (%)			APEC Share of Total India's GSC Imports (%)		
	Exports	Imports	1991-1994	2001-2004	2011-2014	1991-1994	2001-2004	2011-2014
APEC Economies	**13,502**	**30,313**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
USA	**8,051**	**8,240**	**46.2**	**58.1**	**58.7**	**40.3**	**34.7**	**24.0**
Japan	**877**	**5,040**	**3.0**	**6.4**	**6.2**	**46.2**	**17.3**	**19.3**
ASEAN	**1,982**	**4,166**	**30.4**	**17.9**	**15.8**	**6.4**	**18.2**	**13.4**
Brunei Darussalam	3	NA	0.0	0.0	0.0	NA	0.0	0.0
Indonesia	366	316	4.1	1.5	2.6	0.0	0.6	0.9
Malaysia	362	848	8.5	5.7	2.6	0.6	4.9	3.2
Philippines	112	119	1.3	0.5	0.8	0.1	0.8	0.5
Singapore	592	1,168	12.9	7.7	5.5	5.4	9.6	3.9
Thailand	425	1,496	2.9	1.9	3.4	0.3	2.3	4.3
Vietnam	123	219	0.6	0.5	0.9	0.0	0.1	0.7
East Asia	**1,081**	**12,161**	**4.7**	**7.2**	**7.6**	**4.1**	**25.8**	**40.8**
PRC	698	9,206	0.3	2.2	4.9	0.8	11.9	30.8
Hong Kong, China	185	389	3.5	4.0	1.4	1.9	2.6	1.2
Korea, Rep. of	198	2,566	1.0	1.0	1.4	1.5	11.3	8.7
Other APEC	**1,511**	**706**	**15.7**	**10.5**	**11.7**	**2.9**	**4.1**	**2.5**
Australia	397	92	6.2	4.1	3.5	0.8	1.6	0.4
Canada	347	318	1.8	2.5	2.7	1.6	1.8	1.0
New Zealand	26	19	0.6	0.3	0.4	0.1	0.1	0.1
Russia	423	71	4.1	1.0	2.7	0.4	0.4	0.4
Peru	38	0	0.3	0.2	0.3	NA	0.0	0.0
Chile	25	1	0.5	0.3	0.2	0.0	0.0	0.0
Mexico	251	204	2.2	2.0	1.8	0.1	0.2	0.6
Papua New Guinea	4	NA	0.0	0.0	0.0	NA	0.0	0.0

Source: UN Comtrade Database.

Note: Data for Taipei, China is not available.

Data for some years of the other APEC economies such as Brunei Darussalam, Vietnam, Peru, and PNG are not available.

Table 3. Government Regulations

Country	Simple average MFN Tariffs -Manufactured Goods (%)[a]		FDI Regulatory Restrictiveness Index[b]		Services Trade Restrictiveness Index[c]	Starting a Business[d] (2016)		Paying Taxes Rank[d]
	2006	2014	2003	2016	2014	No. of Procedures	Time (days)	2016
India	16.4	10.2	0.42	0.26	65.7	14	29.0	157
PRC	9.0	8.6	0.56	0.42	36.6	11	30.0	132
Indonesia	6.8	6.7	0.33	0.34	50.0	13	46.5	148
Malaysia	7.9	5.5	0.43	0.21	46.1	3	4.0	31
Philippines	5.8	5.7	-	-	53.5	16	29.0	126
Thailand	8.2	8.3	-	-	48.0	6	27.5	70
Vietnam	15.7	8.4	-	-	41.5	10	20.0	168

[a]WTO Tariff Profiles 2006 and WTO Tariff Profiles 2013. Accessed December 2015. http://stat.wto.org/TariffProfile/WSDBTariffPFExportFile.aspx?Language=E&Country=.

[b]OECD Statistics. Accessed March 2016. http://stats.oecd.org/Index.aspx?datasetcode=FDIINDEX#.

[c]Wcorld Bank Services Restrictiveness Database. Accessed December 2015. Services Trade Restrictions Index (Year policy information collected, either 2008 or 2011)

[d]World Bank Doing Business Rankings 2016. Accessed March 2016. hhttp://www.doingbusiness.org.

Table 4. Infrastructure Spending and Quality

Country	Infrastructure Spending to GDP (%)	Infrastructure Quality, 2014 (1-7 worst to best)[8]					
		Overall Infrastructure	Road	Railroad	Port	Air Transport	Electricity Supply
India	6.7 (2010-2014)[1]	3.6	3.8	4.2	4.0	4.3	3.4
PRC	9.0 (2009)[2]	4.4	4.6	4.8	4.6	4.7	5.2
Indonesia	3.0-4.0 (2013)[3]	4.2	3.9	3.7	4.0	4.5	4.3
Malaysia	5.4 (2012)[4]	5.6	5.6	5.0	5.6	5.7	5.7
Philippines	4.1 (2015)[5]	3.7	3.6	2.3	3.5	3.6	4.2
Thailand	3.6 (2012)[6]	4.1	4.5	2.4	4.5	5.3	5.1
Vietnam	4.6 (2014)[7]	3.3	3.2	3.0	3.7	4.0	4.2

[1]Morgan Stanley Research (2014). The Next India From a Cyclical Downturn to a Structural Upturn. May. http://www.btinvest.com.sg/system/assets/24761/120514%20MS%20The%20Next%20India%20--%20From%20a%20Cyclical%20Downturn%20to%20a%20Standard%20Upturn.pdf

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Note: [1 = extremely underdeveloped—among the worst in the world; 7 = extensive and efficient—among the best in the world] | 2013–14 weighted average.

Table 5. Human Capital

Country	Wages in Manufacturing		Annual Average Growth of Labor Productivity (GDP per person employed)[b], 2012-2014	Level of Labor Productivity (GDP per person employed)[b] as a % of US, 2014	Labour force by level of educational attainment[c] (2010)	
	Average Monthly Wages (US $)[a], 2014	Annual Average Growth, 2012-2014			Secondary	Tertiary
India	123	3.8	3.1	11	18.4	9.8
PRC	656	10.1	7.2	19	-	-
Indonesia	167	5.6	4.9	20	25.3	7.0
Malaysia	798	11.7	1.7	48	55.7	24.2
Philippines	323	2.5	5.8	16	69.0	29.3
Thailand	357	5.0	3.9	24	13.8	16.0
Vietnam	196	NA	3.8	8	-	-

[a]Trading Economics. http://www.tradingeconomics.com/country-list/wages-in-manufacturing.

Note: Calculations is based on the US dollar conversion on March 7, 2016.

[b]The Conference Board Total Economy Database, May 2015, http://www.conference-board.org/data/economydatabase/.

[c]International Labour Organization. Key Indicators of the Labour Market 2015 KILM. Accessed December 2015. http://www.ilo.org/global/statistics-and-databases/research-and-databases/kilm.