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**Manufacturing Exports from Sri Lanka: Opportunities,
Achievements and Policy Options**

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Abstract: This paper examines Sri Lanka's experience with manufacturing exports expansion, placing emphasis on opportunities and policy priorities in a rapidly changing global context in which global production sharing has become the prime mover of cross border production and trade. There is compelling evidence that liberalization reforms initiated in 1977 helped transform the classical export economy of Sri Lanka inherited from the colonial era into a one in which manufacturing plays a significant role. Were it not for the civil strife and inconsistent macroeconomic policies that adversely affected the investment climate, export performance would have been much more impressive. In a context in which factors of production — capital, technology and marketing and managerial knowhow––are increasingly mobile across national boundaries within production networks, the nature of the existing manufacturing base is not a prerequisite for export diversification. Trade-cum-investment policy reforms can set the stage for the emergence of exporting firms *de novo*. In sum, the findings make a strong case for redressing policy backsliding and continue with the market-oriented reforms agenda that was left incomplete in the late 1990s, and set up institutional safeguards to avert further backsliding.

Key words: manufacturing exports, global production sharing, foreign direct investment, Sri Lanka

JEL Codes: F13, F14, O53

Manufacturing Exports from Sri Lanka: Opportunities, Achievements and Policy Options[1]

1.   INTRODUCTION

The economic liberalization reforms initiated in 1977 and sustained for the ensuing three decades dramatically transformed the economic landscape of Sri Lanka. The export structure of the economy underwent a remarkable shift from land-intensive, plantation exports to labour-intensive manufacturing, ending the economy's historic dependence on three primary commodities (tea, rubber, and coconut products). Export-oriented manufacturing emerged as the major generator of employment opportunities in the economy, accounting for over half of total employment growth. World Bank's *Sri Lanka Development Policy Review 2004* noted that "It would be hard to find a more convincing case of trade and industrial transformation of a small island economy through market-friendly policy reforms" (World Bank 2005, p. 6).

Notwithstanding the notable economic achievements, there was a backsliding from liberalization reforms from about 2005, in particular following the ending of the ethnic conflict in May 2009 (Pursell and Ahsan 2011; Athukorala 2012; Kaminski and Ng 2013). In spite of the official commitment to "moving toward further integrating Sri Lanka into the world economy" (Government of Sri Lanka 2010, p. 53), in practice the development strategy began to reemphasize the role of the state in "guiding the markets" with a view to redressing perceived untoward effects of economic globalization. Public enterprise reform was explicitly ruled out, while conspicuously avoiding any reference to trade policy reforms. The policy backsliding, coupled with real exchange rate appreciation underpinned by the emphasis on debt-financed infrastructure development, was reflected in a massive contraction in exports as a share of gross domestic product. Sri Lanka's share in world exports and in exports from developing countries declined sharply. Largely due to the sluggish export performance, the current account deficit widened and the total outstanding external debt almost doubled.

The policy dilemma of Sri Lanka's new regime is how to redirect policy changes to restore the economy's international competitiveness and to contain debt dependency. The

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purpose of this chapter is to inform the policy debate by specifically focusing on trade and investment policy reforms needed to improve the overall investment climate for promoting manufacturing exports and assessing the potential for export expansion. This paper aims to identify policy priorities for fully exploiting the country's export potential in a rapidly changing global context in which global production sharing has become the prime mover of cross-border production and trade.

The study is based on data pieced together from secondary sources and information gathered from field research. The secondary sources include unpublished investment approval and monitoring records of the Sri Lanka Board of Investment (BOI); unpublished exporter-level Customs data disaggregated by commodity, destination, and the mode of shipment; the United Nations (UN) Comtrade database; the news clipping collection at the Institute of Policy Studies, Colombo; and company websites. As part of the field research, face-to-face interviews were conducted from 20 June to 7 July in 2016 with top executives of six exporting firms of varying sizes, the Ceylon Chamber of Commerce, the Sri Lanka Export Development Board, the Institute of Policy Studies, and the Ministry of Industry and Commerce. The study also draws on information from interviews with top executives of exporting firms and senior officials of the Joint Apparel Association Forum (JAAF), conducted in November 2012 and July–August 2013 for a study of the apparel industry for the Asian Development Bank.

The paper is structured in four sections. Section 2 provides an overview of trade and investment policy reforms in Sri Lanka and the recent policy reversal in order to set the stage for the ensuing analysis. Section 3 provides a typology of the emerging patterns of manufacturing exports from developing countries against the backdrop of the ongoing process of global production sharing and the resultant expansion of trade within global production networks in order to set the stage for the ensuing analysis. Section 3 examines trends and compositional changes in exports using disaggregated trade data in order to identify Sri Lanka's achievements in and prospects for integrating into global manufacturing production networks. The role of foreign direct investment (FDI) in the expansion of manufacturing exports is the subject of Section 4. Section 5 presents the results of an econometric analysis of the determinants of manufacturing exports and findings of field research on constraints faced by exporting firms. The final section summarizes the key findings and makes policy recommendations by analyzing the findings in the context of the wider literature on export performance of developing countries.

2.   POLICY CONTEXT

During the first decade after independence in 1948, Sri Lanka continued with a liberal trade and foreign direct investment policy regime. From the late 1950s, a combination of changes in political leadership and growing balance of payments problems induced a policy shift toward a state-led import-substitution strategy. By the mid-1970s the Sri Lankan economy had become one of the most inward-oriented in the world outside the Communist bloc, characterised by stringent trade and exchange controls and pervasive state intervention in all areas of economic activity.

In 1977, Sri Lanka embarked on an extensive economic liberalization process that marked a decisive break with decades of protectionist policies (Snodgrass 1998, Rajapatirana 1982, Athukorala and Rajapatirana 2000). The first round of reforms carried out during 1977-79 included the following: (a) significant trade policy reforms; (b) opening up the economy to foreign direct investment (FDI), with new incentives for export-oriented FDI under an attractive Free Trade Zone (FTZ) scheme and a constitutional guarantee against nationalization of foreign assets without compensation; (d) abolition of the multiple exchange rates followed by a sharp devaluation of the unified exchange rate; and (e) the introduction of limits on direct public sector participation in the economy.

Sri Lanka's ability to reap benefits from this remarkable policy transition was seriously hampered by the escalation of the ethnic conflict in the early 1980s. It virtually cut off the Northern Province and large parts of the Eastern Province (which together account for one-third of Sri Lanka's total land area and almost 12% of the population) from the national economy. Even in the rest of the country, the prospects for attracting foreign investment, particularly in long-term ventures, were seriously hampered by the lingering fear of sporadic attacks by the rebels. The government's preoccupation with the civil war also hampered capturing the full benefits of economic opening through delays and inconsistencies in the implementation of the reform processes.

There was, however, no retreat to the old control regime. In a decisive move to infuse momentum to the unfinished reform process, a significant 'second wave' liberalization package was implemented in 1990, followed by notable privatisation and deregulatory reforms (including privatisation of telecommunication and reverting large plantations to private-sector management under a 100-year leasing arrangement). By the mid-1990s Sri Lanka appeared to be "at the point of moving into an important policy phase marked by shifting the agenda away from protection and towards achieving a stable and predictable economic policy environment." (Cuthbertson 1997, 637)

There were early signs of back-sliding from liberalization reforms over the past two decades (Rajapatirana 2004, Pursell 2011, Kaminski and Ng 2013). As early as the late 1990s, the trade liberalization process suffered a setback because of the pressure for raising additional

revenue from import tariffs to finance the ballooning war budget. The planned reduction of tariffs into a single band was abandoned and from then on tariffs were adjusted frequently in an ad hoc manner. The protectionist tendencies soon received added impetus from the growing discontent amongst the electorate, which was propelled by the crisis economic conditions as the civil war accelerated.

The backlash against liberalization reforms gained added impetus as the country returned to a state of normalcy at the end of the three-decade old civil war in May 2009. The government emphasized the role of the state in 'guiding the markets' with a view to redressing untoward effects of economic globalization. Privatization of key state enterprises (banking, power, energy, transport, and ports) was explicitly ruled out, while the government conspicuously avoided any reference to trade policy reforms (Government of Sri Lanka 2010). Rapid infrastructure development of rural and conflict-affected parts of the country and the promotion of small and medium enterprises were the key policy priorities under the new policy. However, overall there was no retreat to the old dirigisme regime.

Trade policy regime

Trade liberalization was the key element of the liberalization reforms initiated in 1977. Quantitative restrictions (QRs), which covered virtually all imports over the previous two decades, were replaced by tariffs, while retaining only a few items (less than 5 per cent of total import value) for health and security reasons. As part of a 'second-wave' reforms initiated in the late 1980s, import tariffs were further rationalized and in 1993 a three-band tariff structure was adopted involving rates of 10, 20 and 35 percent. In 1997, all textile tariffs were abolished and tariffs on clothing imports were substantially reduced, with a view to providing a free-trade regime for the booming garment industry. In 1994, Sri Lanka achieved Article VII status of the International Monetary Fund (IMF) after abolishing foreign exchange restrictions on current account transactions, including the foreign exchange surrender requirement on export transactions.

On the export side, duties on all plantation products were removed in December 1992, correcting a long-standing anomaly in the taxation of traditional exports.[2] The share of export

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[2] However, some moderate surcharges and cesses on exports were retained. These were ploughed back into the export sector in the form of selective incentives, replanting subsidies and start-up subsidies for new exporters.

taxes (duties + cesses + other surcharges) in total government revenue, which was as high as 25.2 per cent in the early 1980s, declined to 0.05 per cent in 1993.

Between 1995 and 2002, Sri Lanka's average (unweighted) applied import tariff rate halved, from 20 to 9.4 percent. Over the same period, the duty collection rate (duties as a percentage of CIF import value) fell from 7.5 to 4.6 per cent. By this time the average tariff rate in Sri Lanka was comparable with that of Indonesia, Malaysia and Philippines and somewhat lower than that of China, Thailand and Viet Nam. Official estimates indicate that the effective rate of protection (ERP) for import-competing manufacturing declined from 70 per cent in 1991 to 56 per cent in 2002, and there was a significant reduction in the incentive bias against exporting in the tariff structure (World Bank 2005).

However, the reform process begun to lose momentum from about the late 1990s because of additional fiscal pressures following the escalation of the civil war and economic downturn during the early 2000's, which infused a new lease of life to domestic protectionist lobbies (Athukorala 2012). By 2009, the Sri Lankan tariff schedule included nine import taxes in addition to the standard customs duty. Of these nine taxes, five were 'para-tariffs': taxes which are only applied to imports and there is no domestic equivalent, and hence add to whatever protection is provided to domestic production by customs duties. The total nominal protection rate (customs duty + para-tariff) went up slightly between late 2002 and early 2004, but then more than doubled (13.4% to 27.9%) between 2004 and 2009 (Pursell 2011). During the ensuing years, there were also many *ad hoc* duty exceptions and case-by-case adjustment of duties on many manufacturing imports which directly compete with domestic production.

At the time Sri Lanka embarked on liberalization reforms in the late 1970s, the effective rate of protection[3] for import-competing manufacturing was as high as 137% (Cuthbertson and Athukorala 1991). This declined to 70% by the early 1990s and to 56% by the dawn of the New Millennium (World Bank 2005). According to the latest estimates prepared by the Department of Census and Statistics, this trend seems to have reversed in the subsequent years, resulting in a weighted-average ERP of 63.2% in 2015 (Table 1).[4] For total tradable production (manufacturing, agriculture, fishing, and mining) the ERP in 2005 was 46.7%. The estimates

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[3] The *effective rate of protection (ERP)* measures the proportionate increase in per unit value added of a product due to the complete system of tariffs and thus captures the resource allocation effect of tariffs on both final goods and intermediate inputs

[4] The author is grateful to the staff of the National Accounts Division of DCS, in particular Manjula Ekanayake and Anuruddha Weeratunga, for preparing these estimates for this study.

reveal a clear incentive bias against agriculture and in favour of manufacturing embodied in the tariff structure. Product-level estimates (see Appendix 1, Table A1-1) suggest that in a number of agricultural products (sugar cane, rubber, livestock, milk production and eggs) tariffs on intermediate inputs exceeded tariffs on the final products, leading to negative effective protection.

The disaggregated estimates of ERP for traditional customs duties and para-tariffs reported in Table 1 clearly indicate the dominant role played by para-tariffs in determining effective protection embodied in the structure of trade protection in Sri Lanka. The disaggregated (product level) estimates (Appendix 1, Table A1-1) indicate that this pattern of para-tariff dominance in the structure of protection is observable across most of the 101 products covered in this analysis. All three measures of ERP indicate a high degree of variability among products: the estimates for the 101 sectors ranged from 26.6% to 523.5%, a coefficient of variation of 181.9%. The degree of variability of *ERP* is much greater among manufacturing products compared to agricultural products. In manufacturing producing with over 100% ERP (all tariffs) included processed meat (104.5%), processed fish (523.8%), vegetable and animal oils and fats (149.6%), dairy products (169.9%), bakery products (511.9%), sugar (103.7%), confectionery (132.7%), spirits (276.7%), soft drinks (276.7%), petroleum products (329.7%), rubber tires and tubes (146.5%), porcelain and other ceramic products (213.9%), cement (203.3%), and motor vehicles (127.4%). In general, resource-based products and domestic-market oriented products figure prominently among the heavily protected products.

Table 1: Sri Lanka: NRP and ERP Estimates, 2015

	Nominal rate of protection (NRP)			Effective rate of protection (ERP)		
	All tariffs	**Customs duties**	**Para tariffs**	**All tariffs**	**Customs tariffs**	**Para tariffs**
Weighted averages						
Agriculture, forestry and fishing	23.5	3.4	20.1	31.4	4.1	27.3
Mining & Quarrying	2.7	0.0	2.7	-1.7	-1.4	-0.3
Manufacturing	34.3	7.8	26.4	63.2	14.5	48.7
All tradable production	28.0	5.6	22.4	46.7	9.5	37.2
Simple averages (mean) and dispersion						
Agriculture: mean	23.8	4.5	19.2	26.6	5.0	21.6
Range	0 to 110.5	0 to 27.8	0 to 85.5	-8.3 to 137.9	-4.8 to 31.6	7.7 to 106.3
CV^2	129.6	178.5	121.2	149.3	197.9	141.5
Manufacturing: mean	35.9	6.9	28.9	68.3	12.9	55.4
Range	0 to 206.7	0 to 89.0	0 to 145.1	26.2 to 523.8	-5.8 to 120.9	20.9 to 443.2
CV^2	110.6	179.8	103.3	161.2	205.0	160.0
All tradable products: mean	33.1	6.4	26.7	58.8	11.1	47.7
Range	0 to 206.7	0 to 89.0	0 to 145.1	-26.2 to 523.8	-5.8 to 120.9	20.9 to 443.2
CV^2	114.9	182.0	107.4	170.0	215.2	168.5

Notes: 1. Weighted by value added.   2.   Coefficient of variation = (Standard deviation/ mean)* 100. NRP = nominal rate of protection. ERP effective rate of protection.

Source: Compiled using NRP and ERP estimates provided by the Sri Lanka Department of Census and Statistic (DCS). The original estimates are for 101 tradable production sectors identified in the 2010 input-output table. Weighted averages were estimated using output (value added) data obtained from the same input-output table.

Let us denote ERP for production for domestic market and production for export in a given industry (j) by ERP_{dj} and ERP_{ej} respectively. Combining the two measures gives a useful summary measure of the export bias embodied in the overall incentive structure, which we dub here the export bias index (EBI_j)[5]. Given the paucity of data relating to incentives for export production we constructed three alternative EBI indices based on three alternative measures of ERP_x. The first index ($EBI1$) is directly estimated based on the Lerner Symmetry theorem: the proposition that a tax on imports has the same effect as an equal tax on exports. It captures only the negative effect of import tariffs on the relative profitability of producing for the export market, while ignoring import duty and income tax concessions applicable specifically to exporters. The second index ($EBI2$) represents the case in which the export producers, unlike their import-substituting counterparts, are partly cushioned against the anti-export bias of the trade regime by a fully functional duty exemption scheme (duty rebates and FTZ provisions) for imported intermediate goods while the income taxation is equally applied to all firms. The third index ($EBI3$) is constructed under the assumption that exporting firms are eligible for both full exemption from import duties on intermediate inputs and income tax.[6] The assumption of import duty exemptions, on which the $EBI2$ estimation is based, holds well in the Sri Lankan case.[7] However, not all export producers were benefitting from tax holidays offered under the BOI incentive package in the two years for which we have made EBI estimates.[8] We therefore believe that the relative incentive pertaining to the 'average exporting firm' lies in between the $EBI2$ and $EBI3$ estimates.

The estimates reported in Appendix 1, Table A1-2 suggest that on average production for the domestic market is over 70 per cent more profitable compared to production for exporting. The few industries with a positive or near zero export bias in terms of both $EBI2$ and $EBI3$ are observable only for eight products (grain mill products, spinning and weaving textiles, finishing textiles, wearing apparel, medical and botanical products, miscellaneous chemical products, sporting goods, and textile

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[5]:

$$EBI_j = \left[\frac{(1 + ERP_{dj})}{(1 + ERP_{xj})} - 1 \right] * 100$$

A positive EBI implies an incentive bias in favour of exporting and a negative EBI implies an incentive bias against exporting, compared to production for the domestic market.

[6] The price wedge created for export producers under this assumption was estimated by multiplying the before-tax operation merging (available in the CDS database; used as a proxy for before tax profit) by the company tax rate of 14 percent.

[7] Intermediate imports directly embodied in export products are not subject to para-tariffs.

[8] According to BOI data, tax holiday periods of over a third of BOI approved firms had expired by 2015.

machinery). According to the estimates for individual industries, there is a notable similarity in the industry ranking in terms of the three alternative export bias indices: the rank correlation coefficients between the three alternative export bias indices are both about 0.9. This is indicative of the dominant role played by import tariffs, which are effectively a tax on export production, in determining the relative incentives faced by export oriented production in the economy. A comparison of the three indices across industries clearly suggests that, while various indirect measures to counterbalance the anti-export bias of the protectionist regime seem to have had some effect, they are unlikely to achieve the desired neutrality in the incentive structure even if the efficiency of their implementation is substantially improved.

The current government has promised a renewed policy focus on an outward oriented development strategy. However, so far no attempt has been made to redress policy reversals over the past ten years, let alone continuing with the reform agenda of the first three decades of market-oriented reforms. Driven by fiscal exigencies, some import surcharges were added to the existing list of para-tariffs in the 2015 budget. The cesses on tea, rubber, coconut and cinnamon in primary form continue to be maintained, ostensibly for promoting domestic value added through further local processing. A new para-tariff, "Nation Building Tax", was also introduced in that year. The foreign exchange surrender requirement for exporters, which was introduced as part of the country's commitment to achieve 'Article IV Status' of the IMF in 1994, was reintroduced. Exporting firms consider this requirement to be a significant constraint on financial flexibility needed for successful export operations.

Export promotion and the role of the Export Development Board

A wide range of export promotion schemes, including a duty rebate scheme, direct cash subsidies, manufacturing-in-bond, provision of equity and working capital to firms with export potential, and various measures aimed at product and market development were introduced under the newly established Sri Lanka Export Development Board (EDB). In 1980, the operation of the duty rebate scheme (originally introduced in 1964 but largely inactive because of various administrative rigidities) was transferred from the Ministry of Industries to the EDB. The EDB completely reformulated the scheme and instituted a more flexible implementation procedure to cover all non-traditional exports using imported inputs. The coverage of the duty rebate scheme was expanded in 1982 to include sales to EPZs. Manufacturing-in-bonds for exporters importing material for re-export as part of a finished good, a cash grant scheme based on annual export increments, and concessionary credit for exporters were among the other EDB incentives.

Over time the use of the duty rebate scheme (and other arrangements for exempting exporters from duties on imported inputs) has declined reflecting lower tariff on intermediate goods (including free trade in textiles) under the liberalization process. Extension of BOI privileges to export-oriented firms located outside the EPZs was another contributory factor. Since January 1997, the implementation of duty rebate and bonded warehouse schemes is under the Treasury and Department of Customs. (Approval of duty rebate claims was the responsibility of the Customs while reimbursement was done by the Treasury.) From 2001, the implementation of these schemes has become the sole responsibility of the Department of Customs. The EDB has scaled down its operation over the past decade and currently its role is limited to some export facilitating services.

Foreign Investment Policy

Concurrent liberalization of the trade and foreign investment regimes was a hallmark of the Sri Lankan liberalization reforms. The most important aspect of the new FDI policy was the setting up of the Greater Colombo Economic Commission (GCEC) in 1978 with wide-ranging power to establish and operate EPZs.[9] The investment promotion policy package offered to FTZ investors was comparable to, or more attractive than, incentive packages of FTZs in most other countries. It included (a) permitting complete foreign ownership of investment projects; (b) a tax holiday for up to 10 years with complete tax exemption for remuneration of foreign personnel employed, royalties, and dividends of shareholders during that period; (c) duty exemption for the importation of inputs and assistance with customs clearances; and (d) industrial services at subsidized rates and unlimited access to foreign-currency credit. [10]

A guarantee against nationalization of foreign assets without compensation was provided under the Article 157 of the new Constitution of Sri Lanka adopted in 1978. Following the nationalization of the foreign-owned gas and petroleum outlets during 1962-64, Sri Lanka became the first country against which the US government invoked the Hickenlooper Amendment requiring the suspension of US aid to countries expropriating US property without compensation (Olson 1977). The constitutional guarantee was, therefore, vital to restore investor confidence. As an important part of the FDI policy, steps were also taken to enter into Investment Protection Agreements and Double Taxation Relief Agreements with the major investing countries.

Until 1990, there was no major change in the policy towards domestic-market oriented FDIs. Such projects had to go through the normal approval procedure of the Foreign Investment Advisory

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[9] The first EPZ, at Katunayaka near the Colombo International Airport (henceforth KEPZ) was opened in 1978. The remarkable success of the KEPZ paved the way for setting up of a second EPZ in Biyagama (a Northern suburb of Colombo) (BEPZ) in 1982 and a third in Koggala (KGEPZ) on the Southern coast in June 1991. Five other mini TTXs were opened in regional cities (Mirigama, Wathupitiwala, Pallekele, Seethawaka and Hambantota) during the ensuing years. Katunayaka and Biayagama zones have remained fully occupied for the past ten years.

[10] 'I don't see what more an investor could want than Sri Lanka has to offer', G.W. Bell, Managing Director of Lehman Brothers (*Asian Wall Street Journal*, 23 September, 1980).

Committee (FIAC), and majority local ownership continued to be the general rule for approving such projects. In 1990, the activities of FIAC and GCEC were consolidated under a new Board of Investment (BOI) in order to facilitate and speed up investment approval within a unified policy framework applicable to both import-substituting and export-oriented investors. As part of this institutional reform, restrictions on the ownership structures of joint-venture projects outside EPZs were abolished, export-oriented foreign ventures in all parts of the country were given free-trade status (in addition to the area demarcated by the original GCEC Act), and a new system of automatic approval of projects was introduced in 1990 in place of the case-by-case approval procedure.

In November 1991, BOI status was extended to local investors who establish new export-oriented projects outside the FTZs. This provision, which was initially applicable only to investors who were prepared to implement their projects prior to 30 September 1991, was extended in February 1993 to local investors starting new export ventures as well as existing companies which set up production facilities outside the Western Province. This has since then become a permanent feature of the BOI approval procedure.

Developments over the past decade have, however, begun to send mixed signals to foreign investors. In 2008 the parliament passed a *Strategic Development Projects (SDP) Act*, empowering the minister in charge of the BOI to grant exemptions to 'strategic development projects' from all taxes for a period of up to 25 years. In the Act, a strategic development project means 'a project which is in the national interest and likely to bring economic and social benefits to the country and which is also likely to change the landscape of the country, primarily through provision of goods and services which will be of benefit to the public, substantial inflow of foreign exchange, substantial employment, and technology transfer' (Government of Sri Lanka 2008). This definition leaves a great deal of room for the minister's discretion in the investment approval process, thus undermining the role of the BOI.

A *Revival of Underperforming Enterprises and Underutilized Assets Act* was passed in November 2011 empowering the government to acquire and manage 37 'underperforming' or 'underutilized' private enterprises. These enterprises (some of which are said to be profit making, according to media commentaries) included seven enterprises with foreign capital participation (including Colombo Hilton of which Mitsui of Japan was a significant shareholder) and the Sri Lankan Airlines. Both the Fitch Group and Moody Corporation, two major credit rating agencies, warned that the bill would erode investor confidence and affect Sri Lanka's investment rating (Goodhand 2012).

The perennial issue of whether the government should give tax incentives (tax holidays) to foreign investors figures prominently in the contemporary FDI policy debate in Sri Lanka. Tax incentives given by the BOI have become highly politicized over the past two decades. As against the original BOI policy of giving time-bound tax holidays, many BOI approved firms have continued to enjoy this privilege for over three

decades. This has raised concerns about the rationale for giving tax concession, particularly given the challenge faced by the government in meeting the conditions of the recently negotiated extended fund facility with the IMF. Consequently, the BOI has suspended giving tax holidays to new investors.

Labour Market

Sri Lanka has a long history of trade union organization and worker militancy. The trade union movement in the country has evolved since the 1930s in close association with the emergence of Marxists-influenced left-wing politics (Jayawardena 1972). Professor Joan Robinson, who visited Sri Lanka in 1958 as an advisor to the newly formed National Planning Council, commented on the constraining effect of the system of labour relations on the country's effort to design a national development strategy to absorb a rapidly growing labour force as follows:

> "Ceylon has imported from the advanced capitalist counties the ideals of the welfare state, and her trade union movement has imported the conception that belongs to unions in a developed economy, whose business is to keep profits in check and secure an acceptable share of national output for the workers. … *Ceylon has tasted the fruit before she has planted the tree. Her Trade Unions are anxious to share in profits but the energetic, enterprising and thrifty capitalist for them to share with have not yet appeared."* (Robinson 1958, pp. 40-41) (Emphasis added)

Ironically, despite significant policy reforms over the years, Robinson's characterization still remains a valid depiction of Sri Lanka's labour market situation.

Under the Termination of Employment Act of 1953 (as amended in 1971), the employer of a firm with more than 15 employees has to obtain prior written consent of the employee, or the permission of the Commissioner of Labour, for the termination of an employee on non-disciplinary grounds (e.g. closure of business, rationalization of business, ill health of the employee, and incompetence of the employee). Interestingly, this legal provision goes beyond the ILO Convention No. 158, which recognized the right of an employer to terminate an employee's service on account of economic, technological and structural changes and similar developments, subject to the provision of sufficient notice and the timeframe for recognition. Under the Industrial Dispute Act of 1950, the employee has the right to appeal against a dismissal to a Labour Tribunal. Failure of the employer to justify his decisions results in an order for reinstatement with compensation, even if the worker was in his employment only for a few days. The Act stipulates that the Commissioner of Labour is required to complete his inquiries within three months, but the Supreme Court has held that such a requirement is only discretionary and not mandatory. In practice some dispute settlements have gone on for many years (Rodrigo 1983, Rama 1994).

As part of the liberalization reforms initiated in 1977, the government made some attempts to reform the labour legislation to achieve greater labour market flexibility in general and in particular to exempt firms

set up under the GCEC from labour legislations applicable to workers in the rest of the country. However, in the face of widespread opposition by the trade unions the government quickly abandoned the already gazetted bills. The only significant change achieved was the abolition under the GCEC Act of the ban on night-work for women in FTZ enterprises.

Following these failed attempts, the government adopted 'informal' strategies to resolve the contradiction between the existing rigid labour law and the need to provide GCEC enterprises with greater flexibility in labour management. First, greater care was taken in the recruitment of employees into the enterprises within the export processing zones; employees were recruited from applicants who were registered with the GCEC after prior police screening for trade union involvement. Second, a tight inspection process was introduced for monitoring daily entry of workers to EPZs. The labour market in the rest of the economy also remained peaceful until about the mid-1990s, because of the special political circumstances of the country at the time. Following the crushing defeat of the centre-left parties in 1977, the trade union movement was in disarray and membership became increasingly associated to the ruling party. The government was, therefore, able to control labour relations.

The extra-judicial approaches to achieving labour market flexibility proved less effective following the change of political leadership in 1994. Apparently a number of foreign firms left the country during this period because of prolonged labour market disputes. The promulgation of a Workers Charter in 1995 by the new government and attempts to 'sell' the Charter 'as a victory to the working class' contributed to further worsening of the industrial relation atmosphere.

Collective bargaining is not a common system of wage setting in the private sector in Sri Lanka, except in the banking and urban mercantile sectors. There are two laws that govern formal private sector wage setting. The first is the Wages Board Ordinance of 1941 which was enacted for the regulation of wages and other conditions of employment in 'trades', defined to include any industry or business undertaking, other than shops and offices. At present there are 36 Wages Boards, which determine wages and employment conditions of more than 1.6 million workers. The second is the Shops and Office Employees' Act of 1954, which covers persons employed in shops and offices. In industries not covered by the Wages Boards, the Commissioner of Labour has the power to fix minimum wages. The wage setting process under the two ordinances is supposed to be tripartite, giving equal representation to the unions, the employer, and members nominated by the government. But, in practice the Labour Commissioner often takes decisions in compliance with directives given by the government (Rodrigo 1983). However, the minimum wages are no longer a source of labour market rigidity in the manufacturing sector in the country. In most industries, in export oriented manufacturing in particular, market-determined wages have been well above the minimum wages over the past two decades.

An important positive facet of the otherwise 'costly' labour market regime of Sri Lanka relates to the employment of child labour. Since the colonial era, employment of Child Labour has been curbed in the country, and the minimum statutory age for employment is 18, with some conditional exemptions for those over 16.

Subsequently, Sri Lanka became an early signatory to the 39 ILO Core Conventions covering workplace practices, prohibition of forced labour, child labour and ensuring better working conditions.[11] The compliance of these regulations is rigorously enforced and monitored by the labour department and other bodies (Perry 2012). These labour market regulations were instrumental in preparing the apparel industry to effectively face the 'ethical trade' norms which the international buyers have recently begun to emphasize as an important part of their procurement practices.

Macroeconomic policy

The 1977 liberalization reform package was formulated with emphasis on the complementarity between macroeconomic management and trade liberalisation. The dual exchange rate system, which had been in operation since 1968, was abolished and the new unified exchange rate was to be adjusted to reflect foreign exchange market conditions. The other elements of the declared macroeconomic policy aimed at addressing the real exchange misalignment. They included significant interest rate reforms and a number of measures to ensure fiscal prudence, including privatisation of loss-making SOEs and a broadening of the domestic tax base.

However, from the first half of 1981, the Central Bank gradually deviated from the original plan and started using the nominal exchange rate as an 'anchor' to contain inflation. During the ensuing years, the exchange rate regime remained a quite tightly 'managed float'. The policy emphasis on fiscal prudence was short-lived. The main source of macroeconomic instability and pressure of the real exchange rate in the 1980s was a massive public-sector program that included the Mahaweli river basin development scheme (a billion-dollar multipurpose irrigation and hydroelectricity project), a large public housing program, and an urban development program (Athukorala and Jayasuriya 1994). Also, while a few loss-making public enterprises were either shifted to the private sector or closed down, most continued to operate with heavy dependence on budgetary transfers.

The domestic macroeconomic environment deteriorated further in the second half of the 1990s because of the escalating costs of the war. In the face of increased domestic inflationary pressure originating largely from the widening budget deficit, in most years the real exchange rate tended to appreciate. Given the massive domestic macroeconomic imbalances, attempts to redress real exchange rate appreciation through nominal exchange rate adjustment as part of the second-wave liberalization during 1989-90, and under the Standby Agreement signed with the IMF in 2001 and 2008, had only a passing impact. Overall, the international competitiveness gained during 1977-80 through macroeconomic policy reforms as part of the liberalization program in 1977 was never regained during the ensuing three decades. During the five–year period after the ending of the civil war, there was a massive appreciation of the real exchange rate. During this period large-scale foreign borrowings to finance infrastructure projects helped the Central Bank to maintain the stability of the

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[11] It is still the only Asian signatory country to these Conventions.

nominal exchange rate, but these capital inflows invariably contributed to real exchange appreciation through domestic 'non-tradable' inflation fuelled by the infrastructure projects (Figure 1).

In early September 2015, the Central Bank allowed greater flexibility in the determination of the exchange rate (CBSL 2015). Consequently between the third quarter of 2005 and the second quarter of 2016 there was a decline of 6.0% in terms of the Central Bank 24-currency nominal effective exchange rate index. This rate of nominal depreciation, however, translated into a real depreciation of only 4.2% as the nominal depreciation was partly counterbalanced by relatively higher domestic inflation compared to that of the trading-partner countries.[12]

Figure 1: Sri Lanka: Real Exchange Rate and its Components (2005 = 100), 1970-2015[1]
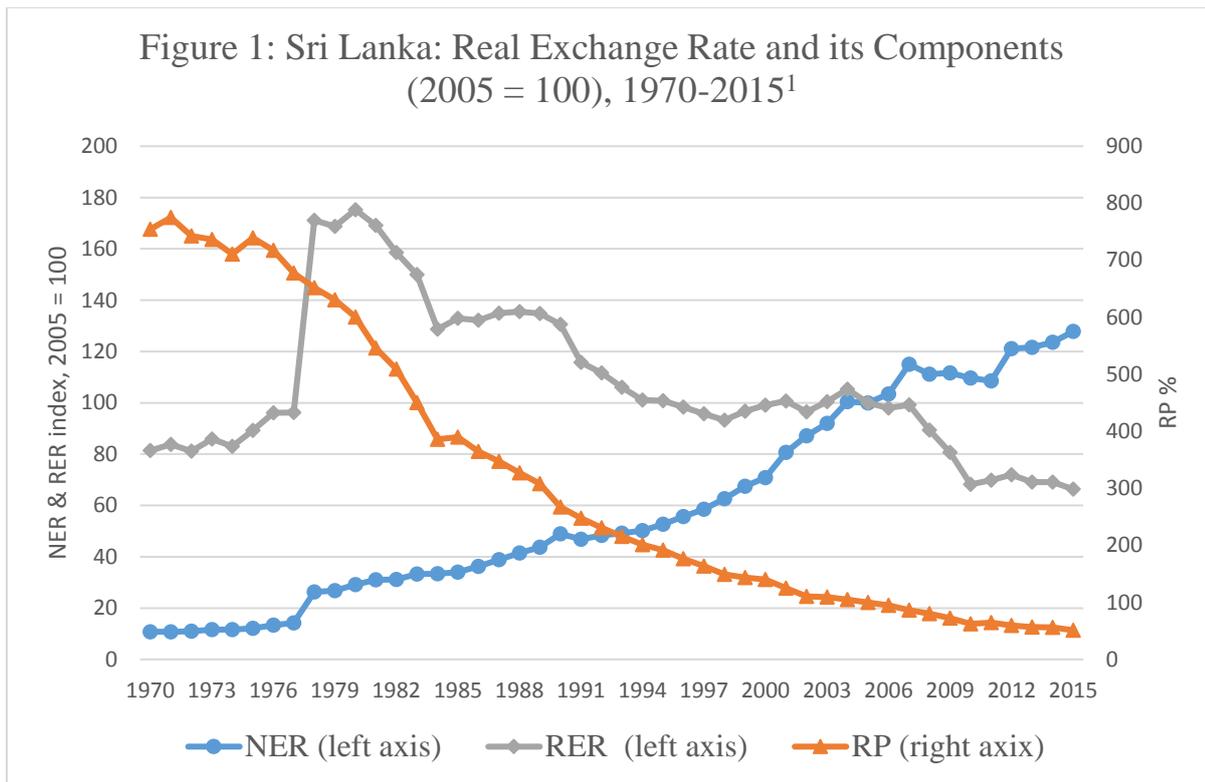
Note: 1. NER is export-weighted nominal exchange rate (measured as rupees per foreign currency unit) relating to Sri Lanka's top six manufacturing export destination countries (which together account for over 90% of the country's total manufacturing exports). RER is NER adjusted for relative price level of Sri Lanka (measured by the GDP deflator) and the six destination countries (measured by the producer price index). An increase (decrease) in RER shows an improvement (a deterioration) in international competitiveness

Source: Compiled from data extracted from World Bank, *World Development Indicator* database and Central bank of Sri Lanka, *Annual Report* (various years).

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[12] These figures are calculated from the data reported in *Monthly Bulletin of Statistics*: July 2016, Central Bank of Sri Lanka.

3. ANALYTICAL FRAMEWORK

Cross-border dispersion of production processes within vertically integrated global industries, with each country specializing in a particular stage of the production sequence, has been an increasingly important structural feature of economic globalization in recent decades. This phenomenon, which we call "global production sharing" in this chapter,[13] opens up opportunities for countries to participate in a finer international division of labour within given products, instead of producing the product from beginning to end within its national boundaries. Consequently, parts and components, and final assembly traded within global production networks—"interwork trade" or "vertical trade"—have been growing at a much faster rate in world trade than have goods wholly produced within countries—"horizontal trade" (Yeats 2001, Helpman 2011, Athukorala 2014a, Antras 2016). Global production sharing has been the prime mover of a notable structural shift in world manufacturing trade from developed countries to developing countries over the past four decades (Krugman 2008).

With the rapid expansion of global production sharing, the conventional approaches to trade pattern analysis, which are based on the conventional trade theoretical assumption that international trade takes place in goods produced entirely (from start to finish) in just one country, have become increasingly irrelevant for understanding emerging export opportunities for developing countries.[14] When it comes to analysing trade patterns of developing countries, this approach is basically relevant only for domestic-resource-based manufacturing and standard consumer goods that are made to local specifications (such as handicrafts), which, together account for a shrinking share of total world trade.

In the case of resource-based manufacturing, a country's potential for export expansion is obviously limited by its resource endowment. There are also other constraints on export success in this arena. For example, world demand growth for resource-based manufactures has proved to be much slower than that for the other two product categories. Some processing activities, particularly in the mineral and chemical industries, are characterized by high physical and/or human capital intensity and

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[13] Other terms used in the recent international trade literature include international production fragmentation, intra-process trade, vertical specialization, slicing the value chain, and offshoring.

[14] The most widely used conventional approach to trade flow analysis in the "factor-intensity based" product classification, which divides exports into resource intensive, skill and capital intensive, and labour intensive categories. In the presence of global production sharing, this classification results in misleading characterization of the export structure, because factor proportions naturally vary among different slices (tasks) of a given product and countries specialize in different slices depending on their relative cost advantage.

may not therefore be suitable for location in a low-income country. A further major deterrent is cascading tariff structures in industrialized countries, which still provide heavy effective protection to domestic processing industries. Insecure property rights in resource-rich developing countries also may act as a deterrent to investors in large, capital-intensive projects.

The market potential for goods that are made to local specifications accounts for only a small share of manufactured exports from developing countries. With the rapid expansion of buyer-driven production networks for made-to-order goods, opportunities for traditional labour-intensive products of this nature (e.g. clothing, toys, shoes, and sporting goods) have been rapidly disappearing.

Production sharing enables countries to specialize in a given slice of the production process because parts and components, capital and production technology are mobile within global production networks. Workers in a given country may tend to have different skills from those in another country, or the skills required in each production block differ (as in the Ricardian model). Alternatively, the production blocks may differ from each other in the proportion of factors required, enabling firms to locate labour intensive production blocks in countries where productivity-adjusted labour cost is relatively low (as in the Heckscher-Ohlin model). But the ability of a given country to link the value chain does not depend on the availability of labour and relatively low wages alone. Cross-border spread of production activities involves new fixed costs of establishing "services links"—arrangements for connecting and coordinating activities into a smooth sequence resulting in the production of the final good. Thus, a whole range of factors impacting the business climate are important in attracting FDI and other mobile inputs (Jones and Kierzkowski 2004; Helpman 2011).

Trade based on global-production sharing is, however, not a homogenous phenomenon. In terms of the organizational structure, production networks based on global production sharing take two major forms: buyer-driven production networks and producer-driven production networks. Understanding the difference in the governance structure of the two forms of production networks is vital for formulating policies for linking the manufacturing industry in a given country into global production networks.

Buyer-driven networks are generally common in diffused-technology based consumer goods industries such as clothing, footwear, travel goods, toys, and handicrafts. In these networks, the "lead firms" in the value chain are international buyers (large retailers such as H&M, Marks and Spencer, and Walmart,) or brand manufactures such as Gap, Nike, Victoria's Secret, and Zarah). Global production sharing in these networks takes place predominantly through arm's length relationships, with global sourcing companies (value chain intermediaries, such as Hong Kong, China-based Li &

Fung, and Mast Industries Far East) playing a key role in linking producers and the lead firms. Therefore, there is room for local firms to engage directly in exporting through links established with foreign buyers (Gereffi 1999, Schmitz and Knorringa 2000).

Producer-driven production networks are common in vertically integrated global industries such as electronics, electrical goods, automobiles, and scientific and medical devices. In a producer-driven production network, the "lead firm" is a multinational manufacturing enterprise (such as Apple, Intel, and Motorola). Global production sharing takes place predominantly through the lead firms' global branch network and/or its close operational links with established contract manufacturers. In these high-tech industries, production technology is specific to the lead firm and is closely protected in order to prevent imitations. Also the production of final goods in these industries requires highly customized and specialized parts and components whose quality cannot be verified or assured by a third party; it is not possible to write a contract between the final producer and input supplier that would adequately specify product quality. The bulk of global production sharing, therefore, takes place through intra-firm linkages rather than in an arm's-length manner. However, as the production unit (affiliated company) becomes well established in a given country and it forges business links with private- and public-sector agents, arm's length subcontracting arrangements with local firms can develop, leading to upgrading of technology and management capabilities of local firms.

Mindful of these considerations, the discussion in the subsequent sections is based on a commodity classification system that explicitly focuses on export opportunities opened up by global production sharing. For the purpose of the analysis, export data based on this classification system was compiled using trade data at the 5-digit level of the Standard International Trade Classification (SITC). The classification system is discussed in the Appendix 2.

4.   EXPORT PERFORMANCE

During the colonial era, Sri Lanka's export structure relied heavily on a limited range of primary commodities (Snodgrass 1966). The colonial export structure remained virtually unchanged during the first three decades of the post-independence period. By 1977, the share of manufacturing (excluding petroleum products) in total exports was only 4%, while the rest came from the traditional tea, rubber, and coconut, and other primary products.

Following the 1977 policy reforms, the export composition shifted from primary products toward manufactured goods. Exports of manufactured goods, in current United States dollar terms, grew at an annual compound rate of over 30% during 1978–2000, lifting their share in total exports to

over 70%. However, since then the rate of expansion of manufacturing exports has lagged behind that of primary commodity exports, with the share in total exports varying in the range of 70% to 68% (Figure 2).

Figure 2: Sri Lanka's Merchandise Exports, 1965–2014
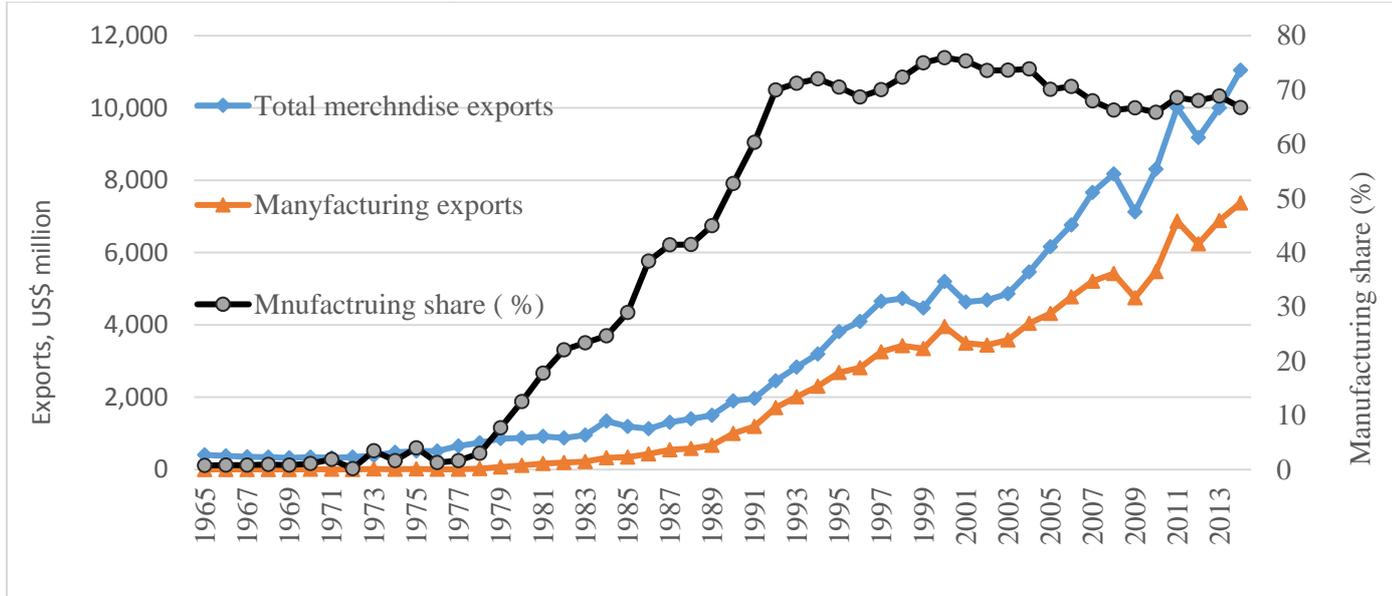
Source: Data compiled from UN Comtrade database.

Sri Lanka's share in world manufacturing exports increased from 0.05% in the mid-1980s to about 11% in 1999 (Figure 3), then declined, reverting to the level in the 1980s. This overall pattern suggests that slowing of the export growth during the last two decades has been driven primarily by domestic supply-side factors.

The percentage composition of manufacturing exports is summarized in Table 2. Products exported within global production networks (henceforth referred to as GPN products) account for over three-fourths of total manufacturing exports from Sri Lanka, a figure comparable to the East Asian average (Tables 2 and 3). But, unlike the dynamic exporting countries in East Asia, Sri Lankan GPN exports are heavily concentrated with buyer-driven networks. Within this product category, apparel accounts for the lion's share. There was some diversification since the late 1980s into other labour-intensive products, such as leather goods, footwear, toys, plastic goods, and diamond cutting and jewelry.

Figure 3: Sri Lanka's Share in World Non-oil Exports and Manufacturing Exports (%), 1988–2014
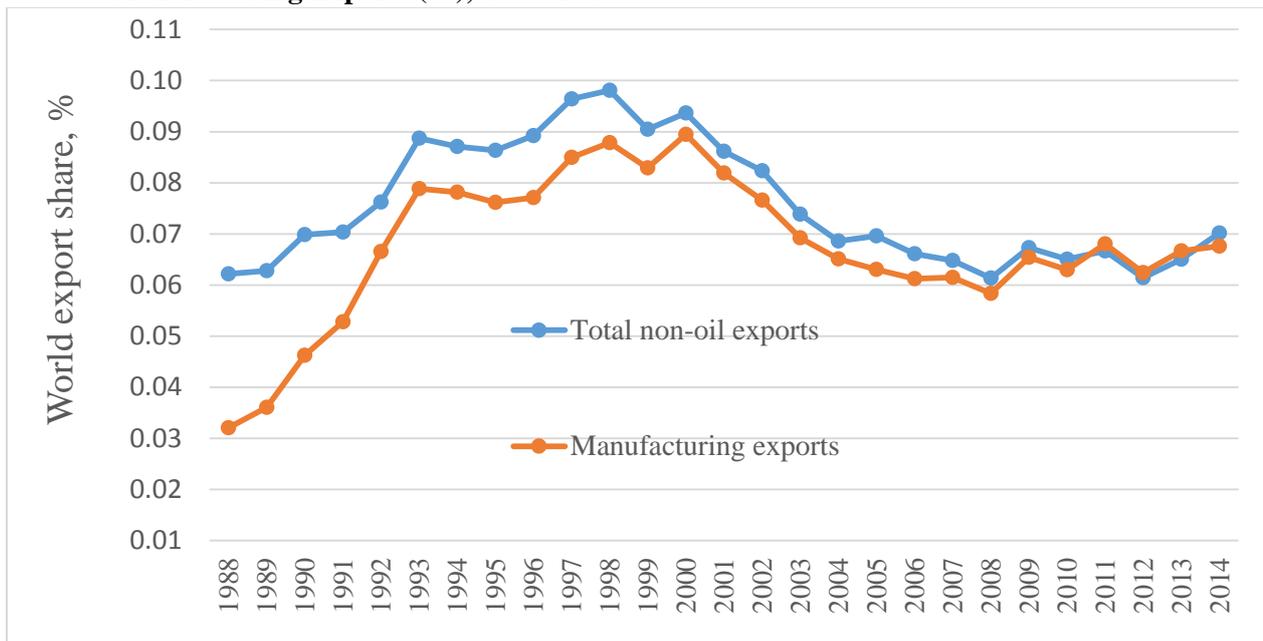
Source: Data compiled from UN Comtrade database.

As discussed in the next section, Sri Lanka's lopsided engagement in global production sharing mirrors the country's lackluster performance with attracting foreign investors into assembly production in high-tech industries (particularly electronics), despite the country's intrinsic comparative advantage in this area of international production. However, a sizeable number (over 30, according to BOI records) of fully export-oriented medium scale foreign invested enterprises (FIEs) are currently successfully operating in electronics, electrical, and automotive industries.[15] A recent study by the Sri Lanka Export Development Board (SLEDB 2014) indicates that these firms currently employ over 20,000 workers. The firms' exports account for only a small share (about 3%) of total manufacturing exports, but data show a continued increase in the exports' value, from $247 million in 2000 to over $470 million in 2014 (Table 4).

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[15] According to SLEDB (2015) these firms currently employ over 20,000 workers.

Table 2: Sri Lanka: Commodity Composition of Manufacturing Exports (%, 2-year averages)

Product Group/Product (SITC coded in brackets)	Year				
	1990–1991	2000–2001	2005–2006	2010–2011	2013–2014
GPN Products (buyer-driven + producer-driven)	70.87	81.12	74.30	73.00	75.66
Buyer-Driven	66.35	74.33	66.13	63.06	67.18
Garments	64.99	70.03	65.20	62.47	66.08
Footwear	0.93	1.16	0.35	0.30	0.80
Producer-Driven	4.52	6.79	8.17	9.93	8.48
Electronics and Electrical Goods (SITC 75 76 and 77)	1.62	4.37	3.90	3.36	2.83
Transport equipment (SITC 78 and 79	1.14	1.28	2.58	3.24	1.98
Traditional (horizontal) Products (largely domestic resource based)	29.13	18.88	25.70	27.00	24.34
Essential Oil (SITC 551)	0.27	0.10	0.10	0.22	0.35
Activated Carbon (SITC 59864)	1.16	0.44	0.45	0.99	1.16
Tires (SITC 625)	1.19	2.46	6.08	7.34	7.88
Other Rubber-Based Products (SITC 62 - SITC 625)	0.74	0.74	1.02	1.70	1.97
Porcelain (SITC 666)	1.17	0.97	0.80	0.52	0.45
Diamonds, Gems, and Jewelry (667)	13.26	4.32	7.59	7.39	5.30
Total Exports	100	100	100	100	100
$ million	1,093	3,723	4,546	6,167	7131
Memo Items: Share of parts & components in GPN exports					
Total	4.99	8.35	9.93	8.37	7.79
Buyer-Driven	0.67	0.57	0.51	0.59	0.63
Producer-Driven	68.32	93.51	86.10	57.77	64.52

GPN = global production network, SITC = Standard International Trade Classification, UN = United Nations.

Source: Compiled from UN Comtrade database using the classification system described in Appendix A.

Table 3: Share of Global Production Network Products in Manufacturing Exports, 2012–2013 (%)

Economy	Buyer-Driven GPN	Producer-Driven GPN	Total
Developing East Asia	19.2	57.2	76.4
China, People's Rep. of	20.5	57.3	77.8
Taiwan	7.2	72.6	79.8
Korea, Rep. of	8.3	69.9	78.2
ASEAN	14.0	61.2	75.2
Indonesia	23.2	14.2	37.4
Malaysia	6.3	69.3	75.6
Philippines	13.2	64.1	76.3
Singapore	2.3	92.3	94.6
Thailand	12.4	59.4	72.3
Viet Nam	23.5	34.3	57.8
South Asia	12.2	21.2	23.5
India	12.3	9.9	22.2
Sri Lanka	67.2	8.5	75.7

GPN = global production network.

Source: Compiled from UN Comtrade database using the classification system described in Appendix.

For this study, in-depth interviews were conducted with the chief executive officers of three of the firms (Flintec Transducers, a fully-owned Swedish firm; Lanka Harness, a Japan–Sri Lanka joint venture; and Variosystems, a fully-owned Swiss firm). They assemble parts and components in high-tech industries (parts of weighing equipment, medical devices, and automobiles) respectively. The assembly processes are intrinsically labour intensive and unlikely to be affected by the "robotization" threat. While Sri Lankan policy indicates a human capital constraint on the country's potential for engaging in global production sharing, the prime reason these firms have located their production in

the country is the availability of trainable labour, including supervisory manpower. The three firms have entirely local managers and all supervisors have been trained on the job within the firms[16] (Markan-Marker 2016). All three firms have plans to expand their production.

Table 4: Parts and Components of Industrial Electronics and Electrical Goods Exported from Sri Lanka, 2000–2014

SITC Code	Product	2000	2005	2010	2011	2012	2013	2014
74492	Lift Truck Parts	---	---	15.0	34.1	31.2	43.6	57.1
77313	Vehicle Ignition Wire	---	---	37.0	40.6	37.2	36.1	36.1
77119	Other Elec. Transformers	13.1	16.4	50.0	36.7	28.4	28.4	24.5
77282	Switchgear Parts	0.3	12.1	26.7	38.3	33.8	21.7	28.6
77261	Switchboards Etc. <1000v	0.7	6.1	11.1	13.2	6.9	20.0	27.3
77281	Switchboards Etc. Unequal	8.1	14.2	12.4	17.3	11.8	12.6	17.2
77220	Printed Circuits	14.8	5.9	22.7	28.6	26.6	16.7	10.9
77812	Electric Accumulators	0.3	0.4	0.2	0.3	0.8	6.0	18.4
	Other	207.9	247.8	161.2	204.8	182.1	193.1	227.3
	Total Parts and Components	246.8	307.5	346.4	429.2	377.1	399.4	472.1

Source: Compiled from UN Comtrade database.

Among the non-GPN products (horizontal exports), rubber-based products, in particular pneumatic (airless and solid) tires, have shown impressive growth. Sri Lanka's share in world exports of pneumatic tires (SITC 62594) increased from 6.0% in 1990/91 to 22.3% in 2013/14. Two Sri Lankan joint ventures, with Camso (a Canadian multinational enterprise) and Tellobrog (a Swedish multinational enterprise), account for the country's entire production of pneumatic tires. The share of

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[16] The success of Lanka Harness has been featured in the recent article in the *Nikkei Asia Review* (Markan-Marker 2016)

natural rubber (Sri Lanka's second largest traditional export) in total exports has declined sharply as a result of the rapid growth of rubber-based manufacturing industries. In 2014, more than 80% of the country's total natural rubber production was absorbed by the export-oriented industries.

An important issue in the contemporary trade and industrial policy debate is whether an import substitution phase is a precondition for an economy's successful transition to an export orientation. Related to this issue, the composition of the structure of manufacturing production at the time Sri Lanka embarked on liberalization reforms and the commodity composition of manufacturing exports during the subsequent years[17] fails to suggest any direct link between emerging export patterns and the structure of production inherited from the import-substitution era. On the contrary, the data suggest that most manufacturing exports emerged *de novo* after the liberalization reforms. Most of the new exporting firms—both those with FDI participation and purely local ones—emerged as exporting ventures independently of the industrial formed during the import-substitution (IS) era in the earlier period. In the apparel industry, a few firms established during the IS era have successfully ventured into export business. However, as shown in the next subsection, their new operations were based on knowhow and management inputs obtained though foreign collaboration and/or marketing links established with foreign buyers.

The Special Case of Apparel [18]

In Sri Lanka commercial production of apparel began in the early 1960s (Kelegama 2009). However, expansion of the industry remained severely constrained during the ensuing two decades by a highly interventionist trade and industrial policy regime. The apparel industry started to grow only after the liberalization reforms were initiated in 1977. From 1992, apparel has been Sri Lanka's single largest export product. Over the years, the composition of manufactured exports has diversified into other labour- and resource-based products, but apparel still accounts for over 42% of total merchandise exports and over 62% of manufacturing exports.

In the lead up to the abolition of the Multi Fiber Agreement (MFA) quotas, Sri Lanka was grouped with the countries expected to experience significant contraction the the post-MFA free era (Nordås 2009). This gloomy prediction has not materialized: the average annual Sri Lankan apparel exports during 2005–2014 amounted to $3.564 billion, up from $2.820 billion during the preceding 5 years (2000–2004)—a 26% increase. Sri Lanka's share in world apparel exports did decline, from

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[17] The data are not presented here because of the space constraint.

[18] This section draws on Athukorala and Ekanayake (2017).

about 1.10% during 2000–2004 to 1.01% during 2005–2007, but has increased since, reaching 1.17% in 2015.

The post-MFA performance of Lanka's apparel industry is particularly impressive considering two important impediments operating during this period. First, unlike many of its competitors, Sri Lanka does not enjoy preferential access to the major markets in Europe and North America. Second, Sri Lanka is no longer a low-wage production base when compared with many other apparel-producing countries in the region.

On 15 February 2010, the European Union suspended the *Generalized Scheme of Preferences plus* ('GSP plus') concessions to Sri Lanka (effective from 15 August) due to concerns about the violation of human rights.[19] In addition to loosing preferential access to the European Union markets, the Sri Lankan apparel exporters had to compete in the United States market with exporting countries that enjoyed handsome tariff preferences under the African Growth Opportunity Act and regional trading agreements with countries in Latin America. The erosion of relative price competitiveness resulting from trade preferences has been compounded by an increase in wages in recent years. Sri Lanka's average hourly wage is now much higher than that in Bangladesh, Cambodia, and Viet Nam (and possibly in India and Indonesia), and is approaching the levels in the People's Republic of China and other East Asian countries that produce clothing (Athukorala and Ekanayake 2017, Table 2).

The remarkable resilience of Sri Lankan apparel exports to the MFA abolition under these constraints has been underpinned by a compositional shift in the exports, from "basic apparel" to "fashion-basic apparel" (Table 5).[20]

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[19] Under the Generalized Scheme of Preferences (GSP), Sri Lanka is eligible for an average non reciprocal preference margin of about 2.2% on clothing exports (the average GSP rate of 9.0% compared to an average Multi Fiber Agreement tariff rate of 11.2%). In July 2005 Sri Lanka became eligible for additional tariff concessions under the newly introduced "GSP plus" scheme, which offered duty free access for 7,200 products (including most clothing items).

[20] This follows the three-way classification of apparel proposed by Abernathy et al. (1999): fashion products, basic products, and fashion-basic products. Fashion products are high-end products, such as dresses from Paris and Italian made suits, the demand for which is largely driven by social status and deep-rooted cultural values. These products are not typically imported from developing countries. Basic apparel products remain in a retailer's or a manufacturer's collection for many seasons, such as men's shirts, trousers, and underwear. Fashion-basic products are variants on basic products that contain some fashion element (such as stone-washed jeans, pants with pleats or trim, and fashion lingerie and intimate wear).

Table 5. Sri Lankan Clothing Exports: Top 20 SITC-5 Digit Products, 2000–2001 and 2012–2014

	2000–2001			2013–2014	
SITC code	Product	Export share	SITC code	Product	Export share
		(%)			(%)
84260	Women's/Girls' Trousers, woven	9.6	84551	Brassieres	9.9
84140	Men's/Boys' Trousers, woven	8.9	84140	Men's/Boys' Trousers, woven	9.7
84270	Women's/Girls' Blouses, woven	7.3	84260	Women's/Girls' Trousers, woven	9.8
84540	T-shirts/Singlets, knit	5.6	84540	T-Shirts/Singlets, knit	9.4
84530	Jerseys/Pullovers	5.4	84482	Women's/Girls' Panties, knit	9.2
84130	Men's/Boys' Jackets, woven	5.2	84691	Gloves, knit	4.7
84551	Brassieres	4.8	84426	Women's/Girls' Trousers, knit	4.6
84151	Men's/Boys' Trousers, cotton woven	4.7	84822	Women's Nightwear, woven	4.4
84230	Women's/Girls' Jackets, woven	3.4	84151	Men's/Boys' Trousers, cotton	3.5
84371	Men's/Boys' Trousers, cotton knit	3.2	84530	Jerseys/Pullovers	3.2
84250	Women's/Girls' Skirts, woven	3.2	84270	Women's/Girls' Blouses, woven	3.2
84240	Women's/Girls' Dresses, woven	3.0	84240	Women's/Girls' Dresses, woven	3.0
84482	Women's/Girls' Panties, knit	2.7	84381	Men's/Boys' Underwear, knit	2.8
84282	Women's Nightwear, woven	2.6	84512	Baby Clothes, knit	2.3
84512	Baby Clothes, knit	2.4	84564	Women's/Girls' Swimwear, knit	2.2
84470	Women's/Girls' Blouses, knit	2.0	84424	Women's/Girls' Dresses, knit	2.3
84691	Glove, knit	1.9	84250	Women's/Girls' Skirts, woven	1.7
84511	Baby Clothes, woven	1.7	84483	Women's/Girls' Skirts, woven	1.5
84423	Women's/Girls' Jackets, knit	1.1	84371	Men's/Boys' Trousers, cotton	1.5
84159	Men's/Boys' Trousers, woven	1.1	84423	Women's/Girls' Jackets, knit	1.2
	Total	79.8		Total	90.2

Note: Two-year averages.
Source: Compiled from UN Comtrade database.

The degree of concentration of exports in the top 20 products has increased over time, from 79.8% in 2000/01 to 90.2 in 2013/14. Among these products, the share of women's apparel, which generally contain a higher fashion content, increased from 44% to nearly 60%. The two most rapidly expanding categories within this product group are brassieres (SITC 84551) and panties (SITC 84482).

In 2013/14, Sri Lanka accounted for 8.2% of total world exports of women's and girls' panties, up from 2.2% in 2003/04. Sri Lanka's world market share of brassiere increased from 3.2% to 7.4% in the same interval. Products that generally have no fashion content (such as men's business shirts and normal men's and women's trousers) have virtually disappeared from the export product mix.

In basic apparel products, labour cost is the major determinant of international competitiveness; low-wage nations, especially those with access to inexpensive textiles, have the potential for major market share gains in the post-MFA era. By contrast, in fashion-basic products, exporting is more than a simple price-cost game; speed and flexibility are crucial capabilities for firms wrestling with product proliferation. What explains Sri Lankan apparel industry's success at meeting these requirements?

The Sri Lankan apparel industry, as in the other second-tier exporting countries, started with "cut, make, and trim" operations: simple contract manufacturing for international buyers with designs and all intermediate inputs (fabrics and accessories) provided by the buyer. At the time, "quota-hopping" apparel producing firms in East Asia (especially Hong Kong, China) that had set up production plants dominated the industry. However, from about the late-1990s, an increasing number of firms with expanded local capital participation embarked on package contracting ("original equipment manufacturing"): producing according to customer specifications by sourcing fabrics and other inputs from foreign suppliers designated by the buyers. Several such firms have become full package manufacturers (or "original design manufacturers"). They offered a full range of services to customers encompassing product development, pattern making, finishing, sourcing, manufacturing, and delivering. Such firms now account for about 60% of total exports (by value), with the rest coming from package contractors. "Cut, make, and trim" activity has virtually become a relic of the past. A few Sri Lankan firms have gained "original brand manufacturing" status (JAAF 2012). By the late 1990s, the industry had a well-developed customer base including well-known brand names such as Abercrombie and Fitch, Gap, Hunkemoller, Liz Claiborne, Marks and Spencer, Nike, Pierre Cardin, Ralph Lauren, Sainsbury's, Tesco, Tommy Hilfiger, and Victoria's Secret. Large apparel firms (at least the top 10 companies) had established their own design centers that worked closely with design teams of brand owners. Most large companies (in particular the top 10) have invested in computer-aided design and manufacturing, and in electronic fitting, which enables design decisions by visualizing the garment digitally, skipping fit-on sessions with models.

In the post-MFA era, the Sri Lankan apparel industry has settled into a smaller core of firms, which are presumably well prepared to take advantage of changing future demand. Customs records indicate that Sri Lanka had 817 exporting firms in 2004 (using an export value of $10,000 as the minimum cut-off point). The number declined to 671 in 2008 and to 450 in 2011, and the size

distribution of the surviving firms has become increasingly skewed, with larger farms accounting for the bulk of exports. At the upper end, the three largest firms accounted for over 35% of total exports in 2011, up from over 13% in 2004. In 2011, more than two-thirds of exports originated from the top 20 firms, compared with 39% in 2004. Some of the large firms are now multinational enterprises in their own right with subsidiary companies in other apparel exporting countries, such as Bangladesh, India, Jordan, Kenya, Madagascar, and Viet Nam,. These firms have the ability to coordinate production within their global production networks to meet orders from their strategic buyers, reminiscent of the triangular manufacturing practices of the East Asian firms during the MFA era.

A key determinant of a firm's success in manufacturing flexibly is the domestic availability of high quality inputs, which reduces the transport costs of inputs, delays, and the management time needed to coordinate a fragmented supply chain. Until about the mid-1990s, the domestic content of apparel exports from Sri Lanka was basically equivalent to the labour content: about 20% (Kelegama and Foley 1999). Since then, the three largest firms (MAS Holdings, Brandix and Hidramani, in that order) have set up plants to produce textiles (mostly knitted fabric and elastic) and ancillary inputs (hangers, brassier mounding, packaging material, labels, and buttons) to be used mostly in their own apparel plants, but also to meet the requirements of other apparel producers in the country. Currently, about 60% of fabric used in apparel production (about 80% of fabrics used in knitted apparel and about 20% of woven apparel) and the bulk of the ancillary inputs are produced domestically.

Given the country's long-standing commitment to providing universal free education, the labour force also had a much higher level of formal education (on average 10.3 years of schooling) than in most other apparel exporting countries (Savachenko and Acevedo 2010). Therefore, a worker who joined the labour force as a "helper" in an apparel factory takes only 2–3 months to become a machine operator, versus 3–6 months taken by a Bangladeshi counterpart.[21] In addition, the managerial and technical capability of Sri Lanka's apparel industry has improved notably during the past 4 decades, with public–private partnerships playing a pivotal role. Initially, the Sri Lankan apparel industry was heavily dependent on textile technicians from Hong Kong, China. The dependence on foreign textile technicians had virtually disappeared by the dawn of the new millennium. Sri Lanka has also become a supplier of textile technicians and managers to other apparel-producing countries in the region and beyond (Jacob 2013; Staritz 2011).

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[21] Based on an interview with a Sri Lankan firm that has a large branch plant in Bangladesh. See also Savachenko and Acevedo (2010).

As the Sri Lankan apparel industry expanded, the country's major apparel producing firms placed greater emphasis on ethical employment practices than in the case in many of its Asian competitors (Fernando and Almeida 2012; Ruwanpura and Wrigley 2011; Friedman 2000). The "Garment without Guilt" campaign launched by the JAAF played a pivotal role in strengthening corporate social responsibility commitments among apparel exporting firms and promoting Sri Lanka as an ethical clothing manufacturer destination (JAAF 2012; Amalean 2001). Most large firms provide workers with transport facilities, free breakfast, subsidized meals, and medical care, and engage in community services in rural area where the factories are located. Some firms produce "fair trade" clothing and invest in building "green" factories. The impressive record of compliance with ethical employment practices and internationally agreed environmental standards have enhanced Sri Lanka's attractiveness as a source of procurement for the leading brand marketers and specialty stores.

Finally, the data suggest that production disruption resulting from trade union action is much less of an issue in the clothing industry than in other industries.[22] Employment conditions, particularly in large firms, had improved significantly, leaving little room for trade union action. Moreover, the predominance of women in the work force is an important source of industrial peace.[23] The macho orientation of political trade unionism in Sri Lanka has deterred women from participating in trade unions. Female workers do not have a compelling reason for joining unions because of the short-term nature of their employment; they typically remain in the labour force for about five years before returning to their villages to other forms of employment and marriage (Gunawardana 2007).

5.   FOREIGN DIRECT INVESTMENT AND EXPORT EXPANSION

The initial response of foreign direct investors to the liberalization reforms in Sri Lanka was impressive. During 1970–1976, net FDI inflows increased rapidly, from half a million dollars a year to $64 million in 1982. The outbreak of the war in 1983, however, severely disrupted this impressive trend and annual flows during the rest of the decade varied in the range of $17 million to $58 million. The second-wave reforms and the temporary cessation of hostilities during the first half of the 1990s witnessed a notable surge in FDI, which increased to an all-time high of $184 million in 1993. The growth rate of FDI inflows slowed during the next decade, with a mild increase in 2000, mostly

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[22] According to the data on number of strikes and lost man days reported in Department of Labour (2010).

[23] Young, poor women from the rural areas make up approximately 85% of all workers in the garment industry.

reflecting increased inflows related to the privatization program.[24] Sri Lanka's performance in attracting FDI was impressive during the post-reform period until about the mid-1990s, but has since deteriorated (Table 6).

FDI increased noticeably during the 5 years following the end of the civil conflict (Figure 4), although the increase is less dramatic if judged by the standard definition of FDI rather than the new definition of the Central Bank of Sri Lanka (CBSL). The inflows have also been heavily concentrated in tourist hotels and nontradable sectors (mostly real estate); FDI in manufacturing accounted for less than 30% of total approved investment during 2010–2015 (Figures 5).

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[24] During 1999–2002, inflows relating to acquisitions accounted for over 30% of net annual FDI inflows to Sri Lanka (calculations based on data reported in CBSL various years).

Table 6: Foreign Direct Investment Inflow as a Share of Gross Domestic Capital Formation (%), 1980–2013 (period averages)

Economy	1980–1984	1985–1989	1990–1994	1995–1999	2000–2004	2005–2009	2010–2013
Developing Economies	3.3	3.2	5.7	10.9	11.7	12.1	9.3
Asia	2.7	3.9	6.7	10.18	9.7	10.3	7.2
Bangladesh	0.1	0.1	0.1	1.18	3.0	3.9	3.4
China, People' Rep. of	0.6	2.2	9.8	13.6	9.3	6.1	3.5
Cambodia	---	---	---	---	15.1	41.8	71.3
India	0.1	0.3	0.9	2.88	3.6	6.9	4.7
Pakistan	1.3	2.3	4.4	7.12	5.5	16.2	5.2
Sri Lanka	3.1	2.5	4.3	5.24	5.2	6.1	5.0
Indonesia	0.9	1.8	0.9	2.66	-5.5	6.8	6.7
Lao PDR				12.5	10.5	13.6	15.3
Malaysia	11.5	9.3	19.4	16.58	10.5	13.6	15.3
Philippines	0.4	6.2	7.5	9.48	5.8	8.2	4.6
Singapore	18.9	29.3	30.3	33.02	62.9	74.4	88.8
Thailand	2.6	4.5	4.4	13.44	14.2	13.3	11.4
Viet Nam	0.2	0.1	33.5	27.9	12.5	20.4	21.7

--- = data not available, Lao PDR = Lao People's Democratic Republic..

Source: Compiled from UNCTAD *World Investment Report* database.

According to BOI records, several firms closed operations during this period: in 2015, 851 firms were operating, down from 1,040 in 2010 and 1,150 in 2005. FDI inflow in 2015 (about $400 billion) was the lowest in the last 10 years (Figure 6). Currently, BOI investment approvals are dominated by totally locally-owned firms: as of May 2016, foreign investment accounted for a mere 19.4% of approved investment, versus almost half of the firms in commercial production (Table 7).

Table 7: Implementation status of the investment projects approved by the Board of Investment (as of May 2016)

Project Status	Number			Planned Employment (number)		
	Total	FIEs	FIE %	Total	FIEs	FIE %
Approved/Awaiting Agreement	114	32	28.1	21,676	4,207	19.4
Awaiting Implementation	156	66	42.3	36,359	19,951	54.9
Awaiting Commercial Production	190	85	44.7	37,604	16,096	42.8
In Commercial Operation	1,700	747	43.9	347,072	167,104	48.1
Total	2,160	930	43.1	442,711	207,358	46.8

Note: Projects Approved under Sec 17 of BOI Law. FIE : foreign invested projects (fully foreign owned and joint-ventures)

FIE = foreign-invested enterprise.

Source: Compiled from data provided by the Sri Lankan Board of Investment

Figure 4: Foreign Direct Investment in Sri Lanka ($ million)
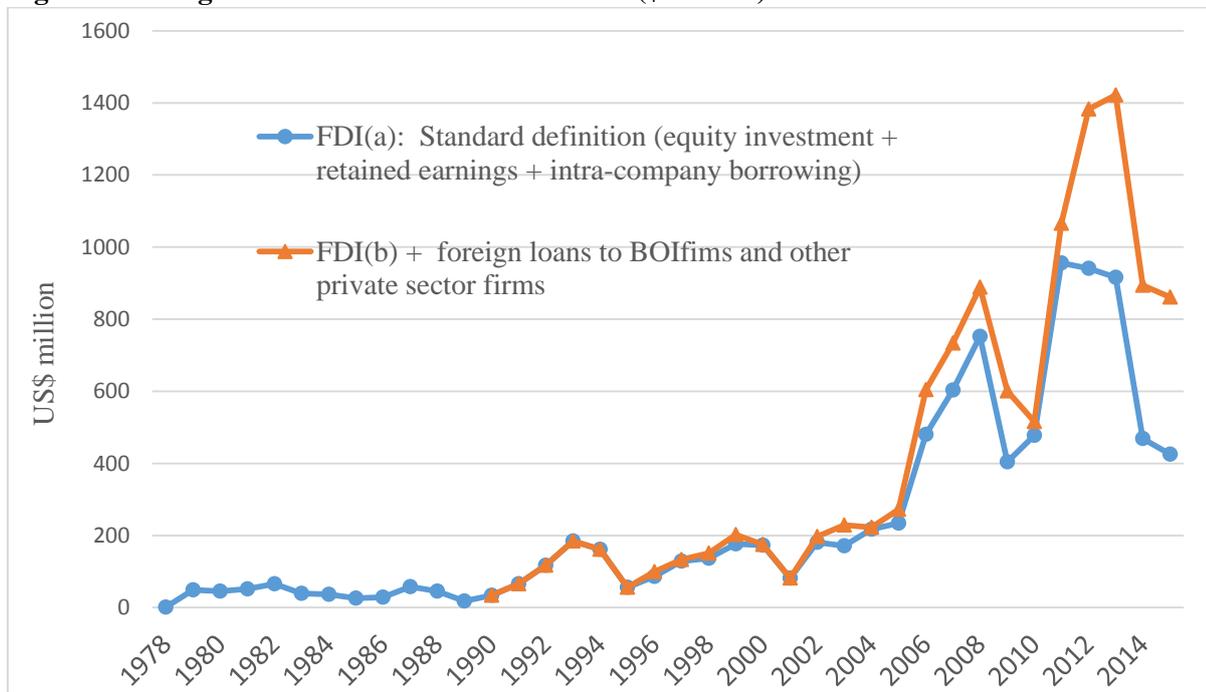
Figure 5: Sectoral Composition of Approved Foreign Direct Investment, 2005–2015 ($ million)
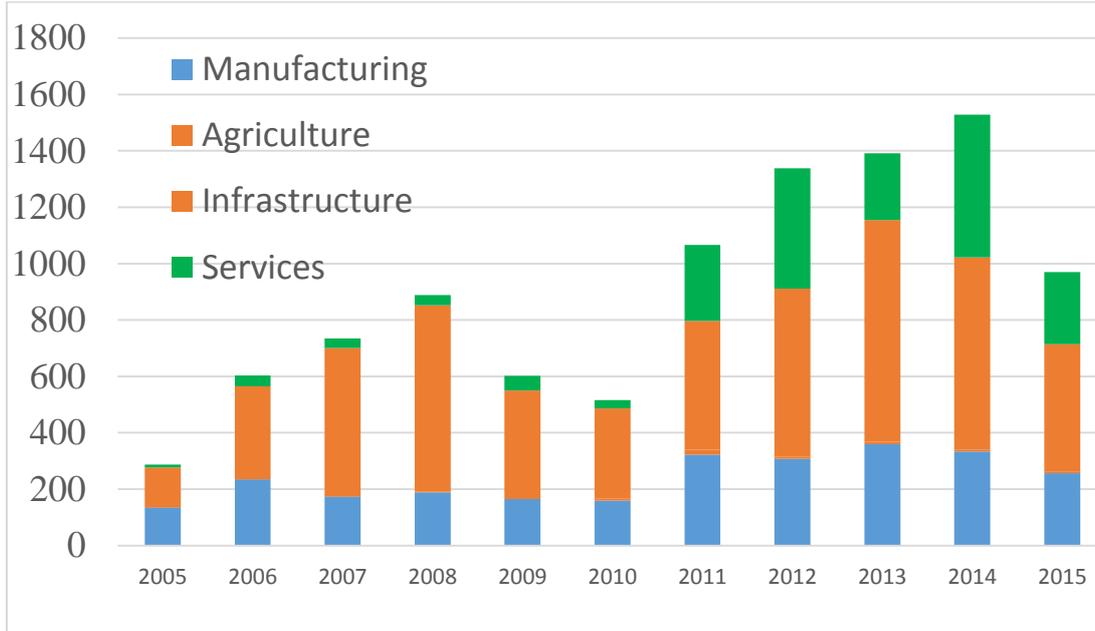
Notes:
1. Housing and property development, power generation, telecommunication networks, and fuel/gas distribution; port container terminal construction.
2. Hotels and restaurants, information technology, and business process outsourcing and other services.
Source: Unpublished records of the Board of Investment. Based on investment approvals.

Figure 6: Industry Composition of Foreign Direct Investment in Manufacturing, 2005–2015 ($ million)
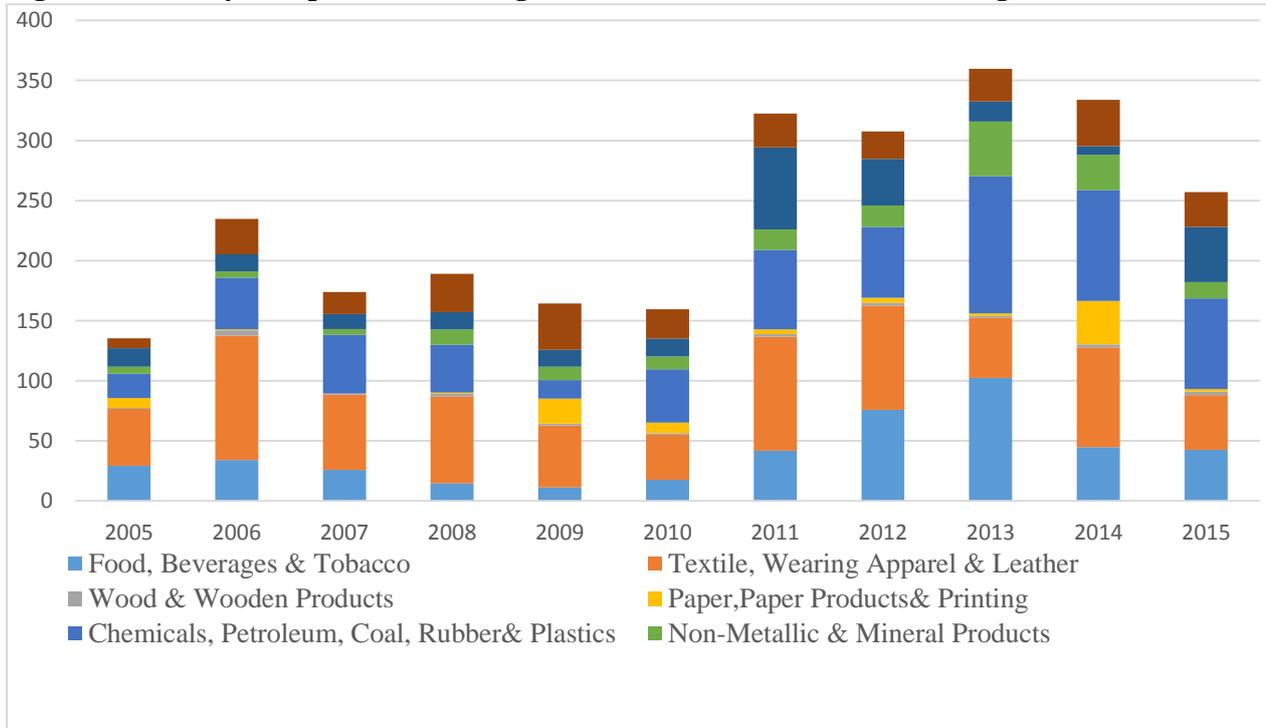
Standard labour-intensive manufacturing has been the main attraction for foreign investors in Sri Lanka, with a heavy concentration in the garment industry. The investment promotion campaign of the ~~Greater Colombo Economic Commission~~ GCEC aimed during the early stage at attracting FDI

into electronics and electrical goods assembly. But Sri Lanka seems to have missed the opportunity to become an electronics hub because of the increase in political risk following the eruption of the ethnic conflict in the early 1980s (Snodgrass 1998). Foreign firms involved in vertically integrated assembly activities, unlike those involved in light consumer goods industries, view investment risk from a long-term perspective because output disruption in a given location can disturb production plans for the entire production chain. In fact, two electronics multinationals—Harris Corporation and Motorola—abandoned plans to set up assembly plants in Sri Lanka in the early 1980s as the political climate begun to deteriorate.[25] There is evidence of a "herd mentality" in site selection by multinational electronics firms, particularly if the "first-comer" is a major player in the industry. If the Harris and Motorola projects had succeeded, other multinationals would have followed suit. Moreover, the entry of large players in vertically integrated global industries naturally sets the stage for the emergence of local small and medium scale firms supplying ancillary components and services (Athukorala 2014b).

FDI has undoubtedly been the engine of manufacturing export growth. Estimates made by matching the list of BOI-approved foreign-invested enterprises with export-level Customs records indicate that their share of total manufacturing exports increased from 24% in 1977 to over 80% in mid-1995 (Athukorala and Rajapatirana 2000, Table 6.8). Data compiled from BOI records show that the pattern of dominance by foreign-invested enterprises in manufacturing exports continued in the ensuing years: during 2002–2015, BOI approved enterprises accounted for 82%–90% of total annual manufacturing exports.

6. DETERMINANTS OF EXPORTS

This section first reports the results of an econometric analysis that aims to delineate the impact of international competitiveness (as measured by the real exchange rate) and the export-oriented FDI on export performance, while allowing for the impact of regime shifts and world demand. Then the econometric evidence is supplemented by information gather from field surveys.

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[25] On signing the investment agreement with the Greater Colombo Economic Commission in 1980, W.D. Douglas, a vice-president of Motorola stated: "Political stability is number one on our list wherever we go" (quoted in Wijesinghe 1976)

Econometrics

The methodology involves estimating the following reduced form equation using data for the period 1970–2015:

$$QX = F(RER, PCAP, FIEX, WD, TDPLB, DMFA, DNUR, DPWR, TIME)$$

where *QX* is real exports (export at 2005 prices). The explanatory variables are listed below with the expected sign of the regression coefficient in brackets.

RER (+)   Real exchange rate

FIEX (+)   Real investment in foreign invested enterprise.

PCAP (+)   Production capacity, measured by real manufacturing output

WEXD (+)   Export demand, proxied by real manufacturing exports from developing countries.

DPLB (-)   Pre-liberalization dummy variable, which takes the value 1 for years 1970–77 and 0 otherwise.

DMFA (-)   A dummy variable to capture the impact of MFA phase-out (1 for 2005–2015 and 0 for other years).

DNUR(-1)   A dummy variable to capture production disruption caused by the youth uprising during 1987–1989.

DPWR (?)   Post-civil war dummy that takes the value 1 for the period   1999-2015   and   0 otherwise.

TIME (+)   Time trend.

Among the explanatory variables, *RER* is expected to capture the impact on export performance of changes over time in the relative profitability of exporting and selling domestically. *RER* is measured as the rupee price of the export destination country currency multiplied by the foreign price to domestic price ratio. The role of foreign invested enterprises (*FIE*s) in export expansion is presented by *FIEX*. This variable is measured as the total real investment in BOI-approved projects.[26] *PCAP* is included to capture the impact of production capacity expansion in manufacturing on export performance. In the absence of a direct measure of production capacity, this variable is proxied by the

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[26] Total investment, rather than foreign investment, better capture the impact of foreign-invested enterprises on export performance because there has been a clear shift in the ownership structure of these firms from full foreign ownership to joint venture (with minority ownership in most cases).

average real manufacturing output during the three preceding years. *WEXD* is included to capture the impact of world demand on export performance. Foreign currency prices faced by Sri Lankan exporters are determined exogenously. However, the ongoing process of shifts in world demand toward developing countries driven by global production sharing in overall world demand is relevant for explaining export performance.

The export equation is estimated separately for total manufacturing goods (*TMFX*), textiles and garments (*TGEX*), and other manufacturing exports (*OMEX*).[27] It is necessary to treat *TGEX* as a separate category to allow for the special market conditions faced by apparel exports until 2005, due to the market quota system under the MFA. The country-specific export quotas under the MFA, by segmenting textile and garment market country-by-country, created market power on behalf of exporters, which would otherwise have not existed. In other words, the MFA quotas made the export demand schedules facing exporters less elastic than they would have otherwise been.

The RER series relates to Sri Lanka's six major export destination countries (United States, United Kingdom, India, Germany, France, and the Netherlands). The data on producer price indexes for these countries are extracted from the World Development Indicators database of the World Bank. The data on manufacturing exports from developing countries to construct the WEXD series was compiled from the Comtrade database. The data on all other variables are from various issues of the CBSL *Annual Report.*[28]

All data series (except dummy variables) were used in logarithmic form.[29] The estimation was commenced by examining the time series properties of the data series using the Augmented Dicky-Fuller test. In terms of this test, all data series were found to be nonstationary (that is, the test did not reject the null-hypothesis of unit-root nonstationary, *I*[1]). Thus, in order to guard against the possibility of estimating spurious relationships, it was necessary to estimate the export

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[27] It is preferable to separate the other manufacturing exports into GPN products and non-GPN products, but disaggregated price (unit value) data are not available.

[28] The author is grateful to S.D. Nilanka for permitting him to use some of the data series from the database she constructed for the masters research essay (Nilanka 2016).

[29] The log-linear specification of the model was tested against the simple liner specification using the standard functional form choice tests (Pesaran and Pesaran 2009, Section 11.9). None of these tests favoured one over the other. The results are reported for the log-linear specification because it has the added advantage that the estimated coefficients can be directly interpreted as elasticities.

equation using an estimator that is appropriate for $I(1)$ variables. Of the alternative estimators, the Phillips-Hanses fully modified ordinary least squares (OLS) method was employed, which is applicable to data samples of the size typical in economics (47 in our case). The fully modified OLS is an optimal-single equation technique, which is asymptotically equivalent to maximum-likelihood estimators. This estimator applies a semi-parametric correction to the OLS estimator to eliminate dependency on nuisance parameters, and give medium-unbiased t-statistics that follow a standard normal distribution asymptotically.[30]

The summary statistics of the variables are reported in Table 8. The results are reported in Table 9. CAP was dropped because its coefficient turned out to be statistically insignificant (in some cases with the unexpected sign) in experimental rules. This is consistent with the fact that during the reform era, export-oriented manufacturing grew as an FDI-centered subsector side-by-side with the domestic-market-oriented sector. An interaction variable (*LRER*MFA*) is also included in the export equation for textile and apparel to test whether the relative price effect on apparel exports has changed following the MFA abolition. All three equations pass the Augmented Dickey-Fuller test for residual stationarity. Hence the regression coefficients can be interpreted as long-run (steady state) elasticities.

The "real exchange rate" variable is by far the most important determinant of expert performance in all three equations. For total manufacturing exports and apparel exports, the results suggest a statistically significant real exchange rate elasticity of 1.50 and 1.56, respectively. The magnitude of the real exchange rate elasticity of apparel is much smaller (0.68), although statistically significant at the 5% level. This result is consistent with our analytical prior relating to the impact of the market segmentation effect of MFA quotas. Interestingly, the coefficient of *LRER*MFA* is not statistically significant. This result is consistent with the earlier inference that, as part of the adjustment process in the post-MFA era, the Sri Lankan exporting firms have carved out niches at the upper end of the apparel value chain.

The coefficient of *FIEX* is statically significant at the 1% level in all equations, supporting the hypothesis that FDI played a vital role in the expansion of manufacturing exports. Interestingly, in the equation for textile and apparel, the coefficient of *FIEX* is much larger than that of *RER*. This is consistent with the analytical narrative of the pivotal role played by foreign-invested enterprises in the expansion of Sri Lanka's apparel exports.

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[30] These corrections works effectively for sample sizes as small as 50 (Philips and Hansen 1990; Pesaran and Shin 1999).

Table 8: Summary Statistics of the Variables Used in Estimating the Export Equation

	Log TMEX	Log TGEX	Log OMEX	Log RER	Log FIEX	Log WEXD
Maximum	13.27	12.99	12.35	5.17	12.39	15.40
Minimum	6.68	6.00	5.98	4.20	1.10	10.74
Mean	11.79	10.90	11.11	4.64	9.35	13.37
Std. deviation	1.69	2.13	1.48	0.27	3.63	1.54
Skewness	-1.39	-1.08	-1.78	0.35	1.36	-0.24
Kurtosis	1.29	-0.11	2.97	-0.62	0.36	-1.44
Coeff. of Variation	0.14	0.20	0.13	0.06	0.39	0.11

Table 9: Determinants of Manufacturing Exports

	Total manufacturing export (TMEX)	Textiles and garments (TGEX)	Other manufacturing exports (OMEX)
Constant Term	-7.88	-3.33	-12.82
	(2.27)	(1.21)	(2.76)**
Real Exchange Rate (RER)	1.55	0.68	1.58
	(3.54)***	(2.08)**	(2.78)**
Investment in Foreign-Invested Exporting Firms (LFIEX)	0.16	0.30	0.20
	(3.76)***	(9.58)***	(3.78)***
World Export Demand (WEXD)	0.83	0.61	1.26
	(5.15)***	(5.07)***	(6.01)***
Pre-liberalization Dummy (DPLB)	0.54	-0.21	0.73
	(1.24)	(0.71)	(1.31)
Post-MFA Dummy (DPMFA)	-0.40	-0.27	
	(2.68)**	(2.56)**	
Post-Civil War Dummy (DPWAR)	0.24	0.04	0.15
	(1.25)	(0.16)	(0.61)
Southern Youth Uprising Dummy (DUPR)	-0.30	-0.03	-0.64
	(2.44)**	(0.34)	(3.90)***
Trend	0.67	0.01	- 0.09
	(0.00)	(0.39)	(3.46)***
LRER*DPMFA		-0.51	
		(0.61)	
R-Bar Squared	0.93	0.98	0.84
ADF	-4.09***	-6.52***	-3.53**

The coefficient of the "world demand" variable is statistically significant with the expected positive sign in all three equations. This result is consistent with the view that world demand is important even for small countries in a context where the ongoing structural shifts in world export demand toward developing countries is not only determined by relative price competition. However,

the coefficient of the variable *l* is much smaller in all equations than that of *RER*. The important inference is that, while world demand shifts toward developing countries play a role, "international competitiveness", which captures supply-side developments, is far more important in determining export success.

Evidence from Field Surveys

An interviewee commented that the lack of clear policy signals had adversely affected the business environment for export-oriented production in general and for export-oriented FDI in particular. Several interviewees noted the sudden suspension of tax concessions for export-oriented firms and the reintroduction of the requirement to surrender export proceeds were knee-jerk responses to the broader macroeconomic crisis of the country, and were not consistent with the government's declared commitment to restore incentives for export production. The concerns are also consistent with the assessment of the business climate in the country in the *Global Competitiveness Report* (WEF 2016) and the findings of the Business Outlook Survey (CBSL n.d.). The *Global Competitiveness Report* identified policy instability as the single most important factor that is problematic for doing business in the country. The CBSL Business Outlook Survey indicates that overall business conditions have deteriorated from the third quarter of 2016 through the second quarter of 2016 (Table 10).

Table 10: Business Sentiment Indexes, 2014Q1-2016Q3

Business Sentiment Index	2014Q3	2014Q4	2015Q1	2015Q2	2015Q3	2015Q4	2016Q1	2016Q2
Business Conditions	136	126	107	111	111	122	105	86
Profitability	120	117	97	97	106	112	79	68
Skilled Labour Availability	101	90	102	84	100	76	98	87
Demand	137	136	122	139	129	146	116	105
Sales	127	140	123	145	142	142	118	117
Capacity Utilization	122	130	131	134	138	124	121	119

Source: Central Bank of Sri Lanka (2016).

Regarding infrastructure-related trade costs, a common complaint was the periodic power cuts and high cost of electricity. Contrary to popular perception, there were no complaints about cargo

transport and cargo handling at the Port of Colombo and the airport. The managers of exporting firms interviewed spoke favorably about the Customs clearance procedures.

Manufacturing exporting firms do not seem to consider unviability of managerial and supervisory manpower as a significant impediment to their operations. All the firms visited for the study are managed by Sri Lankans, following the involvement of foreign managers for a limited period of time during the formative stage. The firms seem to successfully train supervisors on the job. Sri Lanka's track record of technical and tertiary education is not as impressive as its long-standing success with primary and secondary education, but the country's human capital base is capable of acquiring technical and managerial skills within a short period.

A major concern in Sri Lankan policy circles relating to the viability of manufacturing exports from Sri Lanka is labour shortages (mostly of unskilled factory workers). During the field work for this study, news reports placed the number of unfilled vacancies in export-producing factories at 30,000–100,000. However, the reported labour shortages may be mostly due to structural characteristics of the economy that hinder the operation of free market incentives, rather than real.

First, the reported labour scarcity is predominantly concentrated in urban centers in the Western Province, and in the two free-trade zones (FTZs) in the province. The relatively higher cost of living in this region and poor accommodation facilities seem to hinder movement of labour from the rest of the country. Also, as the chief executive officer of a major electronics firm operating in the Katunayaka FTZ noted, the lingering bad image (created by the poor working conditions of apparel factories as initially set up in Katunayaka FTZ and failure to provide accommodation dormitories for factory workers) continue to deter workers from going to the zone. Firms in rural areas closer to their labour force do not seem to experience labour shortages. For example the above-mentioned electronics firm experiences labour shortages only in its Katunayaka FTZ factory; its factory in the Koggala FTZ has a waiting list for vacancies. Variosystems, an electronics firm employing 600 workers and situated in a rural area (in Badalgama, about 35 kilometers from the Katunayaka FTZ), has not faced labour shortages since starting operations in 1998. The firm has built dormitories for workers, but these are not fully occupied because most of the workers commute from their homes.

Second, because of job security, pension entitlement, and social status, workers prefer public sector jobs. Therefore, the massive, politically-motivated increase in public sector employment in the last 10 years seems to have compounded labour shortages faced by private sector firms. In a dramatic reversal of the contraction in the size of the public sector workforce maintained for the previous decade, total employment in the public sector increased from about 900,000 (11.1% of the total labour force in

2005 to over 1.3 million (14.0%) in 2014. Some workers employed in the private sector, even at much higher salaries, moved to the public sector during this period. Moreover, and perhaps more importantly, the expectations created by the public sector employment boom seems to have encouraged potential labour market entrants to remain unemployed until job openings arise in the public sector.

Third, there is no systematic island-wide institutional mechanism for disseminating information on available job openings. Many interviewees complained that the BOI's "job bank," the stated role of which is to introduce potential job seekers to BOI-approved firms, had remained virtually inactive. Most firms seem to rely on their current employees to fill vacancies, often paying a finders' fee for bringing in new recruits.

Labour scarcity in the apparel industry seems anomalous given the massive labour outmigration. A tentative estimate suggests that the total stock of Sri Lankan overseas contract migrant workers had reach 2 million by 2011, equal to over 14% of the country's total working-age population (Arunatilake et al. 2011). Most migrant workers are females engaged in household services at a wage that is comparable to or even lower than the average factory worker's wage in Sri Lanka. There are two possible reasons for workers to migrate. First, foreign employment provides an opportunity for accumulating more savings since the cost of living (which is increasing rapidly in Sri Lanka) is covered as part of the overseas employment contract. Second, and perhaps more importantly, in a country where white-collar employment is highly valued as a result of universal free education, there is a stigma attached to working in a factory. The long working hours are an additional reason for aversion to apparel industry jobs.

Finally, relating to the labour market regime, the interviewees did not consider the existing minimum wage legislation as a constraint on their performance. They were also strongly sympathetic to the prohibition of child labour, which the apparel exporters consider as part of their competitive edge in the upper-end fashion-basic apparel market. Interviewees' main (perhaps the only) concern related to the cumbersome and long-drawn-out legal procedures relating to termination of employment and settlement of industrial disputes.

7.   SUMMARY AND POLICY INFERENCES

Trade and investment policy reforms initiated in the late 1970s have brought about far-reaching changes in the structure and performance of the Sri Lankan manufacturing sector. The achievements are all the more remarkable when we allow for the fact that the country failed to capture the full benefits

of reforms because of the protracted civil war that damaged the investment climate and undermined macroeconomic stability.

The Sri Lankan experience highlights the complementary role of investment liberalization for exploiting the potential gains from trade liberalization: trade liberalization increased the potential returns to investment by capitalizing on the country's comparative advantage, while liberalization of foreign investments permitted international firms to take advantage of such profit opportunities. There is compelling evidence that the entry of foreign firms is virtually essential for a "late comer" to export successfully. In addition to foreign-invested enterprises' direct contribution to export expansion, their positive spillovers have contributed to the success of local firms at exporting.

The Sri Lankan experience supports the view that trade-cum-investment policy reforms can set the stage for new exporting firms to emerge. In a global context in which factors of production—capital, technology, and marketing and managerial knowhow—are mobile across national boundaries, the nature of the existing manufacturing base is not a prerequisite for export diversification in the ongoing process of economic globalization. Developing human capital and building the country's innovative capabilities should of course be among the government's long-term policy priorities, but there is no need to wait to achieve these objectives in order to link domestic manufacturing into global production networks.

The findings make a strong case for redressing backsliding in policy, continuing the market-oriented reforms agenda that was left incomplete in the late 1990s, and setting up institutional safeguards to avert further backsliding.

Unification of para-tariffs and the standard customs duties and rationalization of the resultant tariff structure with the aim of achieving greater uniformity of rates is an important policy goal based on sound economic reasoning. In addition to economic efficiency gains, this would help to improve the efficiency of customs administration. Customs revenue could increase under a more uniform tariff structure, through achieving greater transparency of the tariff administration and reducing incentives for smuggling (Roy and Pattnaik 2004; Subramanian 1994).

Restoring the BOI's role to its original status as the apex institute for FDI promotion is vital for linking the economy to rapidly evolving global production networks. This requires repealing, or superseding by new legislation, the *Revival of Underperforming Enterprise and Underutilized Assets Act* and the *Strategic Development Project Act* and a firm commitment at the highest political level to promote FDI.

There is, of course, a strong case for rationalizing the fiscal incentives offered by the BOI. The very objective of giving incentives for promoting FDI is nullified if they are not made strictly time-bound and transparent. However, whether the government should go ahead with abolishing or phasing out tax incentives for export-oriented foreign firms is highly debatable. The evidence often cited against tax incentives in the recent policy debate in Sri Lanka comes from studies that have not made a distinction between import-substituting and export-oriented FDIs (see for example World Bank [2016]). Several studies have systematically examined the issue through firm-level surveys and have made a clear distinction between the two types of investors have found that tax incentives play an important role in influencing location decisions of export-oriented foreign investment (provided of course the other preconditions—political stability, favorable geographic location, infrastructure provision, etc.—are reasonably met (Wells 1986; Morisset and Prinia 2001; Guisinger and Associates 1985; Weigand 1983). In any case, if all other countries in the region are using tax incentives as an integral part of their strategy for attracting export-oriented FDIs, it would be counterproductive for Sri Lanka to "swim against the tide" purely on revenue considerations.

Characterizing the current BOI regime as an "enclave arrangement" is not consistent with facts. Many other countries have implemented export-processing zone schemes as an appendage to a highly restrictive trade regime, whereas in Sri Lanka BOI privileges are available to foreign and local investors that meet the approval criteria (the prime criterion being "export orientation"), and BOI-approved firms can operate anywhere in the country. The number of BOI firms operating outside the zones has increased significantly and would have been more rapidly geographically spread but for binding infrastructure constraints. Moreover there is clear evidence that many local firms have become successful exporters in their own right through experience gained from joint ventures with foreign partners.

Restoring the international competitiveness of the economy by depreciating the real exchange rate is essential for sustaining robust exporting. This requires a substantial nominal depreciation of the rupee. The CBSL's recent move to achieve greater flexibility in determining the exchange rate is therefore a step in the right direction. However, under the current economic conditions, relying on nominal exchange rate depreciation alone for restoring international competitiveness could be counterproductive. Given the massive build-up of foreign currency denominated government debt, exchange rate depreciation naturally worsens budgetary woes. Further, given the increased exposure of the economy to global capital markets, a large abrupt change in the exchange rate could shatter investor confidence, triggering capital outflows. Therefore, a comprehensive policy package encompassing greater exchange rate flexibility and fiscal consolidation (which requires both

rationalization of expenditure and widening the revenue base) to achieve a durable reduction in the public debt and complementary measures, including trade and investment policy reforms, are needed to improve the overall investment climate in the country.

The labour shortages reported, which have received much emphasis in recent policy debates, seem to be at least partly due to structural impediments that hinder the operation of free market incentives. Providing facilities and incentives for firms to locate factories where labour is available and requiring them to provide workers with dormitories (as is widely done in many other successful exporting countries) as part of the BOI investment approval/monitoring procedures and infrastructure development could redress these structural impediments to labour mobility.

There is a clear need for reforms to achieve labour market flexibility: repealing restrictions set by the Industrial Dispute Act and the Termination of Employment of Workers Act on retrenchment of workers for economic reasons, and a shift from centralized wage fixing toward work-place bargaining. The central question here is how to design a mechanism to gain the support of the workers whose cooperation is crucial for these policies to work. Immediate beneficiaries (at least in the eyes of the workers) are the employers and the gains for the workers and the populace at large (in terms of higher market-determined wages, better job prospects, etc.) come with a significant time lag. Thus, from the workers' point of view, "gains from proposed policy reforms are largely promissory" (Campos and Root 1986, p. 18). Making the policy work, therefore, requires designing a mechanism to guarantee that both parties—workers and employers—have a reasonable chance to share in the benefits.

Those who favor a single-handed approach to labour market reforms in Sri Lanka point to draconian labour control measures implemented in the high-performing East Asian countries. But they often ignore the important fact that restrictive labour market policies in these countries were always combined with policies that ensured explicit sharing of the benefits by both parties: "although labour was politically disabled, its economic needs were largely met" (Campos and Root, 1996, p. 19). Moreover, the restrictive approach to labour relations in these countries was part of a package of durable and credible growth-promoting policies. Broad-based social support gained through economic success brought about by these policies allowed the political leadership to ignore radical labour union demands without the risk of regime failure.

Appendix 1: The Structure of Trade Protection

Table A1-1: Sri Lanka: Nominal and Effective Rates of protection for Import-competing Production, 2015 (%)

I-O code	Product/sector	Output (value added) %	NRP all tariffs	ERP all tariffs	NRP customs duties	ERP Custom duties	NRP para tariffs	ERP customs duties
	Agriculture, forestry and fishing	37.87	23.52	31.41	3.37	4.13	20.14	27.28
0111	Cereals, leguminous crops and oil seeds	0.58	10.4	10.76	1.85	2.06	8.55	8.7
0112	Rice	3.31	36.12	78.27	7.58	17.56	28.53	60.71
0113	Vegetables and melons, roots and tubers	2.63	34.8	42.89	0.01	-0.11	34.8	43
0119	Other non-perennial crops	0.02	110.51	137.87	25	31.58	85.51	106.29
0122	Tropical and subtropical fruits	1.87	-	-1.83	-	-0.1	-	-1.73
0123-0124	Citrus fruits, pome fruits & stone fruits	0.08	11.71	12.29	0.15	0.15	11.55	12.14
0121,0125	Grapes, other tree , bush fruits and nuts	0.07	4.71	4.32	0.06	0.03	4.65	4.3
0126	Oleaginous fruits	3.32	44.62	51.19	5.47	6.34	39.15	44.85
0127	Beverage crops Coffee – Cocoa	0.07	59.9	72.13	12.86	15.79	47.04	56.34
0127 +1079	Beverage crops Tea (including processing)	12.29	29.84	51.46	4.8	8.2	25.04	43.27
0123-0125+0128-0129	Spices, drug and pharmaceutical crops	2.1	17.89	19.75	0.06	-0.02	17.83	19.77
0114	Sugar cane	0.08	-	-4.13	-	-0.25	-	-3.88
0129	Rubber	2.45	1.11	-3.28	0.08	-0.7	1.03	-2.58
0115	Tobacco	0.03	0	-2.34	0	-0.13	0	-2.21
0130	Plant propagation	0.01	4.91	-1.89	0.01	-1.09	4.89	-0.8

0141	Livestock	0.85	0.7	-3.75	0.18	-0.11	0.51	-3.64
0141	Milk Production	0.32	-	-8.31	-	-0.65	-	-7.67
0146	Egg Production	0.33	7.3	-2.7	-	-1.54	7.3	-1.16
0210	Forestry and logging	0.95	-	-5.23	-	-1.81	-	-3.41
0220	Firewood	1.39	51.92	57.26	15	16.54	36.92	40.72
0230	NWFP	0.05	91.94	91.94	27.81	27.81	64.13	64.13
0311-0312	Fishing	4.81	22.56	7.91	2.64	-4.78	19.92	12.68
07-08	Mining & Quarrying	6.88	2.72	-1.73	0.03	-1.43	2.69	-0.3
	Manufacturing	55.25	34.3	63.2	7.83	14.5	26.43	48.7
1010	Preserving of meat	0.49	46.3	104.56	8.2	18.08	38.1	86.48
1020	Preserving of fish, crustaceans and mollusks	0.34	15.57	11.64	0.08	-4.55	15.49	16.19
1030	Processing and preserving of fruit and vegetables	0.05	92.9	523.79	12.6	80.6	80.31	443.19
1040	Vegetable and animal oils and fats	0.54	69.9	149.64	1.96	0.97	67.94	148.67
1050	Dairy products	1.77	97.65	169.94	42.12	76.71	55.53	93.24
1061	Grain mill products	2.84	15.13	-3.11	3.73	1.87	11.41	-4.97
1080	Prepared animal feeds	0.91	18.43	10.77	1.23	-2.71	17.2	13.48
1071	Bakery products	1.29	170.41	511.87	25.29	74.67	145.12	437.2
1072	Sugar	0.09	38.13	103.68	0.5	0.42	37.63	103.26
1073	Cocoa, chocolate and sugar confectionery	0.12	61.86	132.68	10.83	21.35	51.03	111.33
1074	Macaroni, noodles, and similar farinaceous products	0.13	136.82	398.68	22.66	64.11	114.17	334.57
1101-1102	Spirits & wines	0.88	206.72	276.67	88.98	120.91	117.74	155.76

1104	Soft drinks and other bottled waters	0.57	112.55	179.29	20.16	30.18	92.39	149.11
1200	Tobacco products	5.56	9.13	9.31	2.3	2.34	6.83	6.96
1311-1312	Spinning of textile fibers & weaving of textiles	0.85	4.34	-1.32	0	-1.8	4.34	0.48
1313	Finishing of textiles	0.82	-	-7.74	-	-1.16	-	-6.58
1392	Made-up textile articles, except apparel	0.41	16.76	28.16	2.25	3.14	14.51	25.03
1393	Carpets and rugs	0.01	27.68	49.78	6.18	11.5	21.51	38.28
1394	Cordage, rope, twine and netting	0.13	26.49	48.42	8.81	17.65	17.68	30.77
1399	Other textiles	0.63	4.15	0.91	0.25	-0.78	3.9	1.68
1410	Wearing apparel, except fur apparel	11.3	5.13	4.86	0.57	0.41	4.56	4.45
1512	Luggage, handbags and the like, saddler and harness	0.1	25.29	41.77	4.92	8.85	20.37	32.92
1520	Footwear	0.33	25.6	36.14	5.67	8.28	19.93	27.86
16	Wood and wood products, except furniture;	1.45	18.85	30.35	2.14	3.11	16.71	27.25
1701	Pulp, paper and paperboard	0.43	18.38	23.51	2.07	2.33	16.31	21.19
18	Printing and reproduction of recorded media	1	14.09	13.14	1.57	1.15	12.53	11.99
19	Refined petroleum products	1.23	70.44	320.67	24.79	118.74	45.65	201.94
2011	Basic chemicals	0.92	12.31	4.61	0.84	-1.66	11.48	6.27
2012	Fertilizers and nitrogen compounds, pesticides	1	7.84	-5.4	0.01	-3.49	7.83	-1.91
2013	Plastics and synthetic rubber in primary forms	0.16	13.4	6.3	0.21	-2.74	13.19	9.04
2022	Paints, varnishes, printing ink and mastics	0.46	24.87	30.79	5.19	7.37	19.68	23.42
21	Pharmaceuticals, medicinal and chemical products	0.2	1.4	-26.19	0.23	-5.29	1.17	-20.9
2023	Soap and detergents, and toilet preparations	0.96	51.23	82.85	8.11	13.35	43.13	69.51
2029	Other chemical products	0.13	9.05	-1.34	0.98	-1.03	8.07	-0.31

2211	Rubber tires and tubes	1.32	73.3	146.52	20.07	40.48	53.23	106.04
2219	Other rubber products	1.05	20.11	50.12	3.72	9.59	16.4	40.52
2220	Plastics products	1.12	27.97	36.43	5.13	7.02	22.83	29.4
2310	Glass and glass products	0.2	50.23	68.67	8.33	10.57	41.91	58.09
2393	Other porcelain and ceramic products	0.79	87.54	213.87	12.71	30.02	74.84	183.86
2391	Refractory products	0	120.86	297.03	30.07	76.21	90.8	220.82
2394	Cement, lime and plaster	1.53	26.17	36.32	0.14	-5.67	26.04	41.99
2395	Articles of concrete, cement and plaster	1.42	94.92	203.32	15.32	32.13	79.6	171.18
2396	Cutting, shaping and finishing of stone	0.16	47.68	89.54	4.58	6.27	43.1	83.27
2399	Other non-metallic mineral products	0.26	39.09	73.86	9.69	17.95	29.39	55.91
31	Furniture	3.11	66.91	95.5	16.73	24.87	50.17	70.62
3211	Jewelry and related articles	1.31	3.5	-0.57	-	-1.1	3.5	0.53
3220	Musical instruments	0.02	16.66	16.55	3.99	5.5	12.67	11.05
3230	Sports goods	0.01	6.71	-2.02	0.1	-2.49	6.61	0.48
3240	Games and toys	0.17	53.58	85.04	16.24	27.3	37.34	57.73
3212+3290	Imitation jewelry, related articles & other manufacturing	0.98	18.96	20.1	3.23	3.41	15.73	16.69
2410	Basic iron and steel	0.36	14.81	7	-	-5.81	14.81	12.8
2431	Casting of iron and steel	0.08	24.96	35.63	3.16	0.32	21.8	35.31
2420	Basic precious and other non-ferrous metals	0.21	14.93	5.44	1.73	-1.64	13.2	7.08
2511	Structural metal products	0.55	7.41	-0.57	1.56	1.21	5.85	-1.78
2512	Tanks, reservoirs and containers of metal	0.06	27.82	38.72	5.13	7.82	22.69	30.9
2593+2599	Cutlery, hand tools, & other fabricated metal products	0.47	23.86	32.1	5.53	8.99	18.34	23.11

2811	Engines and turbines, except vehicle and cycle engines	0	8.36	-0.95	1.18	-1.06	7.18	0.11
2812-2813	Fluid power equipment, pumps, compressors and valves	0.06	16.08	15.5	1.32	-0.75	14.76	16.25
2819	Other general-purpose machinery	0.01	19.88	23.88	3.15	3.19	16.73	20.69
2821	Agricultural and forestry machinery	0.02	13.73	10.46	0.76	-1.93	12.97	12.39
2823	Machinery for metallurgy	0	16.14	15.86	0	-3.56	16.14	19.42
2824	Mining, quarrying and construction	0.01	5.97	-6.19	0	-3.67	5.97	-2.52
2825	Machinery for food, beverage and tobacco processing	0.01	10.93	4.45	0.13	-3.38	10.8	7.83
2826	Machinery for textile, apparel and leather production	0.04	6.96	-4.03	0.01	-3.5	6.96	-0.53
2750	Domestic appliances	0.15	27.78	38.83	4.63	6.02	23.15	32.8
2829	Other special-purpose machinery	0	9.43	1.23	0.03	-3.6	9.4	4.84
2620	Computers and peripheral equipment	0.08	8.58	5.76	0	-1.72	8.58	7.47
2710	Electric machinery and control apparatus	0.36	14.45	13.05	2.52	1.72	11.92	11.34
2732	Other electronic and electric wires and cables	0.1	14.41	11.69	3.48	3.27	10.92	8.42
2720	Batteries and accumulators	0.13	54.8	92.31	17.96	32.48	36.84	59.83
2733+2740+2790	Electric lighting equipment & wiring and wiring devices	0.32	26.53	35.76	5.6	7.83	20.93	27.93
2630+2640	Communication equipment & consumer electronics	0.03	9.31	5.37	0.85	-0.6	8.46	5.97
2660+2670	Medical, optical and photographic equipment	0	8.46	4.16	0.84	-0.45	7.61	4.61
29	Motor vehicles, trailers and semi-trailers	0.12	85.06	127.24	1.28	0.37	83.78	126.87
3011	Ships and floating structures	0.32	0.02	-21.81	0	-2.09	0.02	-19.72
3012	Pleasure and sporting boats	0.06	52.03	85.45	13.11	24.99	38.92	60.46
3091-3099	Transport equipment	0.15	49.03	66.16	0.49	-1.19	48.54	67.35

| Total tradable production | 100 | 28.2 | 46.7 | 5.61 | 9.48 | 22.42 | 37.22 |

Source: Compiled from estimates provided by the Department of Census and Statistics. Methodology and data sources are discussed in Section 2.

Table A1-2: Sri Lanka: Estimates of Export Bias[1] in the Manufacturing Sector, 2015 (%)

I-O code		Output[2] composition%	Export share in /output[3]	Export composition (%)	EBI1	EBI2	EBI3
1010	Preserving of meat	0.9	2.5	0.1	-102.2	-102.2	-96.7
1020	Preserving of fish, crustaceans and mollusks	0.6	74.9	2.2	-20.9	-20.9	-11.2
1030	Processing and preserving of fruit and vegetables	0.1	46.6	0.7	-167.9	-167.9	-167.6
1040	Vegetable and animal oils and fats	1	17.4	0.8	-119.9	-119.9	-115.7
1050	Dairy products	3.2	1.9	0.3	-125.9	-125.9	-122.2
1061	Grain mill products	5.1	5.8	1.6	6.4	6.4	16.5
1080	Prepared animal feeds	1.7	13.4	0.8	-19.4	-19.5	-9.1
1071	Bakery products	2.3	1.8	0.3	-167.3	-167.3	-165.8
1072	Sugar	0.2	4.4	0	-101.8	-101.8	-96.5
1073	Cocoa, chocolate and sugar confectionery	0.2	21.3	0.3	-114	-114	-110
1074	Macaroni, noodles and similar farinaceous products	0.2	1.3	---	-159.9	-159.9	-157.9
1101-1102	Spirits & Manufacture of wines	1.6	0.7	---	-146.9	-146.9	-144.2
1104	Soft drinks and other bottled waters	1	2.1	0.1	-128.4	-128.4	-124.3
1200	Tobacco products	10.1	4.2	0.7	-17	-17	-4.6
1311-1312	Spinning of textile fibers & weaving of textiles	1.5	39.4	2.4	2.7	2.7	11.9
1313	Finishing of textiles	1.5	2	0.1	16.8	16.8	26.8
1392	Made-up textile articles, except apparel	0.7	21.5	0.6	-44	-44	-36.7
1393	Carpets and rugs	---	62.2	0	-66.5	-66.5	-60
1394	Cordage, rope, twine and netting	0.2	26.8	0.3	-65.2	-65.3	-59
1399	Other textiles	1.2	9.7	0.4	-1.8	-1.8	7.5
1410	Wearing apparel, except fur apparel	20.5	62.6	52.1	-9.3	-9.3	-0.1

1512	Luggage, handbags and the like, saddlery and harness	0.2	5.4	0	-58.9	-58.9	-53.4
1520	Footwear	0.6	8.8	0.2	-53.1	-53.1	-47.1
16	Wood and wood products and cork, except furniture	2.6	7	0.6	-46.6	-46.6	-38
1701	Pulp, paper and paperboard	0.8	8.3	0.4	-38.1	-38.1	-31.4
18	Printing and reproduction of recorded media	1.8	17.8	1.2	-23.2	-23.2	-16.8
19	Refined petroleum products	2.2	31.1	6.1	-152.5	-152.5	-149.7
2011	Basic chemicals	1.7	11.5	0.7	-8.8	-8.8	2.7
2012	Fertilizers and nitrogen compounds, pesticides	1.8	0.3	---	11.4	11.4	24
2013	Plastics and synthetic rubber in primary forms	0.3	3.8	---	-11.9	-11.9	-0.5
2022	Paints, varnishes , printing ink and mastics	0.8	0.7	---	-47.1	-47.1	-37.9
21	Pharmaceuticals, medicinal chemical and botanical products	0.4	2.3	---	71	71	81.2
2023	Soap and detergents, perfumes and toilet preparations	1.7	9.5	0.6	-90.6	-90.6	-84
2029	Other chemical products	0.2	23.2	0.2	2.7	2.7	15
2211	Rubber tires and tubes	2.4	59.4	4.9	-118.9	-118.9	-114.5
2219	Other rubber products	1.9	37.1	3.4	-66.8	-66.8	-60.4
2220	Plastics products	2	7.8	0.5	-53.4	-53.4	-46.2
2310	Glass and glass products	0.4	13	0.2	-81.4	-81.4	-75.1
2393	Other porcelain and ceramic products	1.4	6.6	0.4	-136.3	-136.3	-132.7
2391	Refractory products	0	88.2	---	-149.6	-149.6	-147.5
2394	Cement, lime and plaster	2.8	0.7	0.1	-53.3	-53.3	-45.2
2395	Articles of concrete, cement and plaster	2.6	0.8	0.1	-134.1	-134.1	-130.5
2396	Cutting, shaping and finishing of stone	0.3	9.1	0.1	-94.5	-94.5	-88.4
2399	Other non-metallic mineral products	0.5	1.6	---	-85	-85	-78.4
31	Furniture	5.6	2.5	0.4	-97.7	-97.7	-91.7

3211	Jewelry and related articles	2.4	61.7	5.2	1.1	1.2	11.6
3220	Musical instruments	---	2.2	0	-28.4	-28.4	-20.2
3230	Sports goods	---	69.2	0.1	4.1	4.1	14.5
3240	Games and toys	0.3	37.6	0.4	-91.9	-91.9	-86.4
3212+3290	Imitation jewelry, related articles	1.8	31.6	2.1	-33.5	-33.5	-25.4
2410	Basic iron and steel	0.7	5.3	0.2	-13.1	-13.1	-5.5
2431	Casting of iron and steel	0.2	0.7	0	-52.5	-52.5	-47.7
2420	Basic precious and other non-ferrous metals	0.4	17.4	0.5	-10.3	-10.3	-3.3
2511	Structural metal products	1	2.5	0.1	1.2	1.2	10.7
2512	Tanks, reservoirs and containers of metal	0.1	0.6	0	-55.8	-55.8	-48.7
2593+2599	Cutlery, hand tools and other fabricated metal products	0.9	7.1	0.2	-48.6	-48.6	-41.3
2811	Engines and turbines, except vehicle and cycle engines	---	66.9	0	1.9	1.9	10.4
2812-2813	Fluid power equipment, pumps, compressors, and valves	0.1	53.6	0.2	-26.8	-26.8	-19.1
2819	Other general-purpose machinery	---	65.1	0.1	-38.6	-38.6	-31.5
2821	Agricultural and forestry machinery	---	2.5	0	-18.9	-18.9	-10.8
2823	Machinery for metallurgy	---	7.8	0	-27.4	-27.4	-22
2824	Mining, quarrying and construction	---	12	0	13.2	13.2	22.6
2825	Machinery for food, beverage and tobacco processing	---	16.2	0	-8.5	-8.5	-0.2
2826	Machinery for textile, apparel and leather production	0.1	7.1	0	8.4	8.4	17.8
2750	Domestic appliances	0.3	38.1	0.4	-55.9	-55.9	-49.1
2829	Other special-purpose machinery	---	77.9	0	-2.4	-2.4	5.9
2620	Computers and peripheral equipment	0.2	16.8	0.1	-10.9	-10.9	-3.6
2710	Electric machinery and electricity distribution/ apparatus	0.7	62.5	1.6	-23.1	-23.1	-14.6
2732	Other electronic and electric wires and cables	0.2	76.3	0.5	-20.9	-20.9	-11.9

2720	Batteries and accumulators	0.2	21.6	0.2	-96	-96	-91.1
2733+2740 +2790	Electric lighting equipment & wiring and wiring devices	0.6	42.3	0.9	-52.7	-52.7	-45.7
2630+2640	Communication equipment & consumer electronics	0.1	34.2	0.1	-10.2	-10.2	-2.4
2660+2670	Medical, optical and photographic equipment	---	64.9	0	-8	-8	-1
29	Motor vehicles, trailers and semi-trailers	0.2	61.7	0.4	-112	-112	-108.2
3011	Ships and floating structures	0.6	71.2	1.7	55.8	55.8	66.6
3012	Pleasure and sporting boats	0.1	5.1	0	-92.2	-92.2	-87.7
3091-3099	Other transport equipment	0.3	86.9	0.9	-79.6	-79.6	-74.4
	Manufacturing	100	25.4	100	-78.1	-77.5	-70.1

Notes: 1. EBI   export bias index   2 Value added.   3. Exports as a percentage of gross output.   ---   Less than 0.05%.

Source: Compiled from Appendix A1-1 and supplementary data obtained from http://www.statistics.gov.lk/national_accounts/dcsna_r2/iot.php

Appendix 2: Trade Data Compilation

A prerequisite for analysing patterns and determinants of trade within global production networks (GPNs) is the systematic delineation of parts and components and final assembly from the standard (Customs-records based) trade data. Following the seminal paper by Yeats (2001), it has become a common practice to use data on parts and components to measure GPN trade. However, there has been a remarkable expansion of production sharing from parts and components to encompass final assembly. Moreover, the relative importance of these two tasks within production networks varies among countries and overtime in a given country, making it problematic to use data on the parts and components trade as a general indicator of the trends and patterns of GPN trade over time and across countries. In this study, we define network trade to incorporate both components and final (assembled) goods exchanged within the production networks.

The data used in this study are compiled from the United Nations Comtrade database (5 digit Standard International Trade Classification [SITC] data). Parts and components are delineated from the reported trade data using a list compiled by mapping parts and components in the intermediate products subcategory of the UN Broad Economic Classification with the SITC. The list of parts and components used in data compilation is available in Athukorala and Talgaswatta (2016).

There is no hard and fast rule for delineating final goods assembled within GPNs from the standard trade data. The only practical way of doing this is to focus on the specific product categories in which GPN trade is heavily concentrated. Once these product categories are identified, trade in final assembly can be estimated as the difference between parts and components, which are directly identified based on the list used for this study, and the total trade of these product categories.

Guided by the available literature on production sharing, 10 product categories are identified: power generating machinery (SITC 71), specialized industrial machines (SITC 72), metal working machines (SITC 73), general industrial machinery (SITC 74), office machines and automatic data processing machines (SITC 75), telecommunication and sound recording equipment (SITC 76), electrical machinery (SITC 77), road vehicles (SITC 78), other transport equipment (SITC 79), travel goods (SITC 83), clothing and clothing accessories (SITC 84), footwear and sport goods (SITC 85), professional and scientific equipment (SITC 87), and photographic apparatus (SITC 88). Of these, SITC 83, SITC 84, and SITC 85 can been classified as products predominantly traded with buyer-driven production networks and the rest as belonging to producer-driven production networks. It is quite reasonable to assume that these product categories contain virtually no products produced from start to finish in one country. The difference between the value of total exports of these categories and the value

of total parts and components falling under these categories was treated as the value of final assembly. However, admittedly the estimates based on this list do not provide full coverage of final assembly in world trade. For example, outsourcing of final assembly takes place in various miscellaneous product categories such as clothing, furniture, sporting goods, and leather products. It is not possible to meaningfully delineate parts and components and assembled goods in reported trade in these product categories, because they contain a significant (yet unknown) share of horizontal trade.

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