Working Paper 348

Estimation of the Key Economic Determinants of Services Trade: Evidence from India

Mini Thomas P

ISBN 978-81-7791-204-3

Institute for Social and Economic Change (ISEC) is engaged in interdisciplinary research in analytical and applied areas of the social sciences, encompassing diverse aspects of development. ISEC works with central, state and local governments as well as international agencies by undertaking systematic studies of resource potential, identifying factors influencing growth and examining measures for reducing poverty. The thrust areas of research include state and local economic policies, issues relating to sociological and demographic transition, environmental issues and fiscal, administrative and political decentralization and governance. It pursues fruitful contacts with other institutions and scholars devoted to social science research through collaborative research programmes, seminars, etc.

The Working Paper Series provides an opportunity for ISEC faculty, visiting fellows and PhD scholars to discuss their ideas and research work before publication and to get feedback from their peer group. Papers selected for publication in the series present empirical analyses and generally deal with wider issues of public policy at a sectoral, regional or national level. These working papers undergo review but typically do not present final research results, and constitute works in progress.

ESTIMATION OF THE KEY ECONOMIC DETERMINANTS OF SERVICES TRADE: EVIDENCE FROM INDIA*

Mini Thomas P[1]

Abstract

India's services trade benefited immensely from the change in policy stance from import substitution to export promotion post-1991, and received a further boost when India became a member of the WTO in 1995. India exhibits a strong revealed comparative advantage in services compared to goods. This paper aims to estimate the key economic determinants of India's international trade in services during the post-reform period from 1996-97 to 2011-12. It involves the estimation of income and price elasticities of India's services trade using the ARDL approach to co-integration. This study finds that the income elasticity of India's services exports is quite high and statistically significant in the long run, when the GDP of OECD countries is taken as proxy for GDP of importing countries. Price elasticity of services exports is found to be negative but statistically insignificant. In case of India's services imports, both the income and price elasticities of demand are found to be positive and statistically significant. Services imports are found to be more responsive to changes in income than relative prices. The implications of the empirical findings for India's Current Account Deficit are also explored.

Keywords: Services Trade, Economic Growth, Exchange Rate, ARDL Approach to Cointegration

JEL Subject Code: E64, F14, F40

Introduction

International trade in services witnessed significant acceleration in the last decade of the twentieth century, rising from US$ 1798.9 billion in 1991, to US$ 8699.8 billion by 2012 (UNCTAD 2013). Developing countries now account for one-fourth of the global trade in services. In spite of a rising contribution to services trade by developing countries, developed countries accounted for 67 per cent of world services exports and 59 per cent of world services imports in 2012 (UNCTAD 2013). India's international trade in services benefited immensely from the change in policy stance from import substitution to export promotion post-1991. Trade in services received a further boost when India became signatory to the General Agreement on Trade in Services (GATS) of WTO in 1995. India exhibits a strong revealed comparative advantage (RCA) in services compared to goods. Between 1996 and 2000, the RCA index for services increased by 74 per cent while for goods declined by 15 per cent (World Bank 2004). In 2012, India is ranked seventh in world services exports, but nineteenth in world merchandise exports. India's share in global services exports stood at 3.2 per cent in 2012, whereas its share in global merchandise exports was only 1.6 per cent for the same year. Similarly, India's share in global services imports stood at 3.1 per cent in 2012, whereas its share in global merchandise imports was 2.6 per cent for the same year (WTO 2013). Share of services trade in India's total international trade stood at 21.4 per cent in 2011-12 (Prasad, Sathish, and Singh 2014). Given its growing relevance

[1] PhD Scholar at Centre for Economic Studies and Policy, Institute for Social and Economic Change (ISEC), Bangalore, India. E-mail: minithomas26@gmail.com.

* This paper is based on the author's ongoing doctoral dissertation, under UGC-Junior Research Fellowship Scheme, at the Institute for Social and Economic Change. The author is very grateful to her PhD supervisor, Prof M R Narayana, for his valuable comments and suggestions on an earlier version of this paper. Thanks are also due to anonymous referees for their comments. However, the usual disclaimers apply.

worldwide and in India, it becomes imperative to examine and estimate the key economic determinants of India's international trade in services.

The current account in India's balance of payments distinguishes between merchandise (visible) and non-merchandise (invisibles) transactions. Invisibles account has three sub-categories, namely, non-factor services, primary income and transfers. Non-factor services in the balance of payments refers to all invisibles receipts and payments which are not attributable to any of the conventional "factors of production", namely, labour (eg. compensation of employees) and capital (eg. investment income). International trade in services is defined globally in terms of trade in non-factor services. Net exports of non-factor services have been playing a crucial role in India's external stabilisation in recent years, by bringing down the Current Account Deficit (CAD) as a percentage of GDP. In 2011-12, India's actual CAD was 4.2 per cent of GDP. In the absence of net exports of non-factor services, India's CAD would have exceeded 7.7 per cent of GDP in 2011-12. Net exports of non-factor services are also less crisis-prone compared to invisibles such as workers' remittances, in the light of India's experience during the 1990-91 balance of payments crisis and 2008-09 global economic crisis (Thomas 2015).

The determinants of international trade in services are varied and multi-dimensional. There is an array of factors which promote or retard services trade, measured in terms of exports and imports. The objective of this study is to estimate the key economic determinants of India's services trade, during the post-reform period from 1996-97Q1 to 2011-12Q4. The scope of this study is restricted to the estimation of income and price elasticities of demand for India's services exports and services imports separately. The implications of the empirical findings for India's current account deficit are also explored. 1996-97 is chosen as the starting point because quarterly data on India's GDP is available only from this particular year. Moreover, most of the services became liberalised in India post-1995, after GATS of WTO became operational.

Income and relative prices are the proximate determinants of international trade, and important policy variables for the macro-economy. Global income plays a crucial role in determining growth of exports, whether of goods or services. World GDP stood at US$ 71918.4 billion in 2012 (World Bank 2013). On the other hand, the home country's GDP is a crucial determinant of import growth. India's GDP stood at US$ 1841.4 billion in 2012 (World Bank 2013). Price competitiveness is also an important economic determinant of international trade seen in the light of recent rupee depreciation and its policy implications for the Indian economy. The Real Effective Exchange Rate (REER) of the Indian economy, which is a measure of the country's price competitiveness, stood at 101.38 in 2011-12 whereas the Nominal Effective Exchange Rate stood at 87.38 (RBI 2013).

The rest of the paper is organised as follows. Section 2 gives the review of literature and Section 3 comprises the empirical analysis. Section 3.1 provides an overview of the growth trends in the two key economic determinants of India's services trade. Section 3.2 specifies the empirical model for estimation of services export and import demand functions, and discusses the technique of estimation. Section 3.3 provides a brief description of the variables and data sources used in this study. Section 3.4 gives the empirical results. Section 4 gives the conclusion and major policy implications of the study.

Review of Literature

International trade theory has postulated different channels through which a country's current account balance depends critically on income and price elasticities of demand of its exports and imports. The Marshall-Lerner condition in trade theory relates price elasticities of international trade to external imbalances. It states that for a depreciation of the domestic currency to reduce the trade deficit of a country, the sum of price elasticity of export demand and price elasticity of import demand, in absolute terms, must be greater than 1. If the sum of price elasticities is less than 1, then the foreign exchange market is unstable, and if the sum of the price elasticities is equal to 1, a change in the exchange rate will leave the balance of payments unchanged. Prebisch (1950, 1959) related the income elasticity of exports and imports of a country with its balance of payments. He argued that the losers in international trade are the less developed countries (LDCs) that tend to specialise in diminishing returns activities and export primary products which have a low income elasticity of demand in world markets; and the gainers in international trade are the developed countries which specialise in increasing returns activities and export manufactured goods which have a high income elasticity of demand in world markets. In a 2-country model, if both the developed country as well as the LDC grows at the same rate, it would result in perpetual balance of payment deficit for the LDC and perpetual balance of payments surplus for the developed country. This is because the income elasticity of export demand of the LDC is less than the income elasticity of import demand of the LDC. Johnson (1958) showed that if international trade is initially balanced in a two-country model, if prices are constant and if income growth is the same in both countries, the country with a higher income elasticity of demand for its imports than the foreign income elasticity of demand for its exports will experience more rapid import growth than export growth, a deterioration in its trade balance and eventual pressure on its exchange rate. For this country, even relatively slow domestic income growth may be insufficient to cure current account imbalances if the relative income elasticities are sufficiently adverse.

Houthakker and Magee (1969) undertook a cross-country study to estimate the demand elasticities for merchandise exports and merchandise imports, with respect to income and prices. They specified import demand of country i to be the function of income of country i (measured as GNP at constant prices) and relative prices (measured as the price index of imports of country i, deflated by the country's Wholesale Price index). Similarly, export demand of country i was specified to be the function of income of importing countries (excluding country i, and each of them weighted by their share in country i's export basket) and relative prices. Both the export and import demand functions had a double-log specification, and was estimated using Ordinary Least Squares regression. They found that estimates of income elasticity was significant for all countries whereas estimates of price elasticity were insignificant for many countries and had a few incorrect signs. However, for a number of countries, the sum of import and export price elasticities was found to be greater than 1 in absolute terms, satisfying the Marshall-Lerner condition.

Hooper, Johnson, and Marquez (2000) estimated and tested the stability of income and price elasticities of international trade, for the G7 countries. They used quarterly data on goods and services trade, for the time-span from 1994-1997. The long-run elasticities were estimated using Johansen's co-integration technique. The short-run elasticities were estimated using the Error-Correction Model. They

found that except for France and Germany, price-elasticities of all other countries satisfied the Marshall-Lerner condition. The asymmetry in income elasticities for the United States was found to be robust. German trade elasticities, as well as French and Italian export elasticities were found to exhibit substantial parameter instability, around the time of Germany's unification.

Marquez (2005) estimated the income and price elasticities for US trade in services in particular, and evaluated the importance of aggregation and simultaneity biases. He initially estimated the trade elasticities for four categories of services - travel, fares, transportation and other private services. He then evaluated the aggregation bias by comparing these elasticities with the ones associated with total services trade. The simultaneity bias was assessed by comparing the estimates from three methods - ordinary least squares, instrumental variables and full information maximum likelihood. Using quarterly data from 1987-2001 and a log-linear specification, he found that the income elasticity for US exports of services was significantly greater than the income elasticity for US imports of services. He also found that disaggregation was central to this reversed asymmetry in contrast to the income asymmetry exhibited by US merchandise trade elasticities. Hung and Viana (1995) also modelled services trade flows of the US using the cointegration-ECM approach. The period of their study was from 1974 to 1993. They found that the US services trade surplus since mid-80s was because of robust economic growth abroad and dollar depreciation. They also found that growth in FDI assets only had a modest net impact on the services trade balance.

Mehta and Mathur (2004) developed an econometric panel-data framework for estimating a short-term forecasting model for India's merchandise exports, by countries and commodities. The primary factors determining India's exports at a disaggregated level were taken to be total imports of the destination country and relative prices. Their panel contained 17 cross-sectional commodity codes with time-series ranging from 1993 to 2001. The forecasted growth rate estimated using their sub-model for India's exports to United States, was found to be 8.85 per cent for 2003-04. Das, Banga, and Kumar (2011) estimated the income and price elasticity of demand for India's services exports, to assess the impact of the global recession on India's services exports. The period of their study was from 1970 to 2008. India's services exports, in real terms, was specified to be the function of world GDP in real-terms and the Real Effective Exchange Rate. The export elasticities were estimated using a double-log model with the help of OLS regressions and co-integration. The income elasticity of demand for India's services exports was found to be much higher than the price elasticity of demand for services exports although both the determinants were found to exert a significant influence.

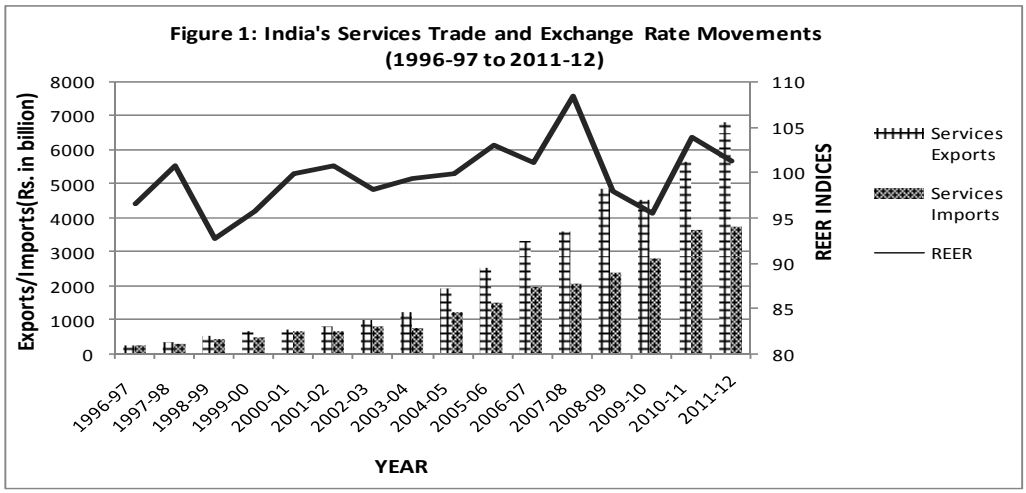
Empirical Analysis

1. Overview

India's international trade in non-factor services, as per RBI definition, is classified into miscellaneous, travel, transportation, insurance and *g.n.i.e.* (government not included elsewhere) services in the country's balance of payments. Miscellaneous services have emerged as the major "internationally traded service" in India's services trade basket during the post-liberalisation period. Miscellaneous services mainly include business services, construction, banking, communication, management consultancy, accounting and auditing, advertising, R & D, architectural and legal services. The share of

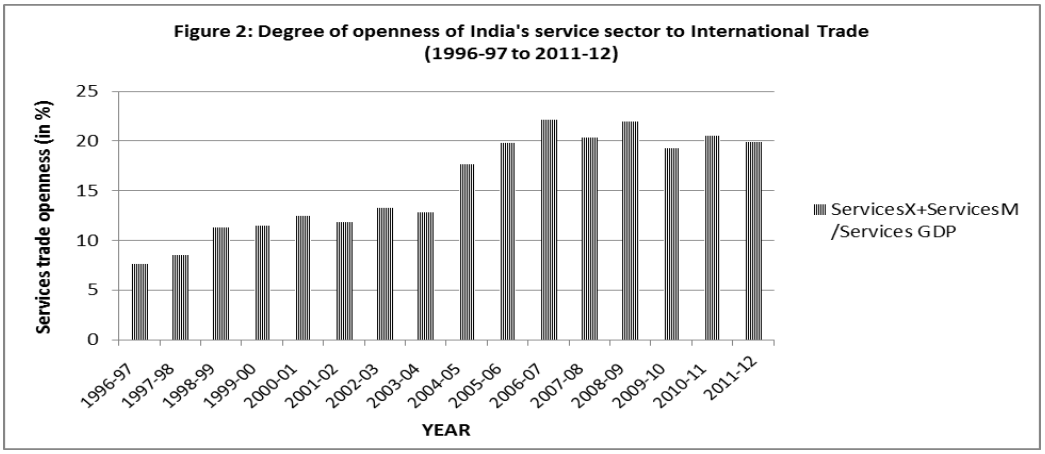
miscellaneous services in India's services export basket rose from 39 per cent in 1991-1992 to 72 per cent in 2011-12, and peaked at 77 per cent in 2008-09. The share of miscellaneous services in India's services import basket increased from 47 per cent in 1991-1992 to 59 per cent in 2011-12, and peaked at 66 per cent in 2010-11. Travel services was a major export item in India's services trade basket up to the late 1990s and attained a peak of 44 per cent of India's services exports in 1992-93. However, its share in India's services export basket declined thereafter to 13 per cent in 2011-12. The share of travel services in India's services import basket, on the other hand, moderately increased from 12 per cent in 1991-92 to 18 per cent in 2011-12 and touched 22 per cent in 2001-02. The importance of transport services in India's services trade basket declined during the post-reform period. Its share in India's services export basket declined from 19 per cent in 1991-92 to 13 per cent in 2011-12, and attained a peak of 28 per cent in 1994-95. Transport services, which was a major item in India's services import basket, attained a peak of 41 per cent in 1992-93 but its share has declined ever since and stood at 21 per cent in 2011-12. Insurance and *g.n.i.e.* services can be categorised as "non-traded services", due to their negligible share of less than 5 per cent in India's services export basket as well as services import basket, throughout the post-reform period.

Figure 1 gives an overview of the growth trend in India's services exports and services imports since 1996-97, considered along with the movements in Real Effective Exchange Rate (REER). The figures show that India's services exports and services imports have grown tremendously since the late 1990s. India's services exports has risen from Rs 265.65 billion in 1996-97 to Rs 6844 billion in 2011-12, which is a compound annual growth rate (CAGR) of 24.2 per cent. Services exports is found to have slightly declined in 2009-10 compared to previous year, due to the economic recession in developed countries, whereas services imports registered a year-on-year increase even in 2009-10. This is regardless of the depreciation of REER from 98.08 in 2008-09 to 95.67 in 2009-10. India's services imports increased steadily from Rs 239.44 billion to Rs 3765 billion in 2011-12, which is a CAGR of 20.2 per cent Services exports is found to be higher than services imports throughout the time-period, despite the fluctuations in REER. From Figure 1, it is found that the REER appreciated to a peak of 108.54 in 2007-08, which was the year when the global financial crisis surfaced. However, services exports registered a year-on-year increase in 2007-08, in spite of appreciation of REER. Similarly, even when REER depreciated to a minimum of 92.84 in 1998-99, India's services imports witnessed a year-on-year increase in 1998-99. This implies that relative prices or external competitiveness is not the sole determinant of India's services exports and services imports. Other factors such as foreign and domestic income, non-tariff barriers and other trade restrictions, technology, tastes and cultural preferences also exert a crucial influence on services trade.



Source: Author's compilation based on data from Handbook of Statistics on Indian Economy 2012-13, RBI

Figure 2 plots the degree of openness of India's service sector to international trade, from 1996-97 to 2011-12. Services trade openness is measured in terms of the sum of services exports and services imports, as a percentage of services GDP. It is found that trade openness of India's service sector has more than doubled within a time-span of 16 years. Services trade openness rose from 8 per cent in 1996-97 to attain a peak of 22 per cent in 2006-07, as is evident from Figure 2. It declined to 20 per cent in 2007-08 with the emergence of the global financial crisis, but reverted to 22 per cent in 2008-09. India's services trade openness slightly declined in the following years and stood at 20 per cent in 2011-12, due to the economic meltdown in the developed countries, which adversely affected foreign demand for India's services exports. This descriptive analysis provides a background for the estimation of income and price elasticities of India's services trade, in the rest of the paper.



Source: Author's compilation based on data from Handbook of Statistics on Indian Economy 2012-13, RBI

2. Empirical Model and Technique of Estimation

Adopting the framework put forth by Houthakker and Magee (1969), this study specifies India's services export demand (*SerX*) to be a function of GDP of importing countries (*MGDP*) and *REER*, as given in Equation 1. Similarly, India's services import demand (*SerM*) is specified to be a function of India's *GDP* and *REER*, as given in Equation 2. Theoretically, income elasticities of demand of services exports and imports are predicted to have a positive sign. Price elasticities of demand of services exports and imports are predicted to have negative sign. REER is used as the common measure of relative prices or external competitiveness of services exports as well as services imports in this study. This is because price indices are not available separately for services exports and services imports, in case of the Indian economy.

$$Ser\ X_t = f\ (MGDP_t, REER_t) \quad \text{..... (1)}$$

$$Ser\ M_t = g\ (GDP_t, REER_t) \quad \text{..... (2)}$$

The choice between the linear and log-linear functional form for these two model specifications is made based on Sargan's Criteria *S* (1964). It is given by $(\hat{\sigma}_u / \ g\ \hat{\sigma}_v)^T$ where g is the geometric mean of the dependent variable in the linear form; $\hat{\sigma}_u$ is the OLS estimate of standard deviation of the underlying errors in the linear regression; $\hat{\sigma}_v$ is the OLS estimate of standard deviation of the underlying errors in the log-linear regression; and *T* is the number of observations. If *S* is less than 1, the data can be said to favour the linear functional form. However, if *S* is greater than 1, the data can be said to favour the log-linear functional form.

Income and price elasticities of India's trade in services, as specified above, is estimated with the help of time-series methodology[2]. Each of the macro-economic variables is initially tested for their stationarity properties and order of integration. The Augmented Dickey-Fuller (ADF) test and the Kwiatkowski, Phillips, Schmidt and Shin (KPSS) test are used for this purpose. Subsequently, the bound testing approach to the Auto-Regressive Distributed Lag (ARDL) model developed by Pesaran, Shin, and Smith (2001) is used to check if the variables are co-integrated. The ARDL approach to cointegration is preferred over Johansen's approach for this empirical analysis because the variables of interest are not purely I (1). The direction of causality is given apriori since the objective of this study is to estimate the income and price elasticities of India's services trade. Another significant advantage of this approach over other co-integration techniques is that different variables can be assigned different lag-lengths in the ARDL model.

The following ARDL models are estimated to check for the presence of cointegration –

$$\Delta ln\ SerX_t = \alpha_1 + \sum_{i=1}^{m} \beta_{1i}\, \Delta ln\ SerX_{t-i} + \sum_{i=0}^{n} \beta_{2i}\, \Delta ln\ MGDP_{t-i} + \sum_{i=0}^{p} \beta_{3i}\, \Delta ln\ REER_{t-i} +$$

$$\beta_4 ln\ SerX_{t-1} + \beta_5 ln\ MGDP_{t-1} + \beta_6 ln\ REER_{t-1} + u_{1t} \quad \text{..... (3)}$$

[2] It is not possible to undertake a panel-data analysis because country-wise data on India's services exports and services imports is not available in public domain.

$$\Delta ln\ SerM_t = \alpha_2 + \sum_{j=1}^{q} \beta_{1j}\, \Delta ln\ SerM_{t-j} + \sum_{j=0}^{r} \beta_{2j}\, \Delta ln\ GDP_{t-j} + \sum_{j=0}^{s} \beta_{3j}\, \Delta ln\ REER_{t-j} +$$

$$\beta_7 ln\ SerM_{t-1} + \beta_8 ln\ GDP_{t-1} + \beta_9 ln\ REER_{t-1} + u_{2t} \quad \text{..... (4)}$$

The existence of a cointegrated relationship between the variables in the ARDL model specifications above is examined with the help of F or Wald test statistics. The Wald test examines the joint null hypothesis of zero cointegration between the variables (in case of equation 3, H_0: $\beta_4 = \beta_5 = \beta_6 = 0$; and in case of equation 4, H_0: $\beta_7 = \beta_8 = \beta_9 = 0$), against the alternate hypothesis of presence of cointegration. The calculated F statistic is compared with two sets of critical values computed by Pesaran, Shin, and Smith (2001) for a given level of significance in their Bound testing Approach to the analysis of long-run relationships. If the computed F statistic exceeds the upper critical bound value, it implies that all the variables are I (1) and the null hypothesis of zero cointegration can be rejected. If the computed F statistic is below the lower critical bounds value, it implies that all variables are I (0) and the null hypothesis of zero cointegration cannot be rejected. However, if the calculated F statistic falls within the bounds, then the test becomes inconclusive. If the null hypothesis of zero cointegration is rejected, error correction representation of ARDL model is estimated to study the short run dynamics. The error correction term in the model measures the speed with which the deviation from the long run equilibrium is corrected for each period and is expected to have a negative sign.

Finally, the regression diagnostic tests are performed for the ARDL models estimated as per equations 3 and 4. The Lagrange Multiplier (LM) test is used to check whether the estimated ARDL models suffer from residual serial correlation and this test is preferred over the Durbin Watson statistic while testing for higher order ARMA errors. The null hypothesis of the LM test is that there is no serial correlation against the alternative hypothesis that the estimated model includes both auto-regressive (AR) and moving average (MA) error processes. The LM test is applicable irrespective of lagged dependent variables in the model. The White test is used to test the null hypothesis that errors are homoskedastic and independent of the regressors, against the alternate hypothesis of presence of heteroskedasticity of unknown, general form. The White test statistic is computed by an auxiliary regression, where the squared residuals on all possible cross products of the regressors are regressed. The Jarque-Bera test is used to test the null hypothesis that the residuals are normally distributed. The test statistic measures the difference of the skewness and kurtosis of the series with those from the normal distribution. The CUSUMSQ (CUSUM of Squares) test is also carried out to check for parameter instability in the estimated ARDL model. It is based on the cumulative sum of squared recursive residuals. Movement outside the pair of 5 per cent critical lines indicates parameter instability. CUSUMSQ test is a variant of CUSUM (cumulative sum of recursive residuals) test.

3. Variable and Data Descriptions

This study pertains to international trade in services. The "service sector" is defined differently by the Reserve Bank of India (RBI) and Central Statistical Organisation (CSO). The CSO definition of "service sector" comprises wholesale and retail trade, hotels and restaurants, transport, storage and

communications, finance, insurance, real estate and ownership of dwellings, business services, community, social and personal services. This study follows the RBI definition of the service sector, which includes "construction activities" also within the ambit of service sector. The Real Effective Exchange Rate (REER) is taken as a measure of relative prices. The quarterly data on India's GDP at Market Prices is used for estimating India's services import demand function. However, for estimating India's services export demand function, quarterly data on world GDP is not available. As per the policy papers on India's service sector brought out by the Government of India (Prasad 2007; Prasad and Sathish 2010), United States, European Union, United Kingdom, Japan and other OECD countries are the major export destinations for India's services exports. The OECD countries accounted for three-fourth of world services imports during the last one decade. Therefore, the GDP of OECD countries is taken as a proxy for GDP of importing countries to estimate the income elasticity of services export demand for the Indian economy.

The period of this study is from 1996-97 Q1 (Quarter 1) to 2011-12 Q4 (Quarter 4), which equals to 64 quarterly time-series observations. Quarterly data on India's GDP (base year: 2004-05) at constant prices, is taken from the National Account Statistics, published by the CSO. Quarterly data on GDP of OECD countries at constant prices (seasonally adjusted, fixed Purchasing Power Parities, with reference year as 2005) is taken from OECDStat, published by the OECD. However, this data is reported in millions of US dollars. It is converted into billions of Indian rupees by averaging the exchange rate over the study-period, from 1996-97 to 2011-12, which amounts to Rs 44.2 per US dollar. Quarterly data on India's services exports, services imports and the REER is taken from the Handbook of Statistics on Indian Economy (HBSIE) 2011-12, published by the Reserve Bank of India. The REER (base year: 2004-05) computed from 36-currency bilateral weights (trade-based weights), compiled by RBI, is used for estimation of price elasticities of services trade.

Balance of payments data published by RBI is at current prices. In most empirical studies, unit value of exports and imports are widely used to deflate international trade data. Time-series data on unit value of services exports and services imports are not available for the Indian Economy. Dash and Parida (2012) used the Wholesale Price Index (WPI) to deflate quarterly data on services exports and services imports into real terms whereas Das, Banga, and Kumar (2011) used the GDP deflator to deflate annual data on services exports. In this study, the Services GDP deflator (base year: 2004-05) is used to convert quarterly data on services exports and services imports at current prices, into constant prices. This is because the basket of commodities that constitutes the Wholesale Price Index in India does not include services, which contributed a significant share of more than 50 per cent to India's GDP in 2011-12. The WPI has thus not been able to capture the structural transformation that occurred in the Indian economy over the past two decades.

4. Empirical Results

Table 1 gives the statistical outcomes from using Sargan's criteria for estimating services export and import demand functions for the Indian economy. In both cases, the S value is found to be greater than 1. Hence, the log-linear functional form is preferred to linear functional form for estimation of both the demand functions. The log-linear form of the macroeconomic variables: *SerX* (Services exports), *SerM*

(Services imports), *REER, MGDP* (GDP of importing countries), and *GDP* (India's GDP), are initially examined for their unit-root properties. The ADF and KPSS tests are used for this purpose. Table 2 gives the results of ADF test for examining the stationarity properties of the macroeconomic variables required to estimate the income and price elasticities of India's trade in services. The optimal lag length for carrying out the ADF test for each of the variables is chosen based on the Akaike Information Criterion (AIC). Based on the statistical significance of the test statistic, it is found that in the level form, the null hypothesis of presence of unit root can be rejected only in the case of *lnREER*. This implies that the variable *lnREER* is stationary in the level form, i.e., I(0). All other variables are found to be stationary only in first difference, i.e., they are integrated of order 1 or I(1).

Table 1: Sargan's Criteria for Choosing Functional Form

Model	S value	Choice of Functional Form
SerX=f(MGDP,REER)	2.46	log-linear form preferred
SerM=g(GDP, REER)	1.09	log-linear form preferred

Source: Author's Calculations

Table 2: Results of ADF Test for Stationarity

Variable	Test statistic (level of variables) Intercept	Test statistic (level of variables) Intercept+trend	Test statistic (first difference) Intercept	Test statistic (first difference) Intercept+trend
lnMGDP	-1.78	-1.65	-3.92***	-4.19***
lnREER	-3.62***	-3.85**	------	------
lnGDP	2.03	-0.502	12.54***	-17.17***
lnSerX	1.45	-1.56	-5.14***	-5.62***
lnSerM	0.16	-2.08	-10.34***	-10.31***

Source: Author's calculations

ln denotes natural log of the variable.

***,**,* denotes 1%, 5% and 10% level of statistical significance, respectively.

To re-confirm the unit-root properties of the macroeconomic variables required for the estimation, the KPSS test is also carried out and results are reported in Table 3. Table 3 reveals that only in the case of *lnREER*, the null hypothesis of stationarity cannot be rejected in the level form. This implies that *lnREER* is I(0), which reinforces the earlier findings of the ADF test. All the other variables become stationary only at first difference, i.e., they are I(1). Since the macroeconomic variables are found to be a mix of I(1) and I(0), the bound-testing approach to the ARDL model is implemented to check for the presence of any co-integrating relationship among these variables and subsequently estimate the services export and import demand functions. This approach cannot be used if any of the variables are found to be I(2).

Table 3: Results of KPSS Test for Stationarity

Variable	Test statistic (level of variables) Intercept	Test statistic (level of variables) Intercept+trend	Test statistic (first difference) Intercept	Test statistic (first difference) Intercept+trend
lnMGDP	0.98***	0.20**	0.302	0.05
lnREER	0.21	0.12	-----	-----
lnGDP	0.99***	0.28***	0.403	0.12
lnSerX	0.98***	0.22***	0.31	0.13
lnSerM	0.98***	0.24***	0.25	0.14

Source: Author's calculations

ln denotes natural log of the variable.

***,**,* denotes 1%, 5% and 10% level of statistical significance, respectively.

4.1. Estimation of India's Services Export Demand function

Services export demand function is estimated in the log-linear form as per Equation 3, and the ARDL (4,2,1) model is chosen based on the Schwarz Bayesian Criterion (SBC). In ARDL (4,2,1) model, lag 4 corresponds to the variable *lnSerX*, lag 2 corresponds to *lnMGDP*, and lag 1 corresponds to *lnREER*. The long run coefficients estimated from ARDL (4,2,1) model are reported in Table 4. When the Wald test is performed for the ARDL (4,2,1) model, the *F statistic* is found to be = 4.91 (with probability *p value* of 0.02). Assuming a model with unrestricted intercept and no trend, and with 2 regressors (k = 2), the asymptotic lower and upper bound values of F-statistic from Pesaran, Shin, and Smith (2001) are [3.79, 4.85] at 5 per cent level of significance. Since the computed F statistic exceeds the critical upper bound at 5 per cent significance level, the null hypothesis of zero cointegration can be rejected in this case. This implies a long-run equilibrium relationship exists between services exports, importing countries' GDP and REER for the Indian economy, during the post-reform period. The income elasticity of services export demand is estimated to be 8.26. It has predicted sign and is statistically significant. This implies that given the exchange rate, a 1 per cent increase in GDP growth of importing countries will lead to a growth in India's services exports by 8.3 per cent. The price elasticity of services exports is estimated to be -1.77. It also has predicted sign, but is found to be statistically insignificant. This implies that in the long-run, India's exports of services are responsive only to changes in income, and not relative prices.

Table 4: Long-Run Determinants of Services Export Demand Function: Estimates from ARDL Approach to Cointegration

Dependent Variable is *lnSerX*		
Regressor	Coefficient	T-Ratio[p value]
lnMGDP	8.26***	12.86 [0.000]
lnREER	-1.77	-1.41 [0.165]
C	-103.32***	-13.13 [0.000]
R-Squared= 0.98 *F-statistic* F(9, 50)= 245.74[0.000] Akaike Info. Criterion = 37.71 Schwarz Bayesian Criterion= 27.23 *DW* statistic = 2.03		

Source: Author's calculations

Note: Lag-length is chosen on the basis of SBC

***, ** and * denotes 1%, 5% and 10% level of statistical significance, respectively.

These findings do not fully conform to that of Das, Banga, and Kumar (2011) for the Indian economy. They found income elasticity of demand of services exports to be much higher than the price elasticity of demand, and found both income and price elasticity of services exports to be statistically significant. The findings of our study differ from Das, Banga, and Kumar (2011) due to differences in methodology, choice of variables and time-span of the study. Our study used quarterly data from 1996-97 to 2011-12 for estimation whereas Das, Banga, and Kumar (2011) used annual data from 1970 to 2008. Our study specified India's services export demand as a function of importing countries' GDP and REER, whereas their study specified services export demand as a function of world GDP and REER. Our study used the ARDL approach to cointegration for the estimation of trade elasticities, which is superior to the Engle-Granger approach to co-integration used by Das, Banga, and Kumar (2011). Many studies in international trade have found statistically insignificant export-exchange rate elasticities, similar to the findings of our study. Rangarajan and Mishra (2013) examined this empirical result and found two factors contributing to this. First, exports and exchange rates are highly endogenous. Secondly, macro equations do not allow the export-exchange rate elasticity to vary depending on the position of the aggregate supply curve.

Moreover, time-series data on price indices of services exports and services imports are not available for the Indian economy. This is because in almost all countries, customs records pertain only to goods, not services. Customs records are the main source of information for constructing export and import price indices. As per IMF (2009), export and import price indices currently produced generally exclude services. These indices traditionally have been compiled for goods as indices of the unit values of detailed custom classes. Serious conceptual problems are also involved in measuring the prices of services such as insurance, finance and entertainment services. Hence, in our study, the exchange rate is used as an indicator of relative prices of services exports and services imports.

The Error Correction Representation of ARDL (4,2,1) model gives the short-run dynamics. The estimation results are reported in Table 5. The short-run income elasticities of demand for services exports are also found to be statistically significant whereas the price elasticity is statistically insignificant. However, the short-run elasticities are not found to have the predicted signs. The error correction term (ECT) is found to be negative and statistically significant, providing further empirical evidence in support of presence of cointegration between services exports, GDP of importing countries and REER. ECT= -0.37 implies that about 37 per cent of the short-run disequilibrium between these variables is corrected every quarter.

Table 5: Estimation Results of Error Correction Representation of ARDL (4, 2, 1) Model

Dependent variable is *dlnSerX*		
Regressor	**Coefficient**	**T-Ratio[p value]**
dlnSerX1	-0.23*	-1.69[0.097]
dlnSerX2	-0.45***	-3.45[0.001]
dlnSerX3	-0.27**	-2.16[0.035]
dlnGDP	9.64**	2.43[0.019]
dlnGDP1	-10.67***	-2.77[0.008]
dlnREER	0.36	0.487[0.628]
dC	-38.21***	-2.89[0.005]
ECT(-1)	-0.37***	-3.19[0.002]

Source: Author's calculations

***,**,* denotes 1%, 5% and 10% level of statistical significance, respectively.

Regression diagnostic tests performed for the estimated ARDL (4,2,1) model are reported in Table 6. From Table 6, it is found that none of null hypotheses of LM test, Jarque Bera test and White test can be rejected in case of ARDL (4,2,1) Model, whether we consider the LM version or F version of test statistic. LM statistic follows an asymptotic chi-square distribution. Hence, it can be concluded that the services export demand function estimated as ARDL (4,2,1) model is free from serial correlation, heteroskedasticity and non-normality. Figure 3 plots the results of CUSUMSQ test for ARDL (4,2,1) model. The Cumulative sum of squares of recursive residuals is found to lie well within the 5 per cent critical lines, indicating parameter stability.

Table 6: Diagnostic Tests for Services Export Demand Function: ARDL (4,2,1) Model

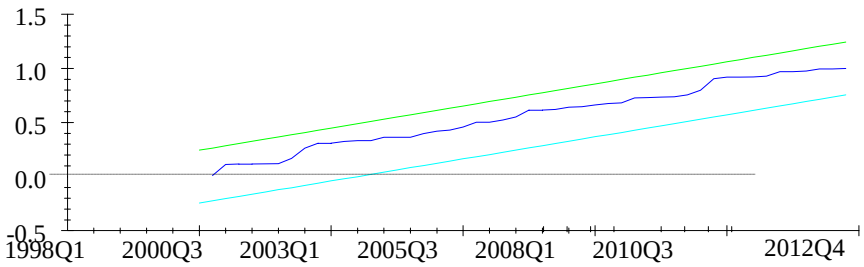
Diagnostic Tests	**Null H_0**	**LM Version**	**F Version**
Lagrange Multiplier test	zero serial correlation	CHSQ(4)=4.002 [0.406]	F(4,46)= 0.82 [0.518]
Jarque Bera test	Normality (normally distributed residuals)	CHSQ(2)=0.57 [0.752]	Not applicable
White test	Homoskedasticity	CHSQ(1)=3.46 [0.103]	F(1,58)= 3.55 [0.104]

Source: Author's calculations

***,**,* denotes 1%, 5% and 10% level of statistical significance, respectively.

Figures in parenthesis [ ] are probability values.

Figure 3: CUSUMSQ Test Results for ARDL (4,2,1) Model



The straight lines represent critical bounds at 5% significance level

Source: Author's calculations

4.2. Estimation of India's Services Import Demand function

The Services Import Demand function is estimated in the log-linear functional form as per Equation 4, and ARDL(2,1,0) Model is chosen based on SBC. In ARDL (2,1,0) model, lag 2 corresponds to the variable *lnSerM*, lag 1 corresponds to *lnGDP* and lag 0 corresponds to *lnREER*. The long run coefficients estimated from ARDL (2,1,0) model are reported in Table 7. When Wald test is performed for this ARDL (2,1,0) model, the *F statistic* is found to be = 4.17. This F statistic is found to be statistically significant, with probability *p value* = 0.01. Assuming a model with unrestricted intercept and no trend, and with 2 regressors (k =2); the lower and upper bound critical values of F-statistic from Pesaran, Shin, and Smith (2001) are [3.17,4.14] at the 10 per cent level of significance. Since the computed F statistic exceeded the critical upper bound at the 10 per cent level of significance, the null hypothesis of zero cointegration can be rejected. This establishes the presence a long-run equilibrium relationship between services imports, GDP and REER for the Indian economy, during the post-reform period.

The income elasticity of demand for services imports is estimated to be 1.98. It is found to have predicted sign and is statistically significant. The economic implication is that given the exchange rate, a 1 per cent increase in India's GDP will lead to a rise in India's services imports by 1.98 per cent. The price elasticity of services imports is estimated to be 1.84 and is statistically significant. This implies that given India's GDP, a 1 per cent appreciation in the REER will lead to a rise in India's services imports by 1.84 per cent. In the long run, India's services imports are found to be more responsive to income, compared to relative prices. Theoretically, the price elasticities of demand for services exports and services imports are predicted to have negative sign, based on the assumption that different set of relative prices are used to estimate services export demand and services import demand. However, in this study, price elasticity of services exports is empirically found to be negative (Table 4), whereas price elasticity of services imports is empirically found to be positive (Table 7). This is because the same price variable, REER, is used as the measure of relative prices for estimating both export demand and import demand functions. An appreciation of REER causes exports to become costlier and imports to become cheaper.

Table 7: Long-Run Determinants of Services Import Demand Function: Estimates from ARDL Approach to Cointegration

Dependent Variable is *lnSerM*		
Regressor	**Coefficient**	**T-Ratio[p value]**
lnGDP	1.98	14.76 [0.000]
lnREER	1.84	2.05 [0.045]
C	-20.67	-5.04 [0.000]
R-Squared = 0.93		
F-statistic F(5, 56) = 146.26[0.000]		
Akaike Information Criterion = 18.21		
Schwarz Bayesian Criterion = 11.83		
DW-statistic = 2.07		

Source: Author's calculations

Note: Lag-length is chosen on the basis of SBC

***, **, * denotes 1%, 5% and 10% level of statistical significance, respectively.

The Error Correction Representation of the ARDL (2,1,0) model gives the short-run dynamics. The estimation results are reported in Table 8. The Error Correction Term (ECT) is found to be negative and statistically significant, re-affirming the presence of cointegration between the variables. The ECT is found to be = -0.58, implying that about 58 per cent of the short-run disequilibrium between services imports, India's GDP and REER is corrected every quarter. The short-run income and price elasticities of demand for India's services imports are found to be statistically significant and possess the same signs as the long-run elasticities.

Table 8: Estimation Results of Error Correction Representation of ARDL (2,1,0) Model

Dependent variable is *dlnSerM*		
Regressor	**Coefficient**	**T-Ratio[Prob.]**
dlnSerM1	-0.18	-1.52[0.135]
dlnGDP	0.54**	1.96[0.054]
dlnREER	1.07*	1.89[0.063]
dC	-11.99***	-3.39[0.001]
ECT(-1)	-0.58***	-4.49[0.000]

Source: Author's calculations

***,**,* denotes 1%, 5% and 10% level of statistical significance, respectively.

Regression diagnostic tests performed for ARDL(2,1,0) model are reported in Table 9. From Table 9, it is found that none of null hypotheses of LM test, Jarque Bera test and White test can be rejected in case of ARDL (2,1,0) Model. This implies that services import demand function estimated as ARDL (2,1,0) model neither suffers from serial correlation, non-normality or heteroskedasticity. Figure 4 plots the results of CUSUMSQ test for ARDL (2,1,0) model. Here again, cumulative sum of squares of recursive residuals is found to lie within the 5 per cent critical lines, indicating parameter stability.

Table 9: Diagnostic Tests for Services Import Demand Function: ARDL (2,1,0) Model

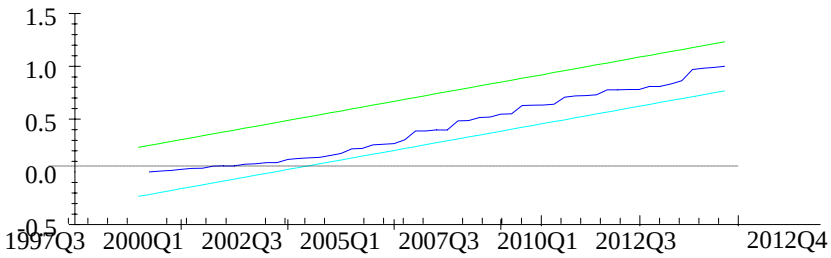
Diagnostic Tests	Null H_0	LM Version	F Version
Lagrange Multiplier test	zero serial correlation	CHSQ(4)= 6.66 [0.155]	F(4,52)= 1.56 [0.198]
Jarque Bera test	Normality (normally distributed residuals)	CHSQ(2)= 1.19 [0.552]	Not applicable
White test	Homoskedasticity	CHSQ(1)= 0.21 [0.645]	F(1,60)= 0.21 [0.651]

Source: Author's calculations

***,**,* denotes 1%, 5% and 10% level of statistical significance, respectively.

Figures in parenthesis [ ] are probability values.

Figure 4: CUSUMSQ Test Results for ARDL (2,1,0) Model



The straight lines represent critical bounds at 5% significance level

Source: Author's calculations

Conclusion and Policy Implications

Using the ARDL approach to cointegration, this study finds price elasticity of India's services export demand to be negative, low and statistically insignificant, whereas income elasticity of services export demand is found to be quite high, positive and statistically significant. On the other hand, income elasticity of demand and price elasticity of demand for India's services imports are found to be positive and statistically significant. In the long-run, the income elasticity of demand for services exports is found to be remarkably higher than income elasticity of services imports for the Indian economy. As a result, India's services trade balance will continue to be in surplus in the long-run, which is good for India's external stabilisation. Prebisch's (1950, 1959) and Johnson's (1958) arguments are thus found to be valid for India's international trade in services. India's service trade exhibits characteristics of a developed country as expounded by Prebisch, because of which India is a net gainer when it engages in international trade in services. Favourable income elasticities of services trade contribute in a big way towards reducing India's Current Account Deficit, given the fact that merchandise trade is in persistent deficit. As per Marshall Lerner Condition, rupee depreciation as a policy instrument will be successful in reducing India's CAD only if the sum of price elasticities of services exports and services imports (in absolute terms) is greater than 1 in the long run. Due to the unavailability of separate price indices for India's services exports and services imports, REER is used as the common measure of relative prices

for services exports as well as services imports in this study. Therefore Marshall-Lerner condition is not strictly applicable for empirical testing purposes in this study. There are three different perspectives on current account balance: a domestic perspective based on national income and product accounts; an international perspective based on trade flows in goods and services; and another international perspective based on flows and holdings of financial assets (Mann 2002). This study, by focusing on the current account perspective based on international trade flows, helped to examine how global and national GDP growth, as well as the exchange rate, affects India's current account deficit.

The above-mentioned findings have important implications for exports from developing countries like India. First, it indicates that growth of India's services exports is highly dependent on the economic performance of developed countries such as OECD countries. The drawback is that an economic recession in the developed countries will severely impact upon India's services exports. Another implication is that higher the income elasticity of demand for services exports, the more capable is services exports to act as a powerful engine of economic growth for the Indian economy. Low and statistically insignificant price elasticity of services exports implies that it would be difficult to propel services export growth through improvements in price competitiveness. Another possible explanation for insignificant price elasticity of services exports is that India's services exports are already quite price competitive and have a comparative advantage in the world market, due to cheap but highly skilled English-speaking workforce employed in many of the sub-sectors such as Information Technology (IT) and Business Process Outsourcing (BPO). Hence, fluctuations in exchange rate do not have a significant impact upon services export demand.

References

Das, Abhijit, Rashmi Banga and Dinesh Kumar (2011) Global Economic Crisis: Impact and Restructuring of the Services Sector in India. *ADBI Working Paper 311*, Asian Development Bank Institute, Tokyo.

Dash, Ranjan Kumar and Purna C Parida (2013). FDI, Services Trade and Economic Growth in India: Empirical Evidence on Causal Links. *Empirical Economics*, 45 (1): 217-238.

Hooper, Peter, Karen Johnson and Jaime Marquez (2000). Trade Elasticities for the G-7 Countries. *Princeton Studies in International Economics 87*, International Economics Section, Princeton University, New Jersey.

Houthakker, H S and Stephen P Magee (1969). Income and Price Elasticities in World Trade. *The Review of Economics and Statistics,* 51 (2): 111-125.

Hung, Juann H and Sandra Viana (1995). Modelling U.S. Services Trade Flows: A Cointegration-ECM Approach. *Federal Reserve Bank Research Paper 9518*, Federal Reserve Bank of New York, New York.

IMF (International Monetary Fund) (2009). *Export and Import Price Index Manual: Theory and Practice*. Washington D.C.: International Monetary Fund.

Johnson, Harry G (1958). *International Trade and Economic Growth: Studies in Pure Theory.* London: Allen & Unwin.

Mann, Catherine L (2002). Perspectives on the U.S. Current Account Deficit and Sustainability. *Journal of Economic Perspectives,* 16 (3): 131-152.

Marquez, Jaime (2005). Estimating Elasticities for U.S. Trade in Services. *International Finance Discussion Papers 836*, Board of Governors of the Federal Reserve System, Washington D.C.

Mehta, Rajesh and Parul Mathur (2004). India's Exports by Countries and Commodities: On the Estimation of a Forecasting Model using Panel Data. *RIS Discussion Papers 84/2004*, Research and Information System for Developing Countries, New Delhi.

Pesaran, Hashem M, Yongcheol Shin and Richard J Smith (2001). Bound Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics,* 16 (3): 289-326.

Prasad, H A C (2007). Strategy for India's Services Sector: Broad Contours. *Working Paper 1/2007-DEA*, Ministry of Finance, Government of India, New Delhi.

Prasad, H A C and R Sathish (2010). Policy for India's Service Sector. *Working Paper 1/2010-DEA*, Ministry of Finance, Government of India, New Delhi.

Prasad, H A C, R Sathish and Salam Shyamsunder Singh (2014). Emerging Global Economic Situation: Opportunities and Policy Issues for Services Sector. *Working Paper 1/2014-DEA*, Ministry of Finance, Government of India, New Delhi.

Prebisch, Raúl (1950). *The Economic Development of Latin America and its Principal Problems.* New York: United Nations Department of Economic Affairs.

———— (1959). Commercial Policy in the Underdeveloped Countries. *The American Economic Review,* 49 (2): 251-273.

Rangarajan, C and Prachi Mishra (2013). India's External Sector: Do We Need to Worry? *Economic and Political Weekly,* 48 (7): 52-59.

RBI (Reserve Bank of India) (2013). *Handbook of Statistics on Indian Economy 2012-13*. Mumbai: Reserve Bank of India.

Sargan, John Denis (1964). Wages and Prices in the United Kingdom: A Study in Econometric Methodology. In P E Hart, G Mills and J K Whitaker (eds), *Econometric Analysis for National Economic Planning*, 25–54. London: Butterworths.

Thomas, Mini P (2015). Relationship between Services Trade, Economic Growth and External Stabilisation in India: An Empirical Investigation. *ISEC Working Paper 340*, Institute for Social and Economic Change, Bangalore.

UNCTAD (United Nations Conference on Trade and Development) (2013). *UNCTADStat*. Geneva: United Nations. Retrieved August 20, 2013. http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx

World Bank (2004). *The Remarkable Dynamism of India's Services Sector*. Washington D.C.: World Bank. Retrieved January 25, 2015. http://siteresources.worldbank.org/INTSARREGTOPINTECOTRA/34004324-1147911358368/20855385/Chapter1.pdf

———— (2013). *World Development Indicators 2013*. Washington D.C.: World Bank.

WTO (World Trade Organisation) (2013). *International Trade Statistics 2013*. Geneva: WTO. Retrieved February 19, 2014. https://www.wto.org/english/res_e/statis_e/its2013_e/its13_toc_e.htm

Recent Working Papers

285 Double Burden of Malnutrition in India: An Investigation
Angan Sengupta and T S Syamala

286 Vocational Education and Child Labour in Bidar, Karnataka, India
V Anil Kumar

287 Politics and Public Policies: Politics of Human Development in Uttar Pradesh, India
Shyam Singh and V Anil Kumar

288 Understanding the Fiscal Implications of SEZs in India: An Exploration in Resource Cost Approach
Malini L Tantri

289 Does Higher Economic Growth Reduce Poverty and Increase Inequality? Evidence from Urban India
Sabyasachi Tripathi

290 Fiscal Devaluations
Emmanuel Farhi, Gita Gopinath and Oleg Itskhoki

291 Living Arrangement Preferences and Health of the Institutionalised Elderly in Odisha
Akshaya Kumar Panigrahi and T S Syamala

292 Do Large Agglomerations Lead to Economic Growth? Evidence from Urban India
Sabyasachi Tripathi

293 Representation and Executive Functions of Women Presidents and Representatives in the Grama Panchayats of Karnataka
Anand Inbanathan

294 How Effective are Social Audits under MGNREGS? Lessons from Karnataka
D Rajasekhar, Salim Lakha and R Manjula

295 Vulnerability Assessment Of The Agricultural Sector In Yadgir District, Karnataka: A Socio-Economic Survey Approach
Sarishti Attri and Sunil Nautiyal

296 How Much Do We Know about the Chinese SEZ Policy?
Malini L Tantri

297 Emerging Trends in E-Waste Management - Status and Issues
A Case Study of Bangalore City
Manasi S

298 The Child and the City: Autonomous Migrants in Bangalore
Supriya RoyChowdhury

299 Crop Diversification and Growth of Maize in Karnataka: An Assessment
Komol Singha and Arpita Chakravorty

300 The Economic Impact of Non-communicable Disease in China and India: Estimates, Projections, and Comparisons
David E Bloom, Elizabeth T Cafiero, Mark E McGovern, Klaus Prettner, Anderson Stanciole, Jonathan Weiss, Samuel Bakkia and Larry Rosenberg

301 India's SEZ Policy - Retrospective Analysis
Malini L Tantri

302 Rainwater Harvesting Initiative in Bangalore City: Problems and Prospects
K S Umamani and S Manasi

303 Large Agglomerations and Economic Growth in Urban India: An Application of Panel Data Model
Sabyasachi Tripathi

304 Identifying Credit Constrained Farmers: An Alternative Approach
Manojit Bhattacharjee and Meenakshi Rajeev

305 Conflict and Education in Manipur: A Comparative Analysis
Komol Singha

306 Determinants of Capital Structure of Indian Corporate Sector: Evidence of Regulatory Impact
Kaushik Basu and Meenakshi Rajeev

307 Where All the Water Has Gone? An Analysis of Unreliable Water Supply in Bangalore City
Krishna Raj

308 Urban Property Ownership Records in Karnataka: Computerized Land Registration System for Urban Properties
S Manasi, K C Smitha, R G Nadadur, N Sivanna, P G Chengappa

309 Historical Issues and Perspectives of Land Resource Management in India: A Review
M S Umesh Babu and Sunil Nautiyal

310 E-Education: An Impact Study of Sankya Programme on Computer Education
N Sivanna and Suchetha Srinath

311 Is India's Public Debt Sustainable?
Krishanu Pradhan

312 Biomedical Waste Management: Issues and Concerns - A Ward Level Study of Bangalore City
S Manasi, K S Umamani and N Latha

313 Trade and Exclusion: Review of Probable Impacts of Organised Retailing on Marginalised Communities in India
Sobin George

314 Social Disparity in Child Morbidity and Curative Care: Investigating for Determining Factors from Rural India
Rajesh Raushan and R Mutharayappa

315 Is Access to Loan Adequate for Financing Capital Expenditure? A Household Level Analysis on Some Selected States of India
Manojit Bhattacharjee and Meenakshi Rajeev

316 Role of Fertility in Changing Age Structure in India: Evidence and Implications
C M Lakshmana

317 Healthcare Utilisation Behaviour in India: Socio-economic Disparities and the Effect of Health Insurance
Amit Kumar Sahoo

318 Integrated Child Development Services in India – A Sub-National Review
Jonathan Gangbar, Pavithra Rajan and K Gayithri

319 The Infrastructure-Output Nexus: Regional Experience from India
Sumedha Bajar

320 **Uncertainty, Risk and Risk Mitigation: Field Experiences from Farm Sector in Karnataka**
Meenakshi Rajeev and B P Vani

321 **Socio-Economic Disparities in Health-Seeking Behaviour, Health Expenditure and Sources of Finance in Orissa: Evidence from NSSO 2004-05**
Amit Kumar Sahoo and S Madheswaran

322 **Does Living Longer Mean Living Healthier? Exploring Disability-free Life Expectancy in India**
M Benson Thomas, K S James and S Sulaja

323 **Child and Maternal Health and Nutrition in South Asia - Lessons for India**
Pavithra Rajan, Jonathan Gangbar and K Gayithri

324 **Reflecting on the Role of Institutions in the Everyday Lives of Displaced Women: The Case of Ganga-Erosion in Malda, West Bengal**
Priyanka Dutta

325 **Access of Bank Credit to Vulnerable Sections: A Case Study of Karnataka**
Veerashekharappa

326 **Neighbourhood Development and Caste Distribution in Rural India**
Rajesh Raushan and R Mutharayappa

327 **Assessment of India's Fiscal and External Sector Vulnerability: A Balance Sheet Approach**
Krishanu Pradhan

328 **Public Private Partnership's Growth Empirics in India's Infrastructure Development**
Nagesha G and K Gayithri

329 **Identifying the High Linked Sectors for India: An Application of Import-Adjusted Domestic Input-Output Matrix**
Tulika Bhattacharya and Meenakshi Rajeev

330 **Out-Of-Pocket (OOP) Financial Risk Protection: The Role of Health Insurance**
Amit Kumar Sahoo and S Madheswaran

331 **Promises and Paradoxes of SEZs Expansion in India**
Malini L Tantri

332 **Fiscal Sustainability of National Food Security Act, 2013 in India**
Krishanu Pradhan

333 **Intergrated Child Development Services in Karnataka**
Pavithra Rajan, Jonathan Gangbar and K Gayithri

334 **Performance Based Budgeting: Subnational Initiatives in India and China**
K Gayithri

335 **Ricardian Approach to Fiscal Sustainability in India**
Krishanu Pradhan

336 **Performance Analysis of National Highway Public-Private Partnerships (PPPs) in India**
Nagesha G and K Gayithri

337 **The Impact of Infrastructure Provisioning on Inequality: Evidence from India**
Sumedha Bajar and Meenakshi Rajeev

338 **Assessing Export Competitiveness at Commodity Level: Indian Textile Industry as a Case Study**
Tarun Arora

339 **Participation of Scheduled Caste Households in MGNREGS: Evidence from Karnataka**
R Manjula and D Rajasekhar

340 **Relationship Between Services Trade, Economic Growth and External Stabilisation in India: An Empirical Investigation**
Mini Thomas P

341 **Locating the Historical Past of the Women Tea Workers of North Bengal**
Priyanka Dutta

342 **Korean Media Consumption in Manipur: A Catalyst of Acculturation to Korean Culture**
Marchang Reimeingam

343 **Socio-Economic Determinants of Educated Unemployment in India**
Indrajit Bairagya

344 **Tax Contribution of Service Sector: An Empirical Study of Service Taxation in India**
Mini Thomas P

345 **Effect of Rural Infrastructure on Agricultural Development: District-Level Analysis in Karnataka**
Soumya Manjunath and Elumalai Kannan

346 **Moreh-Namphalong Border Trade**
Marchang Reimeingam

347 **Emerging Trends and Patterns of India's Agricultural Workforce: Evidence from the Census**
S Subramanian

Price: ₹ 30.00 ISBN 978-81-7791-204-3

INSTITUTE FOR SOCIAL AND ECONOMIC CHANGE
Dr V K R V Rao Road, Nagarabhavi P.O., Bangalore - 560 072, India
Phone: 0091-80-23215468, 23215519, 23215592; Fax: 0091-80-23217008
E-mail: vani@isec.ac.in; Web: www.isec.ac.in