

Can trade liberalisation bring benefits to the war-affected regions and create economic stability in post-war Sri Lanka?

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Abstract

Purpose – There is a large body of literature on the link between trade liberalisation, growth and poverty. However, less attention has been paid to the relationship between trade and regional disparities. The purpose of this paper is to identify and quantify the regional impacts of trade liberalisation, particularly in the war-affected regions and to understand to what extent trade reforms can contribute to the post-war recovery process and long-term economic and political stability in Sri Lanka.

Design/methodology/approach – The authors developed a single country multi-regional computable general equilibrium (CGE) model for the Sri Lankan economy to meet the need for a detailed country study as emphasised in the recent literature.

Findings – Both short-run and long-run results suggest that all regions including war-affected regions in the country gain from trade liberalisation, although gains are uneven across regions. Furthermore, the results suggest that war-affected regions gain more relative to some other regions in the long run.

Originality/value – According to the best of the authors' knowledge within country regional impact of trade liberalisation using a multi-regional CGE model has never been attempted for Sri Lanka. The results of this study, even though based on Sri Lankan data, will be relevant to other developing countries engulfed in internal conflicts with regional economic disparities.

Keywords Sri Lanka, South Asia, Computable general equilibrium model, Post-war reconstruction, Regional disparities, Trade liberalization

Paper type Research paper

1. Introduction

There is a large body of literature on the link between trade liberalisation, growth and poverty. However, less attention has been paid to the relationship between trade and regional disparities or spatial disparities with some exceptions (see Brühlhart, 2010 for a survey). It is well known that there are disparities and frictions between regions in many developing countries, particularly in South Asia (see Ahmed and Ghani, 2008). It may not be possible to achieve long-term growth, peace, harmony and political stability in these countries unless different geographical regions share the gains from trade liberalisation in an equitable manner.

Different schools of thoughts exist among researchers on the relationship between trade liberalisation and regional disparities. As pointed out by Shankar and Shah (2003), regional inequalities create significant development challenges in countries with large geographic areas. They further argue that with globalisation, regional disparities are worsened as the competitiveness of a region is largely determined by its skill base rather than its resource base. Therefore, it is more likely that the skilled workers experience gains at the expense of unskilled workers who are typically concentrated in poor regions. Kamber (2010, p. 1) also noted that “globally, opening up of an economy appears to be correlated with rising spatial inequality”.



Empirical evidence to support the above proposition (see Daumal, 2010; Milanovic, 2005) concludes that trade openness tends to promote regional inequality.

There are, however, contradictory views on the regional effects of trade liberalisation by other researchers. For instance, Williamson (1965) suggested that regional inequalities are likely to be exacerbated during early stages of development and tend to decrease gradually overtime. Using new economic geography models, Krugman and Elizondo (1996) have demonstrated that trade liberalisation reduces regional disparity. A recent survey of cross-country empirical literature suggests that available empirical evidence on the linkage between trade liberalisation and regional inequality is ambiguous (see Brühlhart, 2010 for details). Crozet and Koenig-Soubeyran (2004) have demonstrated that the effects of trade liberalisation on regional disparities depend on the specific internal geography of the country. After surveying a large number of cross-country empirical studies, Brühlhart (2010, p. 59) also supported this view by stating that “whether trade liberalisation raises or lowers regional inequality therefore depends on each country’s specific geography”. These findings indicate the importance and the need for more detailed country-specific studies. In spite of the importance of this area of research, particularly for developing countries, and mindful of a few exceptions (e.g. de Souza Ferreira Filho and Horridge, 2006; Butt and Bandara, 2009), there is lack of detailed empirical country studies on this topic.

Sri Lanka is an ideal candidate for such a case study for a number of reasons. First, Sri Lanka was the first country in South Asia to open its economy to the rest of the world in 1977 and it provides sufficient data on regional disparities for recent years. These data indicate that there has been an increase in regional disparities in Sri Lanka over at least the last two decades. Second, it is nearly three decade-long civil war ended in 2009 and it makes an ideal case in point to explore the effects of trade liberalisation on regional disparities in the context of post-war reconciliation, reconstruction and long-term political stability. Third, recent evidence suggests that there has been a trend in reversal of trade policy reforms. That is, two internationally known experts on Sri Lanka, Athukorala and Jayasuriya (2013, p. 1), have recently advocated a view that “Sri Lanka must change both its political practices and economic policies drastically and urgently to cope with the huge development challenges facing it in an environment of global economic turbulence”. The core element of their policy advocacy is the urgent need for trade liberalisation by stopping recent reversal of trade policy regime. Therefore, this study will be helpful to investigate whether such a policy is necessary for the post-war development and is beneficial for the war-affected regions. Finally, some lessons can be drawn from Sri Lanka to other developing countries with internal conflicts and wars.

The main objective of this study is, therefore, to identify and quantify the regional impacts of trade liberalisation, particularly in the war-affected regions and to understand to what extent trade reforms can contribute to the post-war recovery process and long-term economic and political stability in Sri Lanka. More specifically, we attempt to address the following two questions in this paper:

- (1) What is the role that trade policy reforms can play in the short-run and long-run process of economic development in war-affected regions in Sri Lanka?
- (2) Should the policy makers be worried about the consequences of recent policy reversal of trade policy reforms in the context of post-war development and economic stability in Sri Lanka?

In order to address the above questions, we develop a single country multi-regional computable general equilibrium (CGE) model for the Sri Lankan economy.

The remainder of this paper is arranged as follows. Section 2 presents some stylised facts on trade liberalisation in Sri Lanka referring to previous literature, while Section 3 provides a brief overview on regional disparities in Sri Lanka. Section 4 describes the multi-region

CGE model for Sri Lanka. Section 5 evaluates the main features of the short-run and long-run effects of trade policy reforms using simulation experiments carried out with the model developed in Section 4, and finally Section 6 presents concluding remarks and some policy recommendations.

2. Trade liberalisation in Sri Lanka: stylised facts

After gaining independence in 1948, Sri Lanka implemented an inward-looking development strategy wherein import substitution constituted a major element of both trade and industrial policies until 1977. The exception to this was a brief episode of open economic policies between 1948 and 1956 and an episode of partial liberalisation during 1965-1970. Figure 1 presents stylised facts of post-independent trade policy regimes associated with different political regimes of right-of-centre governments led by the United National Party (UNP) and the left-of-centre Sri Lanka Freedom Party (SLFP).

After seven years in power (1970-1977) and the implementation of a severely restricted trade policy regime, the SLFP led coalition lost power in the 1977 general elections to the right-of-centre UNP. Immediately after the UNP came to office, Sri Lanka embarked on the path of trade reform in November 1977 and became the first South Asian country to open the economy by implementing a range of liberalisation policies. Trade liberalisation was a main component of a far-reaching economic reform package implemented by the Sri Lankan Government in 1977. The details and the effects of this policy package have been extensively documented and discussed in the large body of literature on trade policy reforms in Sri Lanka (see Cuthbertson and Athukorala, 1991; Athukorala and Jayasuriya, 1994; Dunham and Kelegama, 1997 for details of the reform process).

A summary of the main components of this package is presented here since this paper is not in a position to repeat the details of reform process and its consequences given the availability of a large body of literature. In 1977, a tariff reform replaced most of the quantitative restrictions with tariffs. The previous dual exchange rate was unified.

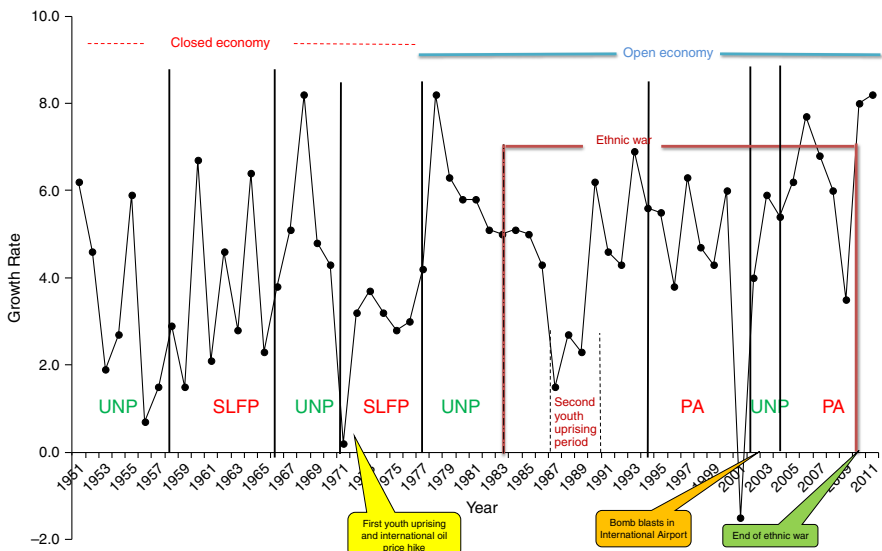


Figure 1.
Real GDP growth rate
and political regimes
with policies and
encounters in
Sri Lanka

Notes: UNP, United National Party; SLFP, Sri Lanka Freedom Party; PA, People’s Alliance

Source: Central Bank of Sri Lanka, annual reports

Many exchange controls were removed and a large devaluation took place. Measures were taken to attract direct foreign investment. Steps were taken to remove price controls and food subsidies were restricted to the low-income groups. Overall, Sri Lanka embarked on export-led growth strategy with an extensive economic liberalisation, a remarkable change from the previous import-substitution industrialisation strategy or inward-looking policy.

As many commentators argue, the momentum of the reform process was lost in the early 1980s because of changes in policy priorities of the government, the escalation of the separatist war in the north and east since 1983 and the youth uprising led by Janatha Vimukthi Peramuna (JVP) in the south in the late 1980s. However, in 1989, Sri Lanka embarked on a second wave of reform process under the UNP Government including further tariff cuts, simplification of the tariff structure, removal of exchange controls, privatisation and liberalisation of FDI regulations (see Dunham and Kelegama, 1997; Athukorala and Jayasuriya, 2013).

The UNP lost power in the 1994 general elections after 17 years and a centre-left People's Alliance led by the SLFP came to power. Except for a brief period between 2002 and 2004, the SLFP led coalitions have governed Sri Lanka since 1994. Although there were government changes since 1994 from centre-right to centre-left, all successive governments managed to continue with open economic policies in general. However, there have been changes in policy priorities and reversal of trade policies in recent years. Figure 1 also demonstrates that, unlike in some developing countries with internal conflicts, Sri Lanka has performed reasonably well in terms of economic growth.

Although the country was going through terrible separatist war between the Sri Lankan Government forces and the Liberation Tigers of Tamil Eelam during the period 1983-2009 in the north and east of the country and the youth uprising led by the JVP between 1987 and 1989 in the south, Sri Lanka performed well in terms of growth and human development compared with other developing countries with internal conflicts. Athukorala and Jayasuriya (2013, p. 11) have highlighted this remarkable performance as follows:

[...] the Sri Lankan economy demonstrated a remarkable degree of resilience; GDP growth averaged 5.3% in the 1990s and 5.5% per annum during 2000-09. The Human Development Index improved from 0.558 in 1990 to 0.658 in 2010 while headcount index of poverty came down from 22.7 in 2002 to 7.7% in 2009/10 [...].

Figure 1 also clearly demonstrates this resilience and impressive economic performance of the Sri Lankan economy in terms GDP growth during the war. However, due to the civil conflict that escalated since 1983, some regions, particularly the war-affected Northern and Eastern provinces (see Figure 1 to identify these regions) of the country, were deprived of gaining the benefits of economic liberalisation. In these regions, foreign as well as inter-regional trade were severely hampered by the conflict and on the same token the foreign investment was largely restrained. However, after ending the civil war in 2009, with the effort of post-war reconstruction, these regions are now increasingly being integrated into the national economy as well as into the global economy.

The economy recorded remarkable economic growth in 2010 immediately after the end of war because as expected, the war-affected regions began to grow rapidly with the end of war. However, the national growth rate slowed down in 2011 and 2012. Against this background, it is important to explore whether further trade liberalisation or reversing trends in recent trade policy in Sri Lanka will assist the backward war-affected regions in Sri Lanka.

Despite, since 1977, the continuation of open economic policies associated with the remarkable performance of the economy throughout the war, a number of recent studies have warned about the reversal of trade liberalisation and increase in protectionism from about 2004 (see e.g. Pursell, 2011; Pursell and Ahsan, 2011; Kaminski and Ng, 2013).

According to these studies, there has been an increase in protection in Sri Lanka in recent years and the level of openness, measured as a GDP ratio of total trade in goods and services, has fallen to the level experienced during the protectionist regime before 1977 (see Kaminski and Ng, 2013, for details). Therefore, it is important to answer the question: will the war-affected regions benefit from further trade liberalisation rather than reversing back to a restricted trade policy regime.

3. Regional disparities in Sri Lanka and war-affected regions

Geographically, Sri Lanka is a small island economy and it has nine provinces or regions with different socio-economic characteristics. Unlike in developed countries and some developing countries, regional GDP data considering long-term trends in regional disparity in Sri Lanka are rather weak. After some experiments in compiling regional GDP data by the government in the 1980, the Central Bank of Sri Lanka began to publish regional GDP since the 1990s. These relatively new regional estimates are weak and have some limitations (see Bandara and Jayasuriya, 2009). Nevertheless there is a general consensus that there has been an increasing trend in regional inequality over the last two decades or so, characterised by the increasing dominance of economic activities by the Western province (WP) in which the capital and the commercial centre with the main harbour, Colombo, is situated. This domination can be clearly seen in the provincial GDP shares given in Figure 3. In terms of provincial population shares, WP comprised the highest population share of 28.7 per cent while the war-affected Northern province recorded the lowest population share of 5.2 per cent in 2012 (see Figure 2). As Bandara and Jayasuriya (2009, p. 212) described, “it has much higher per capita income and lower rate of poverty, industry and services dominate the structure of the economy (with agriculture’s share being almost negligible), accounts for most of manufacturing industry in the country (number of establishments, employment and value added), and has better infrastructure facilities (road density, communication facilities and access to financial services)”. Figure 4 demonstrates the domination of industry and services sectors in the WPs relative to the war-affected regions and the whole economy.

As noted above, it is well accepted that a widening gap between other provinces and the most prosperous province, WP, which accounts for less than 6 per cent of the land area but over 28 per cent of population and 44 per cent total GDP, is evident (see Figures 3 and 4).

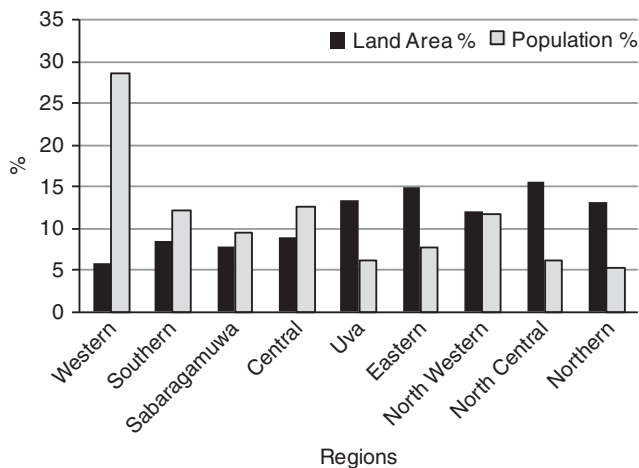
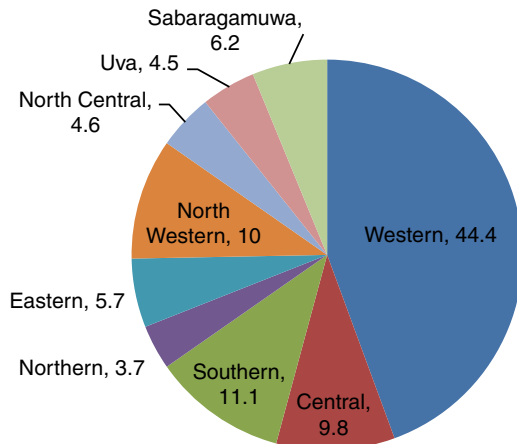


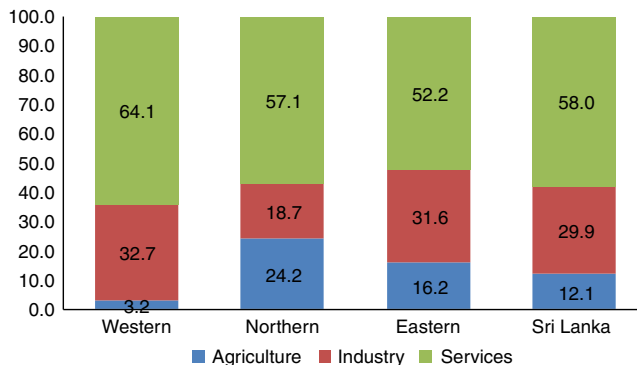
Figure 2.
Land area and population shares within different regions in 2012

Source: Department of Census and Statistics (2012a, b)



Source: Central Bank of Sri Lanka (2012)

Figure 3. Provincial GDP share (percentage) in 2011



Source: Central Bank of Sri Lanka (2012)

Figure 4. Composition of regional GDP (percentage) in 2011

According to a recent annual report of Central Bank of Sri Lanka (2008), “Since the time Sri Lanka gained independence, successive governments have implemented various programmes that have been designed to uplift the regional economy. Despite these efforts, the country continues to be plagued with significant regional economic disparities. Whilst the Western province (WP) accounted for 50.1 per cent of Gross Domestic Product (GDP) in 2006, each of other provinces accounted for less than 10 per cent of GDP” (p. 47).

Castro and Devarajan (2006) have explained the main reasons for this disparity as follows: “The market-oriented reforms that Sri Lanka has been undertaking since the late 1970s, such as liberalizing trade, deregulating industry and promoting private investment, directly benefited the Western province which, thanks to its location and infrastructure, was able to take advantage of the opportunities from globalization” (p. 2).

During the period of separatist war in Sri Lanka between 1983 and 2009, the regional economies of Northern and Eastern provinces were devastated. Trade and transport ties of these economies with the rest of the economy as well as with the world were severely disrupted. Moreover, during the period of the war agricultural and fishing activities were significantly restrained in these two regions. As can be seen from Figure 4, agriculture plays

an important role in these two regions, thus disruption of agricultural activities have further exacerbated the economic slowdown in these regions.

This widening regional inequality has some socio-economic and political implications with important policy relevance in a country which has experienced one of the longest separatist wars in Asia that was fuelled, at least in part, by perceived regional biases in policy. Regional inequality, therefore, is an area that deserves careful study and sensitive handling in terms of post-war development strategies.

4. Multi-regional CGE model for Sri Lanka

The use of single country or global CGE models has been very popular among policy analysts in developing countries such as Sri Lanka, for evaluating the gains from trade liberalisation at a national level. However, these single country and global CGE models have not been able to capture the regional effects of trade liberalisation. The “top-down” or “bottom-up” CGE models are ideal tools in evaluating such effects (see Partridge and Rickman, 1998, for an excellent survey; Doi, 2006, for an introduction to regional CGE modelling, and Partridge and Rickman, 2008, for a roadmap to use CGE models in economic development policy analysis). These models have increasingly been popular among regional policy analysts in developed countries over the last two decades or so. However, there are only limited examples of using regional CGE models in developing countries (see e.g. de Souza Ferreira Filho and Horridge, 2006; Butt and Bandara, 2009).

Although there is a long tradition in applying CGE models to analyse policy issues in Sri Lanka (see Bandara, 1991; Naranpanawa, 2005; Naranpanawa *et al.*, 2011; Naranpanawa and Bandara, 2012 for details), none of the previous studies have carried out a comprehensive CGE modelling to capture the regional impact of trade policy reforms in Sri Lanka. The main contribution of this study has, therefore, been the development of a multi-regional (CGE model of the Sri Lankan economy to examine the link between trade liberalisation, regional disparity, peace and long-term stability within the context of post-war development. To our knowledge, this is the first attempt to do so.

It is well known that there are two broad approaches in terms of regional CGE modelling. They are the top-down approach and the bottom-up approach. Disadvantages and advantages using each of these approaches have been recognised in the literature (see Butt and Bandara, 2009 for a detailed discussion on this topic). The selection of the approach depends on the availability of regional data, the nature of the issue to be addressed and other practical constraints in developing a regional CGE model. Although bottom-up CGE models are clearly more superior to top-down CGE models, they are data intensive and regional modellers face practical constraints in terms of gathering data and developing regional input-output (I-O) tables. This has become an even more serious challenge in the context of developing countries. There are no regional I-O tables for Sri Lanka and developing such tables is difficult due to the lack of data. Although there are limitations of the top-down approach, it has some advantages such as the simplicity, the limited data requirements and the ability to capture regional effects of a national shock like a tariff cut in terms of regional industry structure and regional multiplier effects (Adams, 2002; Giesecke, 2004). Therefore, we selected the top-down approach in the CGE modelling exercise of this study.

We develop comparative static multi-regional CGE model for Sri Lanka in a top-down mode which encompasses nine regions (shown in the map in Figure 1) and 38 commodities produced by 38 industries. The theoretical structure of the core model closely follows the ORANI model (Dixon *et al.*, 1982) with neoclassical assumptions. The model is implemented using the Social Accounting Matrix developed for Sri Lanka by Naranpanawa and Bandara (2006), which is supplemented by other regional data from various sources such as Central Bank of Sri Lanka (Annual Reports, 2008, 2012); Annual Survey of Construction

Industries (Department of Census and Statistics, 2007); Household Income and Expenditure Survey (Department of Census and Statistics, 2005); Census of Trade and Services 2003-2006 (Department of Census and Statistics, 2008); Census of Industries 2003/2004 (Department of Census and Statistics, 2006); and Agricultural Statistics of Sri Lanka 2007 (Department of Census and Statistics, 2009).

Regional disaggregation of the model is based on the ORANI Regional Equation System (ORES) (Dixon *et al.*, 1982) which draws on a technique developed by Leontief *et al.* (1965) to disaggregate the results of a national I-O model into regions. ORES has been widely adopted by many researchers in disaggregating national CGE model results into regions (for some applications see Haddad *et al.*, 2002; Giesecke, 2004, 2008; Dixon *et al.*, 2007). A detailed description of this ORES-based regional disaggregation method is given in Dixon *et al.* (1982) and Horridge (2003).

Following the tradition of the ORES top-down regional disaggregation, we presume that each industry employs the same technology in each region. In addition, in this approach, the regional industries are divided into two groups, i.e., national industries and local industries. National industries comprise industries producing tradable goods and regional output of such industry is assumed to follow the corresponding national industry. In contrast, local industries produce commodities or services which are scarcely traded across regions. Therefore, the outputs of these industries are assumed to follow local demand for those commodities. This, in turn, captures local multiplier effects within the region (Horridge, 2003). It is not intended to go through the technical details of the Sri Lankan top-down regional CGE model in this paper since the modelling technique has been well established and well documented in previous literature (see e.g. Dixon *et al.*, 1982; Horridge, 2003).

5. Regional impact of trade liberalisation: simulation results

In this section, we present the results of policy simulations. Simulation experiments were carried out with the Sri Lankan regional CGE models described in the previous section in order to evaluate the effects of a tariff cut on national macro variables, national industry-level variables and the regional macro and industry levels in both the short run and the long run. They were carried out with the intention to identify the direction and magnitude of the short-run and long-run impacts of a 100 per cent reduction in prevailing tariffs across the board. That is, a total elimination of tariffs in both agricultural and manufacturing industries. We introduce this type of tariff cut to examine maximum gains from a full liberalisation of tariffs. The results of these simulations will assist us to evaluate whether trade liberalisation will bring benefits to the post-war economy in Sri Lanka, particularly to the war-affected regions.

The experiments were carried out within two different macro environments (or closures), representing the short-run and long-run effects. In the short-run closure[1], all sectoral capital is exogenised (or fixed) and as we assume slack labour market, the total employment is endogenised. Furthermore, sectoral rates of return, balance of trade and real private consumption are also considered endogenous.

In the long-run closure, we assume full employment, thus the aggregate employment is exogenised and allows real wages to be determined within the model. Similarly, we allow sectoral capital to be mobile thus allowing the sectoral rate of return to be exogenised. In both scenarios the nominal exchange rate, which is exogenous, is considered as the numeraire. The CGE model was solved using the GEMPACK software suite (Harrison and Pearson, 1998). Different set of results are presented and evaluated in the following sub-sections.

5.1 National macroeconomic and industry effects

The effects of full liberalisation of trade in terms of percentage changes on important national macro variables over the base year values for short-run and long-run simulation experiments are summarised in Table I.

The results of two simulations on macro variables presented in Table I reveal that trade liberalisation is having a positive effect on the national economy wherein real GDP increases by 0.86 and 3.78 per cent in the short run and in the long run, respectively. This is consistent with other empirical studies which suggest that benefits of trade liberalisation would be higher in the long run (see Naranpanawa *et al.*, 2011). The tariff cut stimulates the output of industries which are heavily reliant on imported inputs thus adjusting the relative prices favourable to those industries. This would in turn attract factors of production from other unfavourable sectors and expand even further in the long run generating higher GDP.

The projections of real household consumption, which is a proxy of welfare improvement, reveal a positive effect of 1.96 and 3.16 per cent in the short run and long run, respectively. The aggregate employment is expected to increase by 2.03 per cent as a result of full trade liberalisation in the short run whereas in the long run the aggregate employment is exogenous assuming full employment in the economy. Moreover, the average real wages are projected to increase significantly (14.78 per cent) in the long run. As shown by the Sri Lankan past experience, it can be observed that trade liberalisation promotes trade. Real export and imports have been stimulated in the short run as well as in the long run, wherein an increase in real exports is dominant over imports in the long run. As we could see from the industry results in Tables II and III, export-oriented manufacturing industries are stimulated by the tariff reduction.

Interestingly, the results revealed that trade liberalisation reduces inflation in the economy which could be observed by the percentage change of consumer price index both in the short run and in the long run. It can be suggested that a tariff cut leads to a reduction in prices of imported inputs and that may well reflect in certain output prices.

The industry-level value-added results suggest that the manufacturing industries such as chemicals and fertilisers, fabricated metal products, textiles and garments have been positively affected in the short run (see Table II). Furthermore, service industries such as other personal services and hotels and restaurants have expanded as a result of an increase in demand generating from higher private consumption. Furthermore, industries that are catering to tradable industries such as banking, insurance and real estate; post and communication; and wholesale and retail trade, have also been stimulated. In contrast, import-substitution industries such as food and beverage, basic metal products, paper and paper products have shown a contraction in the short run. It is evident that export industries which face elastic demand are the main winners under this policy shock and the import-substitution industries tend to suffer from cheaper imports.

The projections of industry value added in the long run (see Table III) reveal that export-oriented manufacturing industries get significantly stimulated while agricultural industries bear the brunt of tariff cut. Agricultural industries are less efficient in utilising resources compared to that of manufacturing industries, thus in the long-run manufacturing industries attract resources from inefficient agricultural industries and expand their output.

Macro variable	Long-run projection	Short-run projection
Aggregate capital stock	-	8.23
Employment	2.03	-
Real imports	3.19	9.61
Real exports	2.61	11.87
Real household consumption	1.96	3.16
Real GDP	0.86	3.78
CPI	-1.83	-0.30
Average real wage	-	14.78

Note: Per cent change from the basecase

Table I.
Projections of
percentage change in
national macro
variables under trade
liberalisation
simulation

20 most positively affected industries	% change from the basecase	Negatively affected industries	% change from the basecase
Chemicals and fertilisers	2.69	Food and beverage	-0.65
Fabricated metal products	2.25	Basic metal products	-0.28
Other personal services	2.05	Petroleum	-0.16
Hotels and restaurants	1.89	Paper and paper products	-0.09
Post and communication	1.87		
Banking, insurance and real estate	1.76		
Tobacco	1.62		
Textiles	1.38		
Wholesale and retail trade	1.32		
Garments	1.30		
Transport	1.27		
Tea processing	1.16		
Coconut processing	0.93		
Rubber processing	0.92		
Other manufacturing	0.76		
Electricity, gas and water	0.70		
Non-metallic and other mineral products	0.68		
Livestock	0.66		
Fisheries	0.65		
Tea growing	0.59		

Table II.
Output projections of major positively affected and negatively affected national industries under short-run simulation

20 most positively affected industries	% change from the basecase	Negatively affected industries	% change from the basecase
Fabricated metal products	74.35	Coconut processing	-11.21
plastic and rubber products	26.39	Tea processing	-7.51
Other manufacturing	25.63	Tea growing	-7.38
Basic metal products	22.57	Rubber processing	-6.31
Non-metallic and other mineral products	16.77	Rubber growing	-3.86
Chemicals and fertilisers	9.26	Coconut growing	-3.81
Textiles	7.64	Food and beverage	-2.89
Construction	7.50	Mining and quarrying	-2.49
Wholesale and retail trade	5.79		
Transport	4.72		
Hotels and restaurants	4.05		
Wood and wood products	3.66		
Tobacco	3.40		
Ownership of dwellings	3.27		
Paper and paper products	3.26		
Public administration and defence	3.22		
Garments	3.17		
Electricity, gas and water	3.06		
Banking, insurance and real estate	3.01		
Petroleum	2.43		

Table III.
Output projections of major positively affected and negatively affected national industries under long-run simulation

5.2 Regional macroeconomic and industry effects

The effects of a full trade liberalisation on gross regional product (GRP) in different provinces over the base year values in the short-run and long-run simulation experiments are summarised in Table IV. When we consider the short-run impact of trade liberalisation on regional gross domestic product, it is evident that the WP, where the country's political capital which is also the commercial capital is situated, has shown the highest percentage

change in GRP of 0.89 per cent. A majority of wholesale trade activity, business services such as banking and insurance and manufacturing activities are located within the WP – particularly the main export processing zones are within this province. Hence, we would expect WP to get stimulated over other provinces as a result of the tariff cut.

Other provinces which show a similar increase in GRP are Southern, Central, Sabaragamuwa and North WPs. It can be observed from Table II that tea processing, rubber processing and coconut processing industries are projected to expand due to tariff reform. As tea, rubber and coconut industries, comprised of large and medium plantations as well as small holders, are largely located in these four provinces, we could expect a higher growth in these provinces. In contrast, the Northern and Eastern provinces, which were heavily affected by the separatist war, are expected to grow marginally in terms of GRP (by 0.41 and 0.57 per cent, respectively) in the short run. These provinces were heavily affected during the war, wherein most of the infrastructure had been damaged and transportation, communications and other public utilities were in a very poor condition. Hence, we would expect that the full impact of the trade reforms would only be felt in the long run in these provinces. As given in Tables V and VI, in the short run, industries such

Table IV.
Projections of
percentage change in
gross regional product

Region	Short-run projection	Long-run projection
Western	0.89	5.65
Southern	0.86	2.12
Sabaragamuwa	0.76	0.92
Central	0.81	2.35
Uva	0.56	1.16
Eastern	0.58	3.09
North Western	0.84	2.74
North Central	0.57	2.08
Northern	0.41	3.04

Note: Per cent change from the basecase

Table V.
Contribution of
industries to
percentage change in
gross regional product
in the Northern region

20 most positively contributed industries	Short run	20 most positively contributed industries	Long run
Wholesale and retail trade	0.099	Public administration and defence	0.888
Transport	0.092	Fabricated metal products	0.617
Fisheries	0.049	Wholesale and retail trade	0.489
Other agriculture	0.035	Transport	0.330
Other personal services	0.034	Construction	0.219
Banking, insurance and real estate	0.032	Fisheries	0.132
Fabricated metal products	0.020	Other manufacturing	0.130
Livestock	0.019	Other agriculture	0.127
Public administration and defence	0.014	Banking, insurance and real estate	0.056
Electricity, gas and water	0.012	Other personal services	0.053
Garments	0.008	Electricity, gas and water	0.049
Coconut processing	0.005	Livestock	0.036
Construction	0.004	Non-metallic and other mineral products	0.021
Post and communication	0.004	Textile	0.020
Other manufacturing	0.004	Paddy	0.019
Textile	0.004	Garments	0.019
Milling	0.003	Ownership of dwellings	0.017
Tobacco	0.003	Wood and wood products	0.008
Hotels and restaurants	0.001	Tobacco	0.007
Coconut growing	0.001	Milling	0.005

Table VI.
Contribution of industries to percentage change in gross regional product in the Eastern region

20 most positively contributed industries	Short run	20 most positively contributed industries	Long run
Wholesale and retail trade	0.226	Wholesale and retail trade	0.747
Transport	0.106	Public administration and defence	0.524
Other personal services	0.048	Fabricated metal products	0.490
Banking, insurance and real estate	0.036	Transport	0.382
Fisheries	0.035	Construction	0.318
Other agriculture	0.023	Other manufacturing	0.122
Garments	0.018	Paddy	0.110
Electricity, gas and water	0.017	Non-metallic and other mineral products	0.109
Fabricated metal products	0.016	Fisheries	0.096
Livestock	0.012	Other agriculture	0.084
Post and communication	0.011	Electricity, gas and water	0.072
Construction	0.009	Banking, insurance and real estate	0.061
Public administration and defence	0.008	Other personal services	0.043
Milling	0.007	Garments	0.042
Textile	0.005	Textile	0.027
Non-metallic and other mineral products	0.005	Livestock	0.024
Mining and quarrying	0.004	Ownership of dwellings	0.022
Coconut processing	0.004	Milling	0.011
Other manufacturing	0.004	Post and communication	0.008
Firewood	0.004	Firewood	0.006

as wholesale and retail trade, transportation, fisheries and other agriculture industries are expected to contribute to the marginal growth in GRP in the Northern province, whereas in the Eastern province industries such as wholesale and retail trade, transportation, other personal services and banking, insurance and real estate industries are expected to contribute to the marginal growth in short-run GRP. Other provinces such as North Central, which is the main paddy growing province, and the Uva Province, which is also dominated by agriculture, would be benefited marginally from trade liberalisation in terms of GRP.

The long-run impacts of tariff reforms on the regional GRP have been significantly different to that of the short-run impacts. Overall, our results reveal that all provinces perform well in terms of percentage change in GRP compared to that of the short-run case. Similar to the short-run outcome, the WP, which is the major manufacturing hub of Sri Lanka, would still lead as the province which records the highest GRP growth of 5.65 per cent. Consistent with a previous study by Naranpanawa *et al.* (2011) manufacturing industries, particularly export-oriented industries, are significantly stimulated by the tariff cut in the long run.

Interestingly, the two main war-affected provinces, Eastern and Northern, are projected to grow at a higher percentage change in GRP of 3.09 and 3.04, respectively. As shown in Tables V and VI, the projected increase in GRP in these two provinces can be attributed largely to the expected expansion of service industries such as public administration and defence, wholesale and retail trade, transportation, banking, insurance and real estate and other personal services. They can also be attributed to the expansion of the manufacturing industries such as fabricated metal products, other manufacturing and non-metallic and other mineral products. Similarly agricultural industries such as other agriculture, fisheries and livestock are also expected to contribute to the GRP growth in the Northern province, while paddy, fisheries and other agriculture are expected to contribute to the growth in the Eastern province. In addition, construction industry has also played a key role in the GRP growth in both the provinces. As capital becomes mobile in the long run, it tends to move into those provinces where there would be new development projects happening in the region. Hence, the construction industry is projected to expand in these provinces.

The long-run positive outlook observed in the war-affected Northern and Eastern provinces suggest that trade liberalisation would be beneficial to these regions and more employment opportunities would arise as a result of expanding the service and manufacturing industries. This in turn suggests that, as the household income improves in these regions, it is less likely that people would prefer to go back to a situation with high insecurity and widespread poverty which had been the norm during the 30 years of bloody civil war.

In terms of regional disparities, it can be observed that even though the long-run trade liberalisation is projected to stimulate growth in all provinces compared to that of the short run, regional disparities are projected to widen over time. For instance, coefficient of variations (CV) in short-run GRP is around 23.2 per cent, whereas CV of long-run GRP has increased significantly to 50.5 per cent. The above results suggest that although trade liberalisation will increase economic growth in all provinces and also accrue positive impacts to war-affected regions such as Northern and Eastern provinces, it may widen the disparities among provinces. These results are consistent with previous analysis by Bhattacharya and Sakthivel (2004) for India which showed evidence of widening regional disparities as a result of trade liberalisation. Hence, some complimentary policies are warranted to reduce the disparities among different provinces to attain an equitable growth trajectory.

6. Concluding remarks and policy implications

This paper attempted to explore the role that trade liberalisation can play in post-war development in Sri Lanka, particularly focussing on the war-affected regions and regional disparities. The regional CGE analysis carried out in this paper suggests that, in the short run, trade liberalisation would bring relatively smaller gains to the war-affected Northern and Eastern regions, while it would bring a large benefit to the WP, which is the main region where industrial and service activities are located. In contrast, the long-run results suggest that the regional economies of war-affected regions such as the Northern and the Eastern provinces would be substantially stimulated with the expansion of export-oriented manufacturing industries and services industries in those regions (since capital is mobile across industries in the economy). However, the long-run results also suggest that trade liberalisation tends to widen regional disparities. The overall simulation results suggest that trade liberalisation will have a significant positive impact on the post-war recovery process, particularly, in the long run. Thus trade reforms will help in achieving long-term peace and political stability in Sri Lanka.

The results of our policy simulations clearly suggest that the benefits of trade liberalisation are uneven across geographical areas as well as in different time horizons, i.e., short run and long run. It is evident that long-run benefits outweigh the short-run impacts. As trade liberalisation promotes regional growth in the war-affected Northern and Eastern provinces in the long run, further trade liberalisation would help in the long-term peace, economic stability and reconstruction efforts of the present government. However, as highlighted previously, the current trend of the present government's economic policies, particularly with respect to trade liberalisation, reveals a sharp reversal of trade liberalisation and, as such, there seems to be a shift towards nationalist-populist state-centred economic policies (Athukorala and Jayasuriya, 2013). They have in fact advocated for decisive and sharp policy changes in the context of post-war development challenges and economic stability in Sri Lanka. The results presented in this paper support this view and policy makers should be worried about recent policy reversal in the context of post-war development and economic stability. To complement the current massive infrastructure programme in the war-torn area, policy makers in Sri Lanka also need to evaluate its current trade policy stance and think about drastic changes.

Further trade liberalisation offers many benefits towards rebuilding the economies of the war-torn provinces in Sri Lanka. As we can see from the simulation results, manufacturing industries, particularly the export-oriented industries, tend to expand significantly in the long run. Therefore, the government should focus on attracting FDI to war-affected provinces and export-oriented industries with the purpose of employing Tamil youth who do not have many employment opportunities currently. At present, export-oriented industries based on FDI are mainly confined to the WP. The government can formulate FDI friendly trade and investment policies (rather than continuing with policy reversal noted in previous sections) to develop Northern and Eastern provinces by targeting FDI and also investment from the wealthy Tamil Diaspora. This cannot be achieved without rebuilding the destroyed infrastructure in the areas and also building new infrastructure facilities such as an international airport, commercial port and a network of highways connecting other cities, particularly the country's political and commercial capital, Colombo, to the Northern and Eastern provinces. In fact, the current Sri Lankan Government's infrastructure programme in the north and south would facilitate the benefits accruing from the further trade liberalisation reaching the masses in these provinces by generating employment during the construction phase as well as in the operational phase. Furthermore, the increased integration of other provinces with the north and eastern provinces would also generate economic growth in all provinces. To make economic policies successful, government also needs to address genuine grievances of Tamil people in the north and east and strengthen institutions, and law and order in the country as a whole. Without taking these steps it will be very difficult to attract FDI from the west and the Tamil Diaspora.

As agriculture is a central sector in Northern and Eastern regional economies and forms the main livelihood of rural population in the region, promoting export-oriented agriculture, particularly using agricultural output as input into agro-based manufacturing industries, is important in terms of stimulating the regional economy as well as the distribution of income. Therefore, investing in agricultural infrastructure such as irrigation facilities, post-harvest storage and other technologies and marketing facilities are vital in reaping the full benefits of further trade liberalisation.

The overall results suggest that it would be necessary to implement complementary policies that would ease out the short-run adjustment costs of trade liberalisation for provinces with moderate economic growth. Moreover, complimentary policies are also warranted to reduce regional disparities in the long run. These complementary policies should include targeted transfer payments to low-income groups, providing concessionary credit facilities to small and medium farmers and small businesses as short-term measures, and investing on physical and human capital as long-term measures.

While the importance of exploring and finding a long-lasting political solution to the conflict during the post-war period cannot be underestimated, it is equally important for the government to provide an economic solution to the root cause of the conflict. This can be achieved by resorting to more open economic policy regime with policies that spread economic benefits to the Northern and Eastern provinces which have been largely neglected for nearly three decades due to the war. Doing this will build a solid foundation towards bringing long-term peace and stability in post-war Sri Lanka.

Note

1. The following variables are assumed to be exogenous: agricultural land, all technological change, real wages, real investment expenditure, other real demands, demand for inventories by commodity, demand for traditional exports, demand for non-traditional exports, all sales tax rates except export tax shifters and commodity-specific shifters, foreign prices of imports, number of households and their consumption preferences, real unit cost of "other cost tickets"(production subsidies, etc.) and all shift variables for the determination of sectoral investment.

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Further reading

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