



## TOWARDS AN EMPIRICAL ANALYSIS OF THE IMPACT OF GOODS TRADE LIBERALISATION ON SERVICES TRADE

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### ABSTRACT

**T**he present study is an attempt to find out the impact of liberalising goods trade and per capita GDP on the per capita trade in services. In this paper we have considered six countries from major trade blocs. We have estimated the impact of liberalising goods trade and per capita GDP on per capita services trade by using OLS method. Our study is based on period 2000 – 2013. The results of the study are quite interesting. We find that liberalising goods trade and per capita GDP have positive impacts on the per capita services trade.

**KEY WORDS:** Services trade, Liberalising goods trade, GDP

**JEL Classifications:** F100, F140,

### 1. INTRODUCTION

There are few interesting traits of services that distinguish trade in services from merchandise trade. For example, the consumption and production of services have to be at the same point of time. However, in case of merchandise trade the production and consumption of goods may take place at different time periods. This important trait makes the study on services trade more interesting. Lee and Lloyd (2002) in their study mentioned that theory of trade should cover both merchandise and services trade<sup>1</sup>. However, it is found that most empirical studies on international trade only concentrate on the merchandise trade. One of the reasons for this is that the lack of availability of data on services trade. On the other hand there are studies related to the liberalisation and trade flows. In general, trade liberalisation can be measured by trade openness<sup>2</sup>. In trade openness, both merchandise and services trade are included. However, it is interesting to study the impact of goods trade openness (Goods trade liberalisation) on the trade in services. However, literature related to this is very rare. Against

this background the aim of the paper is to examine the role of trade liberalisation (goods trade liberalisation) on the trade in services for the selected countries. In this study we have incorporated six countries<sup>3</sup>.

I'll present the analytical background in section 2. Section 3 represents the trend analysis of goods trade openness, trade in services and GDP. Section 4 represents methodology and data sources. Section 5 is about the results and finally section 6 concludes.

### 2. ANALYTICAL BACKGROUND: GOODS TRADE LIBERALISATION AND TRADE IN SERVICES

In this study we have tried to find out the impact of goods trade liberalisation on per capita services trade. There are few studies which tried to investigate the determinants of trade in services. Grunfeld and Moxnes (2003) in their work have estimated the determinants of trade in services using OECD data set. Kimura (2003) also uses the OECD data set to estimate the overall services trade flows between Japan and Korea.

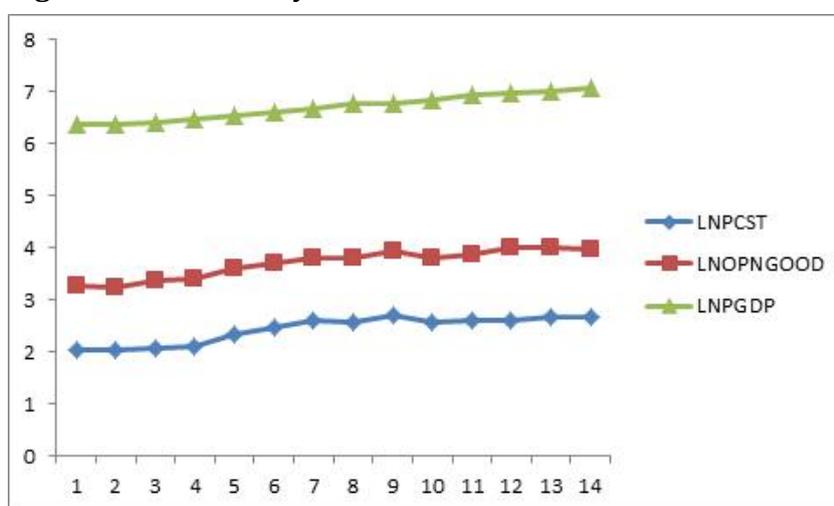
Most of the empirical works related to the bilateral trade in services are based on the OECD data set. The reason behind this is lack of data for bilateral trade in services. However, there are very few studies which dealt with the estimation of trade in services for non OECD countries. In our study we have investigated the impact of liberalisation on goods trade on trade in services for six major countries in services trade.

There are very few papers which have tried to investigate the impact of merchandise trade liberalisation on trade in services for major countries in services trade. Our study has tried to fill this lacuna in the existing literature.

### 3.TREND ANALYSIS OF GOODS TRADE OPENNESS, PER CAPITA SERVICES TRADE AND PER CAPITA GDP OF SELECTED COUNTRIES

The present study is based on secondary data and the study period is 2000 – 2013. In this section we'll discuss about some preliminary findings based on trend analysis. We have performed country wise trend analysis. The variable used for the trend analysis are Goods trade openness (LNOPNGOOD), per capita GDP (LNPGDP) and service trade (LNPCST) and all variables are in log form<sup>4</sup>. Moreover, we did trend analysis for European Union (EU). The analysis has revealed some interesting facts.

**Figure 1: Trend Analysis for India for the Period of 2000 - 2013**

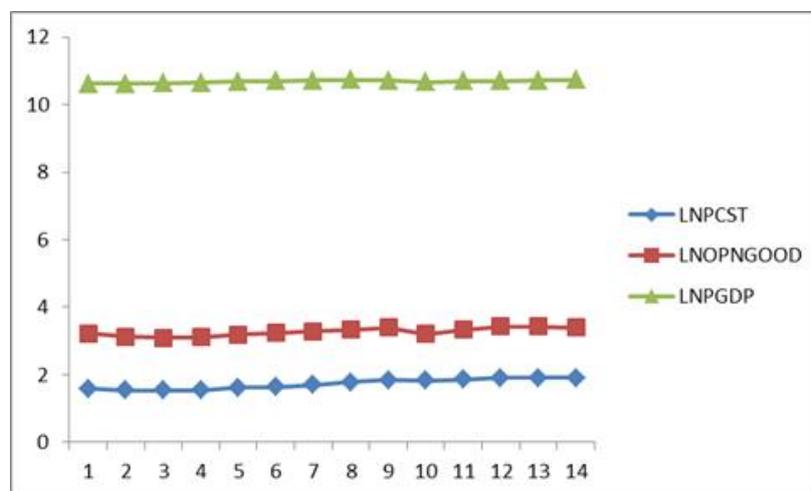


Source: Author's calculation based on World Bank database

From Figure 1 we find that PGDP for India is rising during our study period. It is also observed that during the period of 2000 – 2013, OPNGOOD are rising except few years in between. From the above figure we

can infer that PCST is moving in tandem with OPNGOOD. Thus liberalising trade in good is important for the trade in services for Indian economy.

**Figure 2: Trend Analysis for USA for the Period of 2000 - 2013**

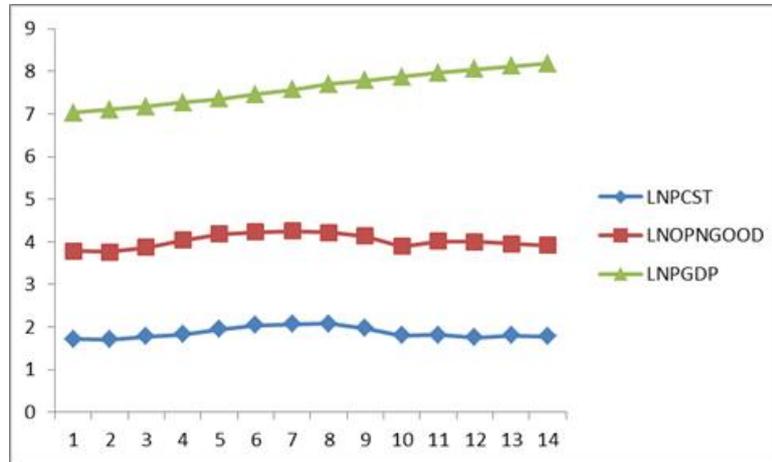


Source: Author's calculation based on World Bank database

From Figure 2 we find that PGDP for USA is rising during our study period (Except few periods). It is also observed that during the period of 2000 - 2013, OPNGOOD are rising except few years in between. From the above figure we

can infer that PCST is moving in tandem with OPNGOOD. Thus liberalising trade in good is important for the trade in services for the economy of USA.

**Figure 3: Trend Analysis for China for the Period of 2000 - 2013**

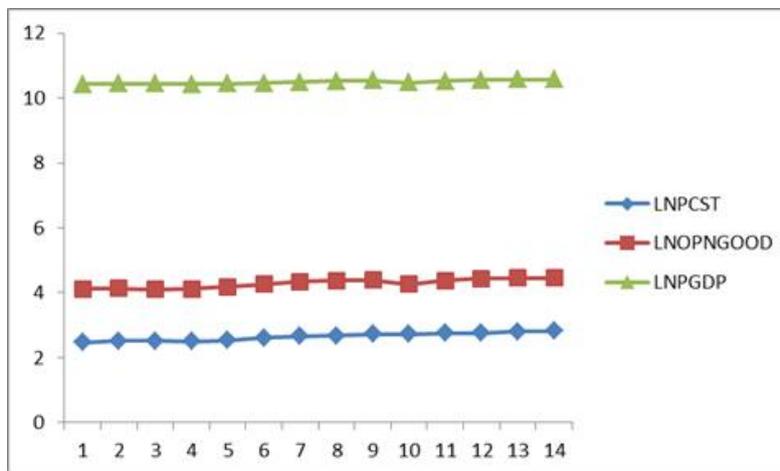


Source: Author's calculation based on World Bank database

From Figure 3 we find that there is a very high growth in PGDP for China during our study period. It is also observed that initially the growth in OPNGOOD and PCST is moderate, after 2003 the growth in OPNGOOD and PCST

has increased thereafter again slowed down. However, PCST is moving in tandem with OPNGOOD during the study period. Thus liberalising trade in good is important for the trade in services for the economy of China.

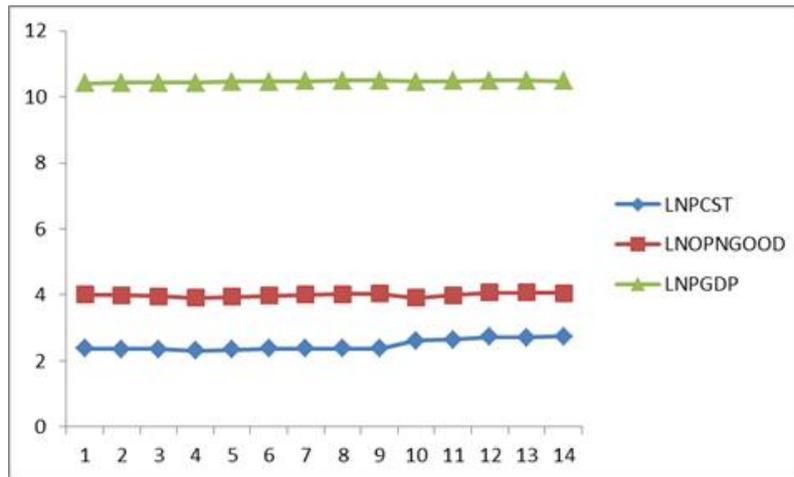
**Figure 4: Trend Analysis for Germany for the Period of 2000 - 2013**



From Figure 4 we find that there is a growth in PGDP for Germany is not very high during the study period. It is also observed that the growth in OPNGOOD is fluctuating

and PCST is moderate and sometimes fluctuating moderately. However, PCST is moving in tandem with OPNGOOD during the later period.

**Figure 5: Trend Analysis for France for the Period of 2000 - 2013**

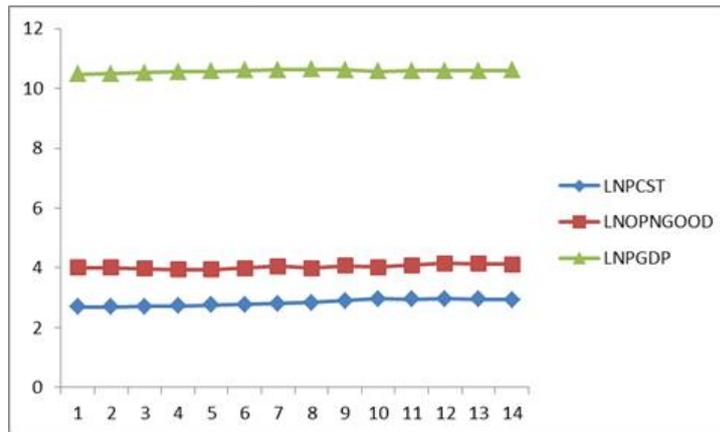


Source: Author's calculation based on World Bank database

From Figure 5 we find that there is a growth in PGDP for France is not very high during the study period. It is also observed that the growth in OPNGOOD is fluctuating and

PCST is moderate and slow during the initial study period. However, the growth in PCST has increased after 2009.

**Figure 6: Trend Analysis for UK for the Period of 2000 - 2013**

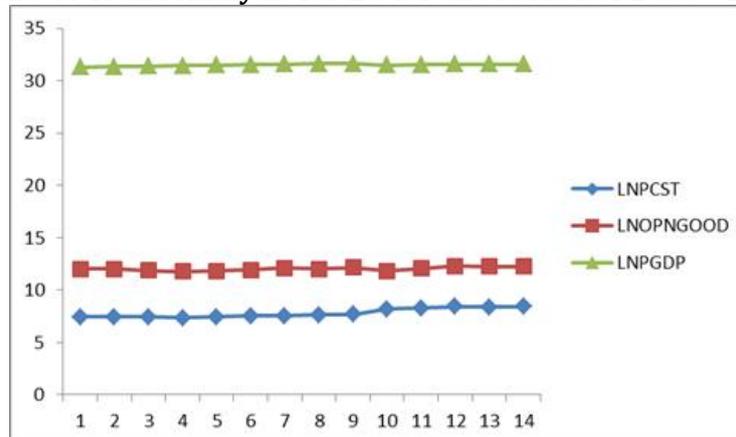


Source: Author's calculation based on World Bank database

From Figure 6 we find that there is a growth in PGDP for UK is not very high during the study period. It is also observed that the growth in OPNGOOD is fluctuating and

and PCST is moderate and slow during the initial study period. However, the growth in PCST has increased after 2009.

**Figure 7: Trend Analysis for EU for the Period of 2000 - 2013**



Source: Author's calculation based on World Bank database

From Figure 7 we observe that growth rate in PGDP for EU countries is not very high rather is near stagnant. However, after the period of 2009 both PCST and OPNGOOD have increased.

#### 4. EMPIRICAL METHOD AND DATA

We are interested in estimating the effect of the goods trade liberalisation on services trade. We adopt the log log model for the estimation purpose. Log - Log model is nothing but taking the logarithmic transformation of both sides of the equation. In our study we have adopted natural log transformation. In log-log model the estimated coefficients of an independent variable is basically elasticity with respect to that variable.

$$\ln(PCST)_{it} = \beta_0 + \beta_1 \ln(PGDP)_{it} + \beta_2 \ln(OPNGOOD)_{it} + \epsilon_{it}$$

Where, *i* and *j* denotes countries and *t* denotes time and the variables are defined as follows:

**PCST:** Per capita services trade

**PGDP:** Per capita GDP

**OPNGOOD:** Merchandise trade openness

We have employed OLS method for the estimation purpose.

#### 5. RESULTS AND DISCUSSIONS

We have estimated the following model;

$$\ln(PCST)_{it} = \beta_0 + \beta_1 \ln(PGDP)_{it} + \beta_2 \ln(OPNGOOD)_{it} + \epsilon_{it}$$

Table 1 represents the OLS estimates of model 1. We find that in OLS the model fits the data well and it explains approximately 50% of the total variation in per capita trade in services. It is expected that the goods trade liberalisation process will have a positive impact on the trade in services and we find that it is positive and highly significant. We also find that the coefficient of per capita

In our study we have estimated the impact of goods trade liberalisation on the trade in services for six countries. Goods trade liberalisation has been measured by goods trade openness. Goods trade openness is defined as share of total merchandise trade on GDP. With the increase in the share of merchandise trade in GDP we expect that services trade will also increase. The reason is as the goods trade increases it requires more services (e.g. insurance, transportation, telecommunication etc.). Per capita GDP is also an important determinant of trade. It is expected that trade increases with the increase in per capita GDP.

We estimate the following model

(1)

The model is estimated (OLS method) by using annual data over the period 2000 - 2013.

The data on 'PGDP' has been collected from World Development Indicators (WDI) of the World Bank (WB). The data on 'Share of services trade on GDP' is available in WDI database. Using 'PGDP' and 'Share of services trade on GDP' we have calculated data on 'PCST'. Moreover, 'OPNGOOD' is calculated by using 'Trade Openness' data and 'Share of services trade on GDP'. 'Trade Openness' data is available in WDI database.

GDP is also significantly positive. Since we have taken log on both the sides of equations, we can infer that these coefficients of the regression equations are elasticities. From our empirical analysis we infer that goods trade liberalisation has significant and positive impact on the trade in services. Moreover, trade in services increases with the increase in per capita GDP.

**Table 1: Summary of Results of OLS Estimation for the Period of 2000 - 2013**

Dependent Variable: LN(PCST)	
Coefficients	Pooled OLS
C	-1.27*** (-3.09)
LNOPNGOODGOOD	0.82*** (8.52)
LNPGDP	0.04** (2.11)
R <sup>2</sup>	0.498
Adjusted R <sup>2</sup>	0.486
F Statistic	40.26
Prob F Statistics	0.00
N	84

t statistics in parentheses

\*\*\* Significant at 1%, \*\* significant at 5%, \*significant at 10%

## 6. CONCLUDING REMARKS

In this study we have empirically investigated the impact of liberalising goods trade on the trade in services for six major countries based on trade in services. The findings of the study are interesting. We find that trend in PGDP, PCST and OPNGOOD is not same for all the countries. From our trend analysis we find that there is high degree of association between PCST and liberalising goods trade (OPNGOOD). Moreover, we find that there is association between the trend of PCST and PGDP. Interestingly, our trend analysis has revealed that growth of PCST has increased only after the period of 2009.

We find that our model fits the data well. Based on our estimation we find that goods trade liberalisation has positive impact on the per capita services trade. Moreover, we find that per capita GDP has positive impact on trade in services. Both the results are in expected line. Recently, it is observed that countries are putting more

emphasis on increase in the trade in services. Our findings have important policy implications. The results of our analysis confirm that liberalising goods trade has positive impact on services trade. Thus to improve the growth of PCST countries must focus on liberalising goods trade.

## REFERENCES

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### Footnotes

<sup>1</sup>The analysis of services trade flows and its effects on allocation of resources and the welfare follows the similar methodology.

<sup>2</sup>Trade openness is share of total trade in GDP.

<sup>3</sup>These are six major countries in terms of trade in services. The countries are India, USA, UK, Germany, France and China.

<sup>4</sup>LNOPNGOOD is natural log transformation of goods trade openness (OPNGOOD), LNGDP is natural log transformation of GDP and LNPCST is natural log transformation of per capita services trade (PCST)