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INDIA'S EXPORT COMPETITIVENESS AND COMPLEMENTARITY IN SERVICES

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Abstract

The paper analyses India's export of services for the period 2001 to 2010 and examines Revealed Comparative Advantage (RCA) of India's export of services and also computes Trade Specialisation Index (TSI). Furthermore, Trade Complementarity Index (TCI) has been constructed with developed and developing countries. The analysis confirms that India has competitiveness in knowledge and skill based services rather than labour intensive services. It also reveals that India has export competitiveness in computer and information services. However, according to TSI India is experiencing low degree of specialisation in the information services. India exhibits comparative disadvantage in exporting insurance, construction and financial services. India's complementarity in computer and information services with the developed and developing countries is relatively high because of cost efficiency and skilled labour force.

Keywords: Revealed Comparative Advantage, Trade Complementarity Index

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1. INTRODUCTION:

Services proved as an accelerator of economic growth by generating employment and income in India. Liberalisation in services sector boosted production and in turn trade in services. Since liberalisation, India's services sector acted as a major driver of economic growth by contributing more than 67.41 per cent of GDP in 2012-13(RBI, 2013). In the last decade, India emerged as a major service provider to the international market. As compared to other developing countries, India's performance in the services sector has been unique. Developing countries witnessed the structural change in their economy from agricultural to high growth in manufacturing transmitting to the services sector. While in case of India, decline in the share of agriculture sector was substituted by the services sector instead of manufacturing sector. Thus, India's services export grown faster than its merchandise exports. During 1991 to 2012 India's export of services grew at Compound Annual Growth Rate (CAGR) of 20.06 per cent, depicted the higher growth rate than services import (16.70 per cent). This confirms that India has comparative advantage in export of services in the international market. India started enjoying positive trade balance in services from 2004 onwards due to its outstripped exports of Mode 1 and 4 services.

With the growing importance of services at the global level General Agreement of Trade in Services (GATS) was established in 1995. For the purpose of negotiations, GATS classified entire range of services into four modes. *Mode 1*: cross-border supply, which refers to a situation where the services cross international borders. *Mode 2*: consumption abroad where consumer moves into the territory of the service provider country. *Mode 3*: commercial presence, it implies that the service provider in the form of a legal unit moves into the geography of the consumer. *Mode 4*: movement of natural persons which includes the temporary export of workforce.

Since the Uruguay Round of trade negotiations, India experienced a dramatic shift in negotiating on liberalisation of trade in services. India's defensive interest altered to an offensive outlook through autonomous liberalisation of the services sector. Liberalisation of India's services sector can be classified into three broad categories. Firstly, substantially liberalisation of services such as software and other

computer related services, telecommunications, tourism, maritime services. Secondly, moderate liberalisation in the banking, insurance, health, construction and related engineering services with the some explicit barriers. Thirdly, the services like accountancy, legal services, retail distribution, postal and rail transport has experienced modest reform and has remain merely opened to the Foreign Direct Investment (FDI).

The liberalisation of trade in services in India under GATS has been dedicated to Mode 1 and Mode 4 since these two modes are fastest emerging modes of delivery of export of services. Trade under Mode 1 has emerged as one of the main drivers of India's services-led growth (De and Raychoudhari, 2008). India's exports have been focused on few services as well as few markets. Indian exports basket largely concentrated on computer and information services followed by travel and transport contributing more than 70 per cent of export of services. As far as destination of exports is concerned, the developed countries such as the US, European-Union (EU) including the UK accounted 80 per cent of total export of services. However, due to high inflation and wage rates India is facing competition from countries like China, Philippines, Hungary, Poland, Romania, which are increasingly capitalising their resources to become a competitive in the international market.

The introduction is followed by literature review in Section *Two*. Methodology and data sources are discussed in Section *Three*. Analysis of India's export of services is elaborated in the Section *Four*. The last Section gives concluding remarks with policy implications.

2. LITERATURE REVIEW:

In the last decade, various attempts have been made to analyse India's trade in services and different aspects related with it. Some studies elaborated on compositional change in GDP, trends in India's trade in services, competitiveness and determinants of trade in services and its effects on employment generation in India. However, there are some studies which emphasised on sectoral FDI in services and their policy implications.

India's export of services and its composition changed over the period of time from 1980-81 to 2008-09. India's export of services was merely \$2.8 billion in 1980-81 which increased to \$101.20 billion in 2008-09. However, it registered a sluggish growth till 1991. After 1991, India's export of services increased considerably due to liberalisation of trade along with freeing foreign direct investments and private sector participation. In 1980-81, travel dominated India's basket of exports of services. Nonetheless, it was replaced by computer services in the last decade. An important feature of India's export of services was a structural change since 2003-04 due to the rapid expansion of the international trade and investment facilitated by extended liberalisation and use of information enabled services (Export Import Bank of India, 2011).

Burange *et al.* (2010) studied growth and competitiveness of India's trade in services for the period 1980 to 2007. The study emphasised growth rate of India's export and import of services. After liberalisation, India's export of services increased exponentially at an annual rate of 19.34 percent (1991-2007), against 2.49 percent growth during pre-liberalisation (1980-1991). However, during 1980-91 India's import of services depicted CAGR of 5.40 percent whereas post-liberalisation marked remarkable growth rate of 15.91 percent. Furthermore, study examined India Revealed Comparative Advantage (RCA) in exports and imports. It remarked that export of computer and business services gained the highest comparative advantage. Moreover, in case of export of other business services, comparative advantage grew up substantially. Further, during 2001-2005, India gained competitiveness in export of travel, transportation and royalties. The study also computed import competitiveness for India and indicated that at aggregate level India has import competitiveness in travel and Other Commercial Services (OCS). Communication and construction services also witnessed import competitiveness. Their analysis concluded that opening up of the economy boosted growth of trade in services. However, lack of proper policy support for services sector may add the issue of concern for the sustainable development in future. Similarly, De and Raychoudhari (2008) observed performance of India's services trade and its contribution to GDP. It was 8.89 per cent in 2005-06 increased from 3.38 per cent in 1990-91. However, GDP from services sector in 2005-

06 was 53.2 per cent, suggesting large untapped potential of India's services sector. They emphasised on a shift in India's export competitiveness from labour intensive services to knowledge and technology related services where mode 1 and 4 were two key modes of service delivery. They also emphasised India's problem of jobless growth and examined the effect of services export on poverty and inequality. The study applied Two Stage Least Square (TSLS) method to test services export effect on poverty and inequality in India. The study extrapolated that the expansion in income reduced poverty but not inequality. Knowledge and skill based services export favoured skilled workforce. According to them, boom in export of services expanded income inequality especially the urban inequality.

The various aspects of India's growth in services were studied by Banga (2005). The increasing share of services sector in GDP, trade and FDI in services sector were analysed for the period 1994 to 2004. Furthermore, the study traced external and domestic constraints adversely affected the growth of the services sector. With low external trade barriers and restrictive domestic policies health and education services have been recorded negligible growth in India's export of services. Furthermore, even legal and accountancy services experienced very negligible trade in due to same reason of high domestic policy restrictions and external constraints. The study pointed out that highly qualified healthcare professionals at low costs lead to increase in competitiveness in health services. The study also inferred that the cross-border export was very limited due to infrastructural and technological constraints. She concluded that, India has scope to increase the export of these services under mode 1, through legal transcription, transmission of legal documents via telecommunication devices, and growth in electronic commerce via internet.

According to Mukharjee (2013) India's export of services have been concentrated in few markets. The US accounts 56.3 per cent of total computer services while EU accounts 31.5 per cent in the year 2009-10. The growing services sector across the world boosted India's outward FDI in the services like financial, insurance, real estate and business services. According to her, after liberalisation policymakers mainly focused on agriculture and manufacturing and thus, service sector has remain unattended. She emphasised that there has been no nodal ministry

for retail services. On the other hand, for some services like education, transportation and energy there has been more than one authority with conflicting interest and this hampered employment opportunities in the services sector. The study also computed Balassa (1965) index for the period 1980 to 2010 and her results supported earlier study of Burange *et al.* (2010).

The factors responsible for robust performance in export of services were studied by Sahoo *et al.* (2013). They opined that growth in services sector is needed for sustaining India's high growth and maintaining stability in the external sector. Their results revealed that India's aggregate services export was determined by the world income, the exchange rate, manufacturing exports, factor endowment and financial development. However, the study noted that India needs to focus on supply side factors to improve its competitiveness of the services sector. Dash and Parida (2012) investigated causal link between inward FDI, services trade and economic output. Their results suggested long run relationship between FDI and economic output and between services export and economic output. The results also confirmed that there was unidirectional causality running from FDI to growth.

Banga and Kumar (2009) studied total productivity growth in export of software services using Data Envelopment Analysis (DEA) for the period 1994-95 to 2007-08. As per their findings, technological innovation accelerated India's export of software services. The result showed that India experienced high income demand elasticity rather than price elasticity for the export of services. Tharakan *et al.* (2005) attempted to analyse India's export of services and factor responsible for the increase in India's export of software services. They applied modified gravity model and inferred English language and ability to tap network were the major factors influencing India's export of services.

The link between services sector growth and employment generation was examined by Pattanaik and Nayak (2011). They observed that India's services sector largely driven by wholesale trade, retail trade, hotels and restaurants services. These sectors created large employment opportunities for unskilled workers, who could not engage themselves in the manufacturing sector due to their technical inability. On the

other hand, high productive services with 40 per cent of output including transport, storage, communication, finance, insurance, real estate and business services unable to create employment opportunities for the unskilled workers. Likewise, Mitra (2011) argued that growth in the services sector was not employment intensive. The services like trade and hotel, transport, storage, communication, finance and business services showed insignificant impact on the employment generation in organised sector. He supported Banga (2005) and stated that India has comparative advantage in services like health and education due to low cost advantage. The study suggested that to boost the trade and investment up in these sectors, government needs to focus on infrastructural development. Moreover, the potential growth in business services needed skill up-gradation and human capital formation especially in the rural area.

Sengupta and Sharma (2009) analysed the impact of services trade liberalisation on women in India with special reference to EU-India Free Trade Agreement (FTA) negotiations. According to the study, the services trade liberalisation affect women in two ways firstly, creating or destroying employment and income; secondly, affecting access to basic facilities. The nature of trade between EU and India and FDI would actually influence the type of job creation (skilled or unskilled), in which sector and what salaries or wages would be created or taken away. The growth in the services sector was mainly in capital intensive services and created employment opportunities for the skilled workers. The women with lack of access to physical resources have not been benefited by the growth in services sector which caused the unequal gain to women. As a result, these women concentrated in informal and low paid services in other sectors.

De (2013) pointed out crucial role of services in the Indian economy at the same time, recognised the fact that India's services sector is still remained untapped and unexplored by the international market. He applied gravity model to analyse linkages between the flow of India's trade in services and its probable barriers. The estimated results depicted that one per cent increment in facilitation measures of the services trade would result into two per cent increase in export of services in India. He suggested that improvement in trade infrastructure and effective policies are needed to unexploited services trade potential in India. According to Eichengreen and

Gupta (2012), India's experience of trade in services has been unique because India's services basket consisting of modern tradable services. The policy initiatives, trade reforms and liberalisation were important factors responsible for the creation of knowledge and skill based services. Nonetheless, overall economic development, access to foreign technology and communication infrastructure boosted India's services exports.

Against this background, the paper attempts to evaluate growth and composition of India's export of services and tries to examine India's export competitiveness. The study also assesses India's trade specialisation and export complementarity in services with the developed and developing countries. This will be helpful in policy making and improvement in negotiations with the other countries in framing trade agreements related to services sector.

3. DATA AND METHODOLOGY:

The study constructed the RCA to assess India's trade competitiveness in services. For the analysis of India's specialization at more disaggregated level, the study calculated Trade Specialisation Index (TSI). Further, to examine complementarity of India's exports basket of services with the developed and developing countries Trade Complementarity Index (TCI) have been constructed.

3.1 Revealed Comparative Advantage (RCA):

The study uses Balassa's RCA index (Balassa, 1965) which estimates the trade performance of an individual country for a particular service. The idea of the RCA was pioneered by Liesner (1958). But, the concept was popularised and refined by Balassa (1965, 1989) and is popularly known as the Balassa Index. This index determines a country's strong sector by analyzing its export flow. The actual export flow reveals a country's strong sectors and, therefore, it's RCA. A modified formula of RCA (Burange and Chaddha, 2009) has been applied in the study for the measurement of the comparative advantage for export of services as follows,

$$RCA_{ij} = \frac{x_{ij}/X_i}{x_{wj}/X_w} \text{-----} (1)$$

where,

- RCA_{ij} = RCA of the ith country's jth service,
- x_{ij} = Export of the jth service by the ith country,
- X_i = Total export of services of the ith country,
- x_{wj} = World export of the jth service,
- X_w = World's total export of services.

The index of the RCA_{ij} has a relatively simple interpretation. If the value of RCA is greater than one, it signifies a country has exported that service relatively more than the world in that particular year. In other words, the RCA measures a country's competitiveness of export in foreign trade in services.

3.2 Trade Specialization Index (TSI):

RCA is a single-flow indicator which does not allow a synthetic assessment of the country's position in the international trade. A country's comparative advantage may differ according to its degree of import dependence. Moreover, economic theory does not give clear support to single-flow indicators (Bowen, 1983). Hence, other indicators have been constructed which take into account exports and imports. One of the most commonly used indicators is the normalised trade balance (Z), which is the ratio of the trade balance to the total trade (exports plus imports) (Iapadre, 2001).

$$Z_{ij} = \frac{X_{ij} - M_{ij}}{X_{ij} + M_{ij}} \text{-----} (2)$$

where,

- Z_{ij} = Trade Specialisation of ith country in jth service
- X_{ij} = Export of the jth service by the ith country
- M_{ij} = Import of the jth service by the ith country

The value of this indicator varies between -1 and 1. It is equal to zero when exports are equal to imports and reaches the extreme value in those limited cases in which exports or imports are non-existent. Therefore, the normalised trade balance gives an empirical measure of the degree of disequilibrium of trade flows and its normalisation renders a suitable instrument for comparisons over time and space.

3.3 Trade Complementarity Index (TCI):

Drysdale (1969) modified Trade Intensity Index (TII) by developing a new index *i.e.*, TCI. It helps to examine the structure of the country's exports and imports with the partner country. It is a type of Overlap Index which measures the degree by which the export pattern of a country matches the import pattern of another country (Mikic and Gilbert, 2009, P. 80). Symbolically,

$$C_{ij} = \left(1 - \sum_{k=1}^n \frac{|m_{ki} - x_{kj}|}{2} \right) \times 100 \quad \text{----- (3)}$$

where, C_{ij} is index of trade complementarity between two countries i and j for the service k , x_{kj} is the share of service k in the total export of services of country j , and m_{ki} is the share of service k in the total import of services of country i . The value of index ranges between 0 and 100. It takes the value zero when there is no compatibility between exports of country j and imports of country i . On the other hand, the index takes the value 100 when exports of country j and imports of country i match perfectly with each other implying the perfect complementarity between two countries. Implying country j is exporting what country i actually needs Complementarity between i country's exports and j country's imports can also be computed in the same manner. The present study focuses on export complementarity of India with the other countries.

The study is based on database of United Nations Service Trade Statistics covering the period from 2001 to 2010. International trade in services is broadly classified into transportation, travel and Other Commercial Services (OCS). The fifth edition of the balance of payments manual (BPM5) of IMF disaggregates services into

11 categories corresponding to the four modes of services of GATS frame work mentioned earlier. The Extended Balance of Payments (EBOPS) classifies services categories at more disaggregated level (Appendix 1). In this study the RCA and TCI have been calculated for 11 categories of BPM5. As per data availability, TSI for the India has been computed at level one of the EBOPS.

The study has data related limitations as UN-keeps updating its data, as and when it receives from the reporting countries. This may result in discrepancy in the data used in the study. It is also important to note that world trade data does not include all the countries. Furthermore, very few countries reported data for the year 2011 and 2012, thus, due to the narrow data base the study had to exclude the most recent years.

4. ANALYSIS OF INDIA'S EXPORT OF SERVICES:

This section is divided into three sub-sections. First, elaborates on India's growth and composition of export of services. Second, evaluates India's RCA and TSI index. Last sub-section covers India's TCI with the developed and developing countries.

4.1 Composition and Growth of India's Export of Services:

India's composition of services export is depicted in the Table 1 which confirms that during 2001 to 2010, the share of transportation hovering around 11 to 13 percent. Sea transport dominated India's export of transportation services. In the period from 2001 to 2010, it substantially increased at CAGR of 24.67 percent (Table 2). The Y-o-Y growth rate of transportation services was at the peak in the year 2004 with 44.75 per cent (Table 3). The travel services depicted an increase from \$3198 million in 2001 to \$14160 million in 2010. Previously, it was the second largest contributor in India's total export of services (Table 1). The share of travel services descended from 19.05 per cent in 2001 to 12.23 per cent in 2010. Underdeveloped infrastructural facilities, scarcity of hotels of international standards, concerns related to security, delay in policy implementation created a hurdle in the development of this sector. Moreover, India has not ensured the sustainable development of tourism sector

and depends only on the natural environmental benefits. All these factors led to decelerated share of the travel services in India's exports basket of services (World Economic Forum, 2011).

The share of communication services in the India's exports basket gradually came down from 3.29 per cent in 2001 to 0.61 per cent in 2010. Even so, export of communication services registered a growth at CAGR of 8.89 per cent. The Y-o-Y growth rate of communication services experienced a sharp decay after 2006, it touched bottom rock in the year 2009 (40.03 per cent). The communication service was the most adversely affected due to global financial meltdown. The share of construction services in the exports basket of India was negligible. Export of construction services escalated from \$65 million to \$525 million from 2001 to 2010, registering 23.70 per cent growth rate per annum (Table 2). The Y-o-Y growth rate of

Table 1: Composition of India's Export of Services

(Per cent)

Services	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1. Transportation	12.21	12.96	12.90	11.59	11.12	11.02	10.54	11.50	12.42	11.45
1.1 Sea transport	9.93	10.48	11.50	10.71	10.13	9.67	8.89	9.71	10.28	9.55
1.2 Air transport	1.01	1.11	0.49	0.69	0.43	0.54	0.81	0.80	0.54	0.50
1.3 Other transport	1.27	1.37	0.91	0.19	0.56	0.81	0.84	0.99	1.60	1.40
2. Travel	19.05	16.25	19.06	16.35	14.48	12.58	12.51	11.77	12.60	12.23
3. Communication	3.29	2.04	2.07	1.45	1.51	1.59	1.37	1.23	0.84	0.61
4. Construction	0.39	1.21	1.18	1.37	0.67	0.90	0.88	0.84	0.95	0.45
5. Insurance	1.68	1.74	1.74	2.23	1.82	1.62	1.76	1.55	1.73	1.54
5.1 Life insurance and pension funding	0.03	0.01	0.09	0.06	0.02	0.13	0.07	0.08	0.06	0.04
5.2 Freight insurance	1.46	1.49	1.49	1.23	1.04	1.00	1.02	1.09	1.11	1.07
5.3 Other direct insurance	0.04	0.03	0.02	0.75	0.10	0.20	0.13	0.08	0.11	0.10
5.4 Reinsurance	0.05	0.09	0.03	0.05	0.38	0.05	0.22	0.11	0.24	0.12
5.5 Auxiliary services	0.10	0.12	0.11	0.14	0.28	0.24	0.32	0.19	0.21	0.21
6 Financial services	1.82	3.13	1.57	0.90	2.21	3.43	3.94	4.27	4.14	5.04
7. Computer and Information services	44.13	46.57	50.72	43.31	42.28	42.38	43.72	48.84	52.77	49.14
7.1 Computer services	43.96	46.42	50.32	42.94	41.96	41.94	43.18	48.01	52.29	48.63
7.2 Information services	0.17	0.15	0.40	0.37	0.32	0.44	0.54	0.83	0.48	0.51
8 Royalties and license fees	0.22	0.10	0.10	0.14	0.40	0.09	0.19	0.15	0.22	0.11
9. Other Business Services	14.00	14.14	9.52	21.61	24.67	25.55	24.13	18.77	13.36	18.72
9.1 Merchanting and other trade-related services	0.00	0.00	0.00	1.26	1.61	1.89	2.81	3.40	2.18	5.04
9.2 Operational leasing services	0.00	0.00	0.00	0.05	0.11	0.18	0.40	0.55	0.44	0.63
9.3 Miscellaneous business, professional, and technical services	14.00	14.14	9.52	20.30	22.95	23.48	20.92	14.82	10.74	13.05
10. Other personal, cultural, and recreational services	0.00	0.00	0.00	0.12	0.21	0.45	0.59	0.70	0.53	0.29
11. Government Services	3.21	1.85	1.15	0.93	0.63	0.40	0.37	0.38	0.46	0.42
11.1 Embassies and consulates	1.09	0.98	0.88	0.56	0.39	0.23	0.24	0.24	0.30	0.29
11.3 Other government services	2.12	0.87	0.27	0.37	0.24	0.17	0.13	0.14	0.16	0.13
Total Services	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 2: India's Export of Services

(US \$ million)

Services	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	CAGR %
1 Transportation	2050	2475	3021	4373	5754	7561	9036	11565	10980	13248	24.67
2 Travel	3198	3103	4463	6170	7493	8634	10729	11832	11136	14160	19.22
3 Communications services	1104	780	968	1094	1566	2182	2348	2478	1486	1412	8.89
4 Construction services	65	231	276	516	346	619	753	841	837	525	23.70
5 Insurance services	282	332	408	842	941	1113	1506	1559	1526	1782	24.29
6 Financial services	306	598	367	341	1143	2357	3379	4291	3661	5834	43.08
7 Computer and information services	7407	8892	11876	16344	21875	29088	37491	49112	46656	56878	27.30
8 Royalties and license fees	37	20	24	53	206	61	163	148	192	128	26.09
9 Other business services	2349	2700	2229	8153	12764	17536	20695	18878	11809	21667	30.66
10 Personal, cultural, and recreational services*	--	--	--	46	111	306	510	707	467	335	41.24
11 Government services, n.i.e.	538	353	269	350	328	274	317	387	406	485	0.84
Total Services	17336	19484	23901	38282	52527	69731	86927	101798	89156	116454	25.72

* It covers the period from 2004 to

construction services was negative in the year 2005. Furthermore, it is evident from Table 2 its export reduced from \$841 million in 2008 to \$525 million in 2010. The share of insurance services, in the exports basket of India was almost 2 per cent. However, it recorded 24.29 per cent growth rate per annum during 2001 to 2010. The insurance services comprise of life insurance and pension funding, freight insurance, other direct insurance, reinsurance and auxiliary services among which freight insurance services consisted nearly 50 per cent of total insurance services. Insurance services in India faced policy constraints such as a cap on the foreign direct investment, restrictions of minimum capitalization norms, funds of policy holders to be retained within the country, compulsory exposure to rural and social sectors and backward classes. Thus, India failed to reap benefits from the boom in the international insurance services (Prasad, 2007).

The predominance of financial services in India's export of services increased from 1.82 per cent in 2001 to 5.04 per cent in 2010. India's export of financial services recorded the highest CAGR of 43.08 per cent. The Y-o-Y growth rate of financial services has been significant in the year 2005. Export of financial services has been playing a crucial role in India's export of services. The financial services sector has experienced a structural change due to cross border mergers, acquisitions and increased competition among different types of financial institutions. Table 2 shows that export of financial services increased from merely \$306 million to \$5834

million from 2001 to 2010. With the globalisation of economic activities, the need for international intermediation and risk management services have escalated the opportunities in the financial services (Chanda, 2005).

Computer and information services contributed nearly 50 per cent of total export of services in which the share of computer services was predominant (Table 1). India accounted 39 per cent of total international computer services covered under Mode 1. Out of that approximately 53 per cent of computer services comprised of export of offshore services. India's export of computer and information services registered CAGR of 27.30 per cent due to remarkable growth in computer services. However, the share of export of information services was very negligible. Table 3 confirms that the Y-o-Y growth rate of Computer and information services has been moderate for all the years. Countries like the US, Canada and EU accounted nearly 87 per cent of India's export of computer services. Conversely, India's export to Asian countries was limited to only 9 per cent. In terms of the currency basket, the US dollar accounted nearly 75 per cent share in total export of computer services. Therefore, fluctuations in the exchange rate would affect India's export of computer services extensively (Prasad, 2007).

The export of other business services accelerated from \$2349 million to \$21667 million over the period. The similar trend has been evident in its share in total export of services in India. The contribution of other business services increased from

Table 3: Y-o-Y Growth Rates of India's Export of Services

(Per cent)

Services	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1 Transportation	--	20.73	22.06	44.75	31.58	31.40	19.51	27.99	-5.06	20.66
2 Travel	--	-2.97	43.83	38.25	21.44	15.23	24.26	10.28	-5.88	27.16
3 Communications services	--	-29.35	24.10	13.02	43.14	39.34	7.61	5.54	-40.03	-4.98
4 Construction services	--	255.38	19.48	86.96	-32.95	78.90	21.65	11.69	-0.48	-37.28
5 Insurance services	--	17.73	22.89	106.37	11.76	18.28	35.31	3.52	-2.12	16.78
6 Financial services	--	95.42	-38.63	-7.08	235.19	106.21	43.36	26.99	-14.68	59.36
7 Computer and information services	--	20.05	33.56	37.62	33.84	32.97	28.89	31.00	-5.00	21.91
8 Royalties and license fees	--	-45.95	20.00	120.83	288.68	-70.39	167.21	-9.20	29.73	-33.33
9 Other business services	--	14.94	-17.44	265.77	56.56	37.39	18.01	-8.78	-37.45	83.48
10 Personal, cultural, and recreational services	--	--	--	--	141.30	175.68	66.67	38.63	-33.95	-28.27
11 Government services, n.i.e.	--	-34.39	-23.80	30.11	-6.29	-16.46	15.69	22.08	4.91	19.46
Total Services	--	13.76	22.64	61.14	37.12	32.65	24.93	17.27	-12.08	30.92

14 per cent in 2001 to 18.72 per cent in 2010. It became second largest contributor replacing travel from 2004 onwards. Other business services cover merchanting and other trade-related services, operational leasing services and miscellaneous business, professional and technical services. The contribution of merchanting and other trade-related services has been increasing from 1.26 per cent in 2004 to 5.04 per cent in 2010. The miscellaneous business, professional and technical services contributed heavily in the export of other business services. Among these services, professional services is the major driver of other business services which includes legal, accounting, auditing and book keeping, architectural, engineering, medical and dental, services by midwives, nurses, physiotherapists and paramedical personnel. Thus, due to increasing importance of these services other business services grew at CAGR of 30.66 per cent. India's export of Government services depicted a decelerating trend during the period. The other personal, cultural, and recreational services barely contributed in the India's export of services (Table1). It was merely \$46 million in 2004 increased to \$335 million in 2010. The share of Government services declined sharply from 3.21 per cent in 2001 to 0.42 per cent in 2010 due to decrease in the export of embassies, consulates and other Government services (Table 1). Even so, the export of Government services increased at CAGR of 0.84 per cent. Table 3 depicts that Y-o-Y growth rate of Government services was negative from 2001 to 2006, interestingly from 2007 onwards it registered a positive growth.

India's export of services portrays clear picture of an increment in India's contribution of export of services (Table 2). In the year 2004, the high growth in the export of services has been experienced due to high growth rates in other business services (265.77 per cent), royalties and license fees (120.80 per cent), insurance (106.76 per cent) and construction (86.96 per cent) (Table 3). This could be because of extended liberalisation, progressive FDI policies and trade reforms. Further, in the year 2009, India's export of services recorded a negative Y-o-Y rate of (-) 12.08 per cent. This is due to the outbreak of global financial crises in September, 2008. As a consequence, the demand for services from the major destinations such as the US and EU was adversely affected India's export of services. An impressive performance of India's export of services is not a consequence of proper planning. The changes in the

exogenous factors such as economic and political factors are responsible for promoting the growth in India's service sector (Burange *et al.*, 2010).

4.2 India's Export Competitiveness and TSI of Services:

India exhibited the highest comparative advantage for computer and information services (Table 4). It is the only sector in which India maintained its RCA throughout the period. The export competitiveness of computer and information services was 13.54 in 2001 which rose to 22.71 in the year 2009. However, the comparative advantage exhibited a dip in 2010. The large pool of English speaking population, mathematical ability of the Indians led to the competitiveness in these services. Indian software engineers cost one half to one forth as compared to that of the other developed countries such as the US and the UK (Kapoor and Ramamurti, 2001). Furthermore, export oriented policies such as setting up of export processing zone, software technology park, exemption of sales and excise tax on imports of hardware and subsidies on rent, water and power encouraged foreign firms to set up the new business in India. However, it is found that India has low degree of specialization in the information services (Table 5). The import penetration in information services is high due to large number of uneducated people, lack of research and development, deficiency of broadband infrastructural facilities in rural area (Mukherjee, 2013).

Table 4: RCA of India's Services Export

Services	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1. Transportation	0.52	0.57	0.59	0.51	0.48	0.41	0.40	1.25	2.18	2.10
2. Travel	0.58	0.52	0.65	0.57	0.53	0.47	0.48	0.30	0.34	0.32
3. Communications services	1.55	1.01	0.93	0.64	0.65	0.63	0.56	0.40	0.23	0.15
4. Construction services	0.19	0.57	0.55	0.66	0.29	0.43	0.37	1.00	1.50	0.95
5. Insurance services	0.85	0.64	0.54	0.87	0.98	0.45	0.49	0.11	0.10	0.11
6. Financial services	0.29	0.51	0.24	0.13	0.30	0.84	0.94	0.68	0.73	0.93
7. Computer and information services	13.54	13.68	11.87	9.52	9.37	15.24	15.17	20.14	22.71	16.74
8. Royalties and license fees	0.04	0.02	0.02	0.03	0.07	0.01	0.03	0.05	0.08	0.04
9. Other business services	0.62	0.63	0.40	0.93	1.03	1.08	0.99	2.27	2.37	3.86
10. Personal, cultural, and recreational services	0.00	0.00	0.00	0.13	0.24	0.36	0.53	0.63	0.51	0.34
11. Government Services	1.55	0.82	0.50	0.43	0.30	0.18	0.18	0.03	0.02	0.02

After 2002, India lost its export competitiveness for communication services. RCA being a single-flow indicator does not depict trade specialisation. TSI showed India's specialisation in communication services. India gained comparative advantage for transportation services from 2008 onwards. This is because of increase in the export of sea transport services which comprises around 10 per cent share of total export of services. Travel services did not depict competitiveness, however, it has high degree of trade specialisation (Table 5). After 2005, except one year, other business services also depicted export competitiveness. This includes miscellaneous business, professional and technical services, operational leasing services and merchanting and other trade-related services. Insurance services did not exhibit competitiveness owing to strict regulatory norms in India. Even so, among insurance life insurance and pension funding showed positive TSI during the period except 2008. Financial services were not been competitive during 2001 to 2005 due to

Table 5: India's TSI for Services

Services	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1. Transportation										
1.1 Sea transport	-0.03	0.16	0.37	0.29	0.16	0.18	0.14	0.11	0.18	0.14
1.2 Air transport	-0.80	-0.77	-0.84	-0.69	-0.84	-0.75	-0.69	-0.67	-0.75	-0.79
1.3 Other transport	0.32	0.75	0.55	-0.39	-0.57	-0.34	0.04	-0.27	0.07	0.24
2. Travel	0.03	0.02	0.97	0.95	0.75	0.77	0.88	0.75	0.80	0.87
3. Communication	0.61	-0.12	0.23	0.31	0.58	0.57	0.46	0.41	0.07	0.08
4. Construction	-0.76	-0.44	-0.63	-0.23	-0.27	-0.12	0.02	0.09	-0.13	-0.31
5. Insurance										
5.1 Life insurance and pension funding	0.67	0.00	0.90	0.60	0.04	0.45	0.01	-0.18	0.33	0.57
5.2 Freight insurance*	--	--	--	--	--	--	--	--	--	--
5.3 Other direct insurance	-0.59	0.33	-0.38	-0.07	-0.62	0.14	0.06	-0.21	-0.05	0.08
5.4 Reinsurance	-0.91	-0.86	-0.95	-0.89	-0.39	-0.88	-0.44	-0.66	-0.53	-0.69
5.5 Auxiliary services	-0.54	-0.43	-0.56	-0.12	-0.13	-0.06	0.05	-0.30	-0.45	-0.41
6. Financial services	-0.71	-0.41	-0.14	-0.40	0.14	0.09	0.02	0.10	-0.01	-0.08
7. Computer and Information Services										
7.1 Computer services	0.83	0.85	0.92	0.91	0.89	0.88	0.85	0.87	0.93	0.93
7.2 Information services	-0.76	-0.75	-0.35	-0.20	-0.14	0.31	-0.03	0.35	-0.21	0.25
8. Royalties and license fees	-0.79	-0.89	-0.92	-0.84	-0.53	-0.87	-0.75	-0.82	-0.81	-0.90
9. Other Business services										
9.1 Merchanting and other trade-related services	0.00	0.00	0.00	-0.39	-0.18	-0.15	-0.07	0.16	-0.11	0.34
9.2 Operational leasing services	0.00	0.00	0.00	-0.84	-0.72	-0.76	-0.50	-0.37	-0.41	-0.23
9.3 Miscellaneous business, professional, and technical services	-0.23	-0.20	-0.52	-0.15	-0.01	0.04	0.11	-0.06	-0.18	-0.20
10. Other personal, cultural, and recreational services	0.00	0.00	0.00	-0.14	0.03	0.49	0.32	0.37	0.27	-0.16
11. Government Services										
11.1 Embassies and consulates	-0.10	-0.08	0.08	-0.16	-0.30	-0.38	-0.21	-0.24	-0.34	-0.16
11.3 Other government services	0.62	0.60	0.44	0.39	0.18	-0.01	0.04	0.15	-0.11	-0.23

* India's Import Data for freight insurance is not available.

restricted Indian regulatory environment on the backdrop of 1998 financial crisis. However, relaxation in the regulation of financial services led to an improvement in the competitiveness in the recent period.

The negative TSI confirms (Table 5) India's low degree of trade specialization for air transport, construction, reinsurance, auxiliary services, royalties and license fees and embassies and consulates etc. However, positive TSI in travel, sea transport, communication and computer services affirm their positive contribution in India's export of services.

4.3 India's Export Complementarity with the Developed and Developing Countries:

India's export complementarity in services with the other developed and developing countries is depicted in Table 6. It is evident that India's export of services highly complement with the developed and developing countries imports basket of services. India's services export complementarity with Australia was 54.38 in 2001. However, over the period of time, it registered a decreasing trend. Hence, it deteriorated at CAGR of (-) 3.51 per cent, this could be because Australia's imports of services are highly concentrated on transportation and travel. On the contrary, in the case of India, computer and information services substituted the share of transport and travel. India's complementarity with its major trading partners *viz.*, the US and EU decreased marginally at CAGR of (-) 0.14 and (-) 0.10 respectively. This is due to the fact that the US and EU's import baskets of services are more diversified than India's export of services. India's exports basket has been dominated by computer and information services. However, the importance to these services has not been reciprocated by imports basket of these countries. Moreover, restrictive visa rules, state level regulations in different services tax, licensing in the US create bottleneck for export of other business services from India. In the case of Japan due to difference in factor endowment India's complementarity was relatively high around 47 to 56 per cent. Japan is relatively labour scarce and capital abundant country which complements India's basket of exports of services. India's competitive advantage in the computer and information services has been backed by Japan's competitive

Table 6: Export Complementarity in Services of India with Developed and Developing Countries

(Per cent)

Year	Australia*	USA	Japan	EU	Thailand	China	Philippines	Malaysia	Brazil	Indonesia	Russia
2001	54.37	54.32	52.17	54.63	34.87	48.54	50.90	48.17	58.41	47.56	52.48
2002	52.10	53.51	51.15	55.23	32.84	50.08	49.12	49.75	57.97	44.16	52.43
2003	51.92	50.85	48.92	51.51	36.58	47.49	47.54	46.13	50.43	41.47	48.42
2004	45.71	48.68	53.94	59.85	32.75	53.77	46.11	58.49	60.93	57.91	53.41
2005	42.80	47.79	52.59	60.90	47.20	51.30	43.80	57.12	62.21	59.90	50.85
2006	40.83	49.15	53.64	61.28	49.21	50.11	40.33	54.50	61.09	57.47	51.12
2007	42.76	50.45	55.13	60.01	50.77	52.35	41.62	54.09	57.97	55.40	52.59
2008	45.65	52.20	50.43	55.17	44.63	47.87	41.85	52.18	53.28	46.04	52.18
2009	--	51.59	47.25	51.51	42.34	44.75	44.94	48.89	50.70	48.13	45.27
2010	--	52.93	49.86	54.46	45.76	46.82	42.75	50.74	53.23	50.11	48.62
CAGR (%)	-3.51	-0.14	-0.44	-0.10	4.07	-0.71	-1.93	0.41	-1.00	0.86	-0.83

* It covers the period from 2001 to 2008.

advantage in the hardware services. Japan's trade basket has been largely dominated by transport, travel and other business services. However, lack of knowledge, infrastructural bottlenecks, administrative difficulties, and delay in procedures caused a major barrier in trade in services (Kumar, 2012).

India's complementarity with Thailand depicted an increase from 34.87 per cent in 2001, reached at the peak 50.77 per cent in the 2007. It registered a remarkable growth rate of 4.07 per cent per annum. The increase in the complementarity is evident due to other business services. India's complementarity with Malaysia and Indonesia increased at CAGR of 0.41 and 0.86 per cent respectively. India's complementarity with Philippines confirmed a decelerated trend from 50.90 per cent in 2001 to 42.75 per cent in 2010. The decline in the share of computer services in the imports basket of Philippines led to a fall in complementarity. In recent years, Malaysia, Indonesia and Thailand showed noteworthy increase in the import of services which is signalling shortage of skills in this region. Thus, Indian professionals can contribute significantly towards filling this gap by providing cost effective services. Mutual areas of interest could be finance, education, health, information technology, telecommunications, transport movement of professionals and other business services. Moreover, these countries are not adequately integrated on the services front remained relatively closed to Foreign Service providers.

Preferential deal on services trade with these countries would bring remarkable gains to India (Consumer Unity and Trust Society, 2010). In the case of China, substantial complementarity is apparent from Table 6, however, posing a negative CAGR of (-) 0.71 per cent. Due to inefficiency of the information security laws and the weak enforcement of intellectual property rights in China deter the transfer of critical data and service businesses. Hence, India can increase its horizon by tapping Chinese market in terms of software services. Furthermore, construction in India and China is booming at a faster rate. Both the countries can take advantage of each other's strengths and enjoy each other's complementary skills. Likewise, there is high demand for health services in China. India can offer cost effective health services to Chinese patients. Since, China allows establishment of joint ventures in hospitals and clinics. India has a potential to become exporter of health services to China (Government of India, 2005).

India's complementarity with Brazil and Russia showed a negative CAGR of (-) 1.00 and (-) 0.83 per cent respectively. India's export complementarity with Brazil remained high during the period. The Brazilian government has facilitated the software service trade however, lack of adequate finance, regulatory delay, excessive taxation led to the slowdown in the growth of software industry. Furthermore, delayed in the government procedures and lack of information about the funding facilities provided by the government has increased import competitiveness of Brazil in software services. On the other hand, India enjoyed the comparative advantage in the export of software services which resulted into boost in the trade complementarity between them (Mathur and Dasgupta, 2013). In the case of Russia complementarity exists but both the countries are not familiar with each other's potential, lot of suspicion and fear of competition from both sides created a hurdle in the growth of trade in services.

It has been observed that India's complementarity with the developed and developing countries remained high mainly because of its competitiveness in computer and information services due to cost efficiency and skilled labour. However, India's export complementarity index recorded positive growth only with Thailand, Malaysia and Indonesia while with the other countries registered negative growth.

5. CONCLUSIONS:

It has been reflected that India's RCA in trade in services concentrated heavily in a few service sectors. TSI of India exhibited that India has low degree of specialisation in most of the services. Export complementarity index of India with most of the developed and developing countries revealed a fall in complementarity over the period. India's export of services have been concentrated in a few markets such as the US, the UK and EU countries. Thus, any unfavourable change in the policy or economic downturn in these countries would adversely affect India's export of services. Ideally, India should geographically diversify its trade in services with the other Emerging Market Economies (EMEs). Furthermore, the social and political concerns should consider the extent of market access on services that it receives from the US, EU and other countries. The issues on the market access needs to be addressed through proper negotiations at the bilateral and multilateral levels. However, a major hurdle in trade in services lies in the area of Mutual Recognition Agreement (MRA). This recognition will accept degrees and diplomas offered in India and increase the export of professional services under Mode 4.

At the same time, in the international call centre business, India is facing competition from other EMEs such as Kenya and Philippines on the basis of low costs and educated English speaking workforce. Moreover, Bangladesh is also emerging as a rapidly growing exporter of services ranging from the back office, administrative work, graphic designing and customer service requests to product development and enhancement (Mukherjee, 2007). Hence, the Indian government should support services sector by enforcing the education sector reforms. It should undertake the measures to promote rapid skill development programmes to meet the demand of the industry in the country and to enhance the trade in services. This should be done without adopting overt retaliatory measures of restricting the entry of the Foreign Service providers. The Government of India should take initiatives to explore untapped potential in services such as insurance, information, financial and tourism etc. However, the scope for further research could explore the causality between growth in services sector and poverty reduction at the micro and macro levels.

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Appendix 1

Extended Balance of Payments Services Classification

(2002EBOPS) items

Code	Description
200	Total EBOPS Services
205	1 Transportation
206	1.1 Sea transport
207	1.1.1 Passenger
208	1.1.2 Freight
209	1.1.3 Other
210	1.2 Air transport
211	1.2.1 Passenger
212	1.2.2 Freight
213	1.2.3 Other
214	1.3 Other transport
215	1.3.1 Passenger
216	1.3.2 Freight
217	1.3.3 Other
218	1.4 Other transport of which: Space transport
219	1.5 Other transport of which: Rail transport
220	1.5.1 Passenger
221	1.5.2 Freight
222	1.5.3 Other
223	1.6 Other transport of which: Road transport
224	1.6.1 Passenger
225	1.6.2 Freight
226	1.6.3 Other
227	1.7 Other transport of which: Inland waterway transport
228	1.7.1 Passenger
229	1.7.2 Freight
230	1.7.3 Other
231	1.8 Other transport of which: Pipeline transport and electricity transmission
232	1.9 Other transport of which: Other supporting and auxiliary transport services
236	2 Travel
237	2.1 Business travel
238	2.1.1 Expenditure by seasonal and border workers
239	2.1.2 Other
240	2.2 Personal travel
241	2.2.1 Health-related expenditure
242	2.2.2 Education-related expenditure
243	2.2.3 Other
245	3 Communications services
246	3.1 Postal and courier services
247	3.2 Telecommunications services
249	4 Construction services
250	4.1 Construction abroad
251	4.2 Construction in the compiling economy
253	5 Insurance services
254	5.1 Life insurance and pension funding
255	5.2 Freight insurance
256	5.3 Other direct insurance
257	5.4 Reinsurance
258	5.5 Auxiliary services
260	6 Financial services

Contd...

262	7 Computer and information services
263	7.1 Computer services
264	7.2 Information services
889	7.2.1 News agency services
890	7.2.2 Other information provision services
266	8 Royalties and license fees
891	8.1 Franchises and similar rights
892	8.2 Other royalties and license fees
268	9 Other business services
269	9.1 Merchanting and other trade-related services
270	9.1.1 Merchanting
271	9.1.2 Other trade-related services
272	9.2 Operational leasing services
273	9.3 Miscellaneous business, professional, and technical services
274	9.3.1 Legal, accounting, management consulting, and public relations
275	9.3.1.1 Legal services
276	9.3.1.2 Accounting, auditing, bookkeeping, and tax consulting services
277	9.3.1.3 Business and management consulting and public relations services
278	9.3.2 Advertising, market research, and public opinion polling
279	9.3.3 Research and development
280	9.3.4 Architectural, engineering, and other technical services
281	9.3.5 Agricultural, mining, and on-site processing services
282	9.3.5.1 Waste treatment and depollution
283	9.3.5.2 Agricultural, mining, and other on-site processing services
284	9.3.6 Other business services
285	9.3.7 Services between related enterprises, n.i.e.
287	10 Personal, cultural, and recreational services
288	10.1 Audiovisual and related services
289	10.2 Other personal, cultural, and recreational services
895	10.2.1 Education services
896	10.2.2 Health services
897	10.2.3 Other
291	11 Government services, n.i.e.
292	11.1 Embassies and consulates
293	11.2 Military units and agencies
294	11.3 Other government services
983	Services not allocated

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