The Impact of Trade Liberalization on the Employment Level in Sri Lanka

Herath H.M.S.P., Cao Liang and Cheng Yongbing

Abstract

This paper examines the relationship between trade liberalization and employment level of Sri Lanka. Accordingly, the main objective of the study is to investigate the degree of relationship between trade liberalization and employment level of Sri Lanka. The secondary data were used to analyze the study problem during the 1990 – 2012 time period. Data published by the Department of Census and Statistics and the Central Bank of Sri Lanka were used. The behavior of major variables which are directly related to trade liberalization and employment were analyzed quantitatively. The present study has employed Ordinary Least Square method (OLS) to assess the multiple regression model. In assessing the effects of trade liberalization, empirical model mainly employed three independent variables, import penetration ratio, export intensity and weighted tariff rate, to disentangle the trade effects on employment with several control variables. Gross domestic product, capital labor ratio, foreign direct investments and real wage rate are the major control variables included in the empirical model. As the major finding of the study, it is concluded that one percent increase of export intensity increases the employment by 0.614 percent. Also, import penetration ratio has a significant negative effect on Sri Lankan's total employment; one percent increase of import penetration ratio leads to 0.523 per cent reduction of country's total employment. The regressor which is included to the model, weighted tariff rate, is not statistically significant. Statistically significant coefficient for capital-labor ratio indicates that one percent increase results to decrease employment by 0.437 percent.

Key Words: *Trade Liberalization, Employment, Export Intensity, Import Penetration*

Introduction

Sri Lanka entered to the free trade environment in 1978 after the severe closed economic period during the 1970 – 1977 period. Low economic performance during the closed economic era motivated to move the country for more liberalized economic environment. Average annual economic growth rate during that period was less than 3 percent. Also the country experienced high unemployment level in this period. One of the major reasons for the civil unrest prevailed during this period was this high unemployment level. Sri Lanka

experienced highest unemployment level which is 24 percent in 1972 and average rate was 17 percent during 1970 -77 period. As a result, one of the major objectives of opening up the economy is to generate more employment opportunities to decrease the high unemployment rate prevailed during the closed economic era.

Eemployment generation is a vital issue to address in the developing world. With higher population growth of developing countries, they are facing a severe issue of generating employment opportunities to newly entered laborers to the labor force. Limited market of these countries has become as the major barrier for domestic producers to expand their business and this may work as a constraint to create new job opportunities in these countries. Therefore limited market and less generation of employment opportunities has become a major problem to be solved by governments of developing countries. Therefore employment generation has become a major issue in the political scenario as well. Therefore economists who have done research on international trade are advocating developing countries to start export oriented industries (EOI) in their countries to generate new employment opportunities to address the problem. With this backdrop, the primary objective of this study is to investigate the trade liberalization and its impact on Sri Lanka's employment generation in aggregate level during the post liberalization period.

Analytical context and Literature Review

Regarding the argument on free trade and employment linkage, the Hecksher Ohlin model which is well popular trade theory in international trade provides a sound theoretical basis for this argument. According to the Hecksher-Ohlin theory, a nation exports the commodity whose production requires the intensive use of the nation's relatively abundant and cheap factor and imports the commodity whose production requires the intensive use of the nation's relatively scarce and expensive factor. In short, Hecksher-Ohlin theory demonstrates that the relatively labor-rich nations export relatively labor-intensive commodity and imports the relatively capital-intensive commodity. Also capital rich nation exports the relatively capital –intensive commodity an imports the relatively labor intensive commodity.

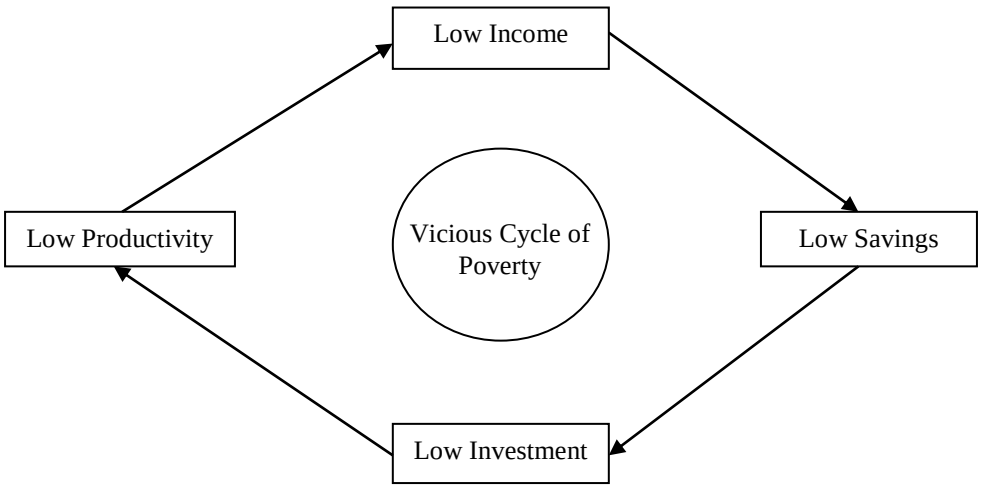

Figure 1: Vicious Cycle of Poverty

Therefore many economists have given increasingly their interest on trade liberalization to enhance the economic development. Theoretical explanations always support on free trade for increasing production of economies. It explains that free trade enables world economies to consume beyond their production possibility frontiers. Moreover international trade enables economies to allocate their scarce resources more efficiently from non productive sectors to productive sectors.

International trade permits developing countries to increase the performance of not only their export sector but also the other non productive sectors of the country via the spread of technology. In addition to the performance improvement in merchandise, services and agricultural sectors in economies, trade has become a significant factor to improve the investment level of developing economies. One major barrier for developing countries to escape from the vicious cycle of poverty is the low level of investment. Due to the low per capital income level of developing countries has led to significantly contract the savings and investment level of economies. Hence economies which experience hardships are with lack of savings thereby lowering the investment and countries are struggling to escape the vicious circle of poverty. Therefore export let growth may lead to developing countries to escape from this vicious cycle of poverty via increased income, savings, investment and productivity. Ultimately, increased output with trade liberalization can increase more job opportunities to people and increase the employment level of economies.

Literature provides numerous studies on investigating trade liberalization and employment linkage. However, those studies have not been able to produce clear linkage between trade liberalization and employment. While some studies provide evidence for the relationship between trade liberalization and employments other studies provide weak or no relationship between trade liberalization and employment. Sankaran, Abraham and Joseph (2010) argue that reason for mixed bag of results on the trade liberalization and employment relationship is due to country specific issues.

Literature on trade and employment provide few ways which and affect international trade on employment of countries. First, employment can be affected by import changes through trade liberalization. It is explained that trade liberalization can impact on importation of raw materials, intermediate and capital goods and can substitute labor (Rodric ,1997; Feenstra and Hasan,1996; Hasan, Mitra and Ramaswamy ,2007). However, this argument is challenged by some researchers and they explain that impacts on employment due to importation of inputs depend on the nature of imports (Davis and Mishra, 2007). In this case, if imports are not substitutes for domestic products but are complementary to them trade liberalization can enhance the employment in the domestic country. Based on the above facts, it can be argued that when imported inputs are largely substitutes to labor trade can create negative impact on employment and if imported inputs are largely complements to domestically produced inputs trade can create positive impact on employment in home country.

Secondly, increased exports with trade liberalization can generate positive impact on employment and this is called as the "scale effect" of trade on employment. Since the demand for labor is derived demand, any increased demand for final goods can increase the demand for factors of production which were used to produce those goods. Hence labor intensive countries, particularly developing countries have opportunity to specialize on labor intensive commodities and export the surplus of those with freer trade liberalization environment. In this context, since Sri Lanka is relatively labor abundant country she has opportunities to specialize on labor intensive commodities and export the surplus to world market with trade liberalization. Ultimately, this can increase the employment level of the country.

Finally, employment level of trading countries can be affected via the changes of trade polices of those countries (LaRochelle,2007; Revenga, 1997; Brander, 1981;). In this context, trade barriers of home country and foreign countries can impact on employment level of them. Brander (1981) and LaRchelle (2007) explain that when the home country decreases tariffs or any trade barrier would results to increase the sales of foreign firms in home market. On the other hand, when foreign firms decrease the tariffs or any trade barrier would results to

increase the sales of domestic firms in foreign market. Also the opposite is true when home country and foreign countries increase the tariffs and other trade barriers on their traded commodities.

In a major study of trade liberalization and employment, Sankaran, Abraham and Joseph (2010) have developed a model to disentangle substitution effect, scale effect and trade policy effect of trade liberalization on employment in India. Using several other indicator variables, capital labor ratio, real net value added, real emoluments per employee, man days lost per employee, they found that trade liberalization have created negative impact on employment of India. Further they argue that this result might be due to India's capital-intensive nature of the composition of trade.

In investigating the impact of substitution effect of trade liberalization or import penetration of trade reforms on employment, Feenstra and Hansam (1996) ; Qnaran (2008) have found a negative relationship with import penetration and employment. Feenstra and Hansam show that employment in United States of Americas has been decreased due to import penetration. Also, one of major findings of Onaran is that penetration has caused to lessen employment by 1.8 percent in Austrian manufacturing industries.

In another study by Sen (2008) for identifying trade liberalization and employment relationship they have found that international trade has trivial positive impact on manufacturing employment in India, and concluded that trade liberalization is not the main the major source of job creation for India's large pools of surplus unskilled labor.

Methodology

Data

The study is mainly based on secondary data. In identifying the impacts of trade liberalization on employment data were collected on a specific time interval. The time period selected is from 1990 to 2012. Since the study is based on secondary data, basically study uses data on exports , imports, employment, gross domestic product, tariffs published in annual reports of Central Bank of Sri Lanka (CBSL) and various annual and monthly reports issued by the Department of Census and Statistics of Sri Lanka. As the study is based on time series data for two decades, price effects of variables are removed by using consumer price index (CPI). In this context, the price effects of Gross Domestic Product, total exports, total imports, foreign direct investment and fixoloo9ed capital formation are adjusted to remove inflationary effects.

Methods of Data Analysis

The variables identified in the main objective of the study are tested by employing quantitative analytical methods to make accurate and reliable conclusions. Therefore, simple statistical techniques as well as advanced statistical methods are applied in the study. Descriptive statistical techniques, simple and multiple regression analysis are used to assess the degree of relationships among variables concerned in the study.

Specifications of Empirical Model

The study uses ordinary least square (OLS) method to derive simple and multiple regression models which are used to analyze the impacts of trade liberalization on employment generation of Sri Lanka. In the empirical model two vital independent variables have been constructed to analyze the trade and employment relationship. Accordingly, import penetration ratio and export intensity are employed to magnify the impact of trade liberalization on employment. Import penetration helps to evaluate the import competition. Also this measure can be used to separate the effects of import competition from export orientation on the efficiency in use of labor (Sen, 2008). According to Sen (2008) import penetration can be computed by dividing the total import from the domestic demand and present as a percentage (imports/ output+ imports-exports). Export intensity is calculated as o a ratio of total exports to the value of total output (Exports/Output). The effect of export on employment depends on the nature of export (labor intensive or capital intensive) and the correlation can be negative or positive (Sankaran, Abraham and Joseph, 2010).

The study mainly employs regression analysis to achieve the objective of the study. Empirical model which is employed in the present study can be described in equation 1.

$$EMP_t = \beta_0 + \beta_1 XI_t + \beta_2 MPR_t + \beta_3 WTR_t + \beta_4 FDI_t + \beta_5 GDP_t + \beta_6 KLR_t + \beta_7 RWRI_t + u_t \quad \ldots (1)$$

Where,

EMP = Employment

XI = Export Intensity

MPR = Import Penetration Ratio

WTR = Weighted Tariff Rate

FDI = Foreign Direct Investment

GDP = Gross Domestic Product

KL = Capital Labor Ratio

RWRI = Real Wage Rate Index

U = Error Term

Results

The present study employs multiple regression technique to disentangle the effect of trade liberalization on employment of Sri Lanka. Since the estimation of the empirical model is based on time series variable all the variables were employed after making them stationary. Augmented Dicky fuller test confirms that all the variables of the empirical model are stationary with first deference of them. The model is tested for autocorrelation by using Durbin's alternative test for autocorrelation and Breusch-Godfrey LM test for autocorrelation and found that model is free from autocorrelation. In testing for heteroskedasticity, White's test is employed and it confirms the homoskedasticity in the error term of empirical model. Finally, the model was tested for the multicollinearity with *estat vif* STATA command. The results proved that the model is free from multicollinearity since the maximum *vif* value of each variable is less than ten (Baum, 2006). The estimated multiple regression results is shown in Table 1.

Table 1: The Effect of Trade Liberalization on Employment Level

Dependent Variable : Employment					
Regressors	Coefficient	Std. Err.	t	p	(95% Conf. Interval
Constant	.0741553	.0148789	4.98	0.038	0.0101365 0.1381741
Ln_GDP	-1.328704	.3149132	-4.22	0.052	-2.683666 0.0262583
LN_XI	.6142271	.1077962	5.70	0.029	0.1504176 1.0780370
LN_MPR	-.5234064	.0810305	-6.46	0.023	-0.8720524 - 0.1747603

LN_KLR	.4371235	.0894275	4.89	0.039	0523479 0.8218991
LN_FDI	-.0253739	.0087772	-2.89	0.102	-0.063139 0.0123912
WTR	-.0001292	.0004048	-0.32	0.780	-0.0018709 0.0016125
RWRI	.0007696	.0031187	0.25	0.828	-0.0126489 0.0141882
Number of obs = 22 F = 12.51 Prob > F = 0.0460 R-squared = 0.9777 Adj R-squared = 0.8995 DW = 1.7234					

The results derived based on the OLS regression confirms that overall mode is significant at 5% level of significance. The adjusted R-square authenticate that almost 90 percent of the variation of dependent variable is explained by the OLS regression line. Each independent variable except FDI, WTR and RWRI are statistically significant. In this case all significant variables except GDP are significant at 5% level. One of the main independent variable of determining the employment level is the total value addition of output. The present study uses to real gross domestic product to measure the aggregate output level of the country and it is marginally statistically significant at 10 % significance level.

The result reveals that important determinants which have been included in the regression model that is export intensity, import penetration ratio shows expected signs of regression coefficients. The estimated OLS regression model indicates that export intensity has a significant positive effect on employment. That is, one percent increase in export intensity leads to 0.614 percent increase of total employment. Also, import penetration ratio has a significant negative effect on Sri Lankan's total employment; one percent increase of import penetration leads to -.523per cent reduction of country's total employment. Statistically significant coefficient of capital-labor ratio indicates that it is positively affects to employment generation. One percent increase in capital-labor ration results to increase employment by 0.437 percent. This result is contrary to the one expected in theory. However, one explanation for the positive effect of capital labor ratio on employment is the relatively capital intensive production technique apply for new entries to industries. The regressor which is included to the model, weighted tariff rate, is not statistically significant. The reason might be the availability of few observations for the sample period. The sign of marginally significant coefficient of gross domestic

product is contrary to the theoretical explanation of positive relationship between output and employment. However, the constructed confidence interval at 95% confidence level exhibits that this coefficient even can get a positive value up to 0.026 percent. The regression results exhibits statistically insignificant results for foreign direct investment and real wage rate index. Also, these two regressors have not presented theoretical relationship with employment level.

Conclusion

The present study encompassed two decades which belong to the trade liberalization period of Sri Lanka. Findings of the present study are on the relationships between trade liberalization and employment level of Sri Lanka. In assessing the effects of trade liberalization, the empirical model of the study employ vital three variables, import penetration ratio, export intensity and weighted import tariff rates, which are important to determine employment due to trade liberalization with several other control variables. The major hypothesis of the study is to test the relationship between trade liberalization and the Sri Lanka's employment level. Findings of the study confirm that one percent increase of export intensity increases employment by .614 percent. Also, import penetration ratio has a significant negative effect on Sri Lankan's total employment; one percent increase of import penetration ratio leads to 0.523per cent reduction of country's total employment.

Reference

Baum, C.F. (2006), An Introduction to Modern Econometrics Using Stata, Department of Economics, Boston College, Brighton, Massachusetts

Brander A James (1981), Intra-Industry Trade in Identical Commodities", Journal of International Economics, Vol. 11(1):1-14

Davis R., Donald and Mishra, P. (2007), Stolper-Samuelson is Dead and Other Crimes of Both Theory and Data, Harrison A. (Ed.)

Feenstra C. Robert and Hanson H., Gordon (1996), Globalization, Outsourcing, and Wage Inequality Author(s): Hanson, The American Economic Review, Vol. 86(2): 240-245

Hasan R., Mitra, D. and Ramaswamy, K.V. (2007), Trade Reforms, Labor Regulations, and Labor-Demand Elasticities: Empirical Evidence from India, The Review of Economics and Statistics, 89(3):466-481.

Hasan, R., Mitra, D. and Ramaswamy K.V. (2003), Trade Reforms, Labor Regulations, and Labor-Demand Elasticities: Empirical Evidence from India", Working Paper No. 9879, National Bureau of Economic Research, July.

LaRochelle, S. (2007), Tariff Reduction and Employment in Canadian manufacturing, Canadian Journal of Economics, Vol. 40(3)

Revenga, A. (1992), Exporting Jobs? The Impact of Import Competition on Employment and Wages in US Manufacturing, Quarterly Journal of Economics, Vol.107 (1): 255-284.

Sankaran, U., Abraham, V. and Joseph, K.J. (2010), Impact of Trade Liberalization on Employment: The Experience of India's Manufacturing Industries, Available from: http://www.mse.ac.in/Frontier/i9%20uma.pdf

Sen, K. (2009), Trade Policy, Inequality and Performance in Indian Manufacturing, Routledge Advances in South Asian Studies, Routledge

Sen, K.(2008), International Trade and Manufacturing Employment Outcomes in India – A Comparative Study", Research Paper No.2008/87, UNU-WIDER