



TRADE IN SERVICES AND EMPLOYMENT





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ACRONYMS AND ABBREVIATIONS

FDI	Foreign direct investment
GDP	Gross domestic product
ILO	International Labour Organization
IT	Information technology
LDCs	Least Developed Countries
OECD	Organization for Economic Cooperation and Development
R&D	Research and development
RCA	Revealed comparative advantage
TiVA	Trade in Value Added
UNCTAD	United Nations Conference on Trade and Development
WTO	World Trade Organization

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ABSTRACT

The services sector has emerged as the largest segment of most economies, contributing a growing share to gross domestic product (GDP), trade and employment, and becoming a major driving force of the world economy. Challenges, however, remain in realising such gains in most developing countries. This paper discusses the driving forces behind the growing share of services and the linkages between trade and services and employment. In this study we examine the link between employment and trade in services by using the World Trade Organization-Organization for Economic Cooperation and Development Trade in Value Added (WTO-OECD TiVA) database on trade in value added statistics. We explore the employment potential of trade in services in comparison with merchandise trade and quantify the employment elasticity of services exports. Although findings indicate a greater percentage increase in employment in merchandise exports compared with services exports, in absolute terms services has the potential to create a higher number of jobs than the manufacturing sector.

Introduction



The services sector has emerged as the largest segment of most national economies, contributing a growing share to GDP, trade and employment, and becoming a major driving force of the world economy. The development of services, particularly infrastructure services, contributes significantly to economy-wide growth, as they constitute the fundamental backbone of any economy, and provide indispensable inputs to other products and services. Efficient and competitive services are catalytic to the expansion of global value chains. Services trade has emerged as a vibrant component of world trade, several developing countries have gained substantial benefits by exploiting traditional and emerging areas to their comparative advantage, including modern exportable business services and temporary movement of natural persons, while others are yet to acquire the critical capacity to follow suit, relying heavily on traditional, non-tradable and low-productivity services, including the informal economy. The sector has become the largest provider of existing jobs as manufacturing value chains are outsourced to services suppliers and as the final consumer demand for services increases with the rising income levels.

The share of services in the world economy has been increasing gradually over time. Several factors are identified as the main drivers of this trend: An increasing share of services in consumer demand as per capita income rises, technological changes and lower transport costs and barriers to trade that allow fragmentation of production and increasing demand for specialised firms in services, demographic changes, and a lower productivity growth in services compared with industry. While these factors are discussed as drivers of the rise in the share of services in the world economy, the sector has exhibited diverse trends over time in different countries indicating more complex relationships between trade and employment at country level.

It is no longer possible to conceive sustainable economic growth and development without taking into account services sector developments. Given its weight in national economies and high local content, the development of the services sector contributes to economic rebalancing, restructuring and upgrading

towards a more inclusive and balanced growth path. The agricultural and manufacturing sectors are also increasingly interlinked with the service sector. For example, finance, transport, design and retail are important complements to labour directly employed in agriculture and manufacturing. Furthermore, some services with important social functions remain indispensable for the achievement of the sustainable development goals. Given the multifaceted and significant potential of the services economy and trade, there is a real opportunity for exploring a services-driven growth and development strategy within a coherent and comprehensive policy framework wherein trade plays a pivotal role.

Challenges, however, remain in realising such gains in all countries, particularly in developing countries. While the services sector has matured in developed countries, it is still the new frontier for developing countries where lack of supply capacity and competitiveness, as well as insufficient regulatory and institutional capacities, constitutes a binding constraint on their growth potential. Addressing these elements provides an opportunity for developing countries to create employment in the services sector.

In this study we examine the link between employment and trade in services by using the WTO-OECD TiVA database on trade in value added statistics. We explore the employment potential of trade in services in comparison with merchandise trade and quantify the employment elasticity of services exports. Though findings indicate a greater percentage increase in employment in merchandise exports compared with services exports, in absolute terms services has the potential to create a higher number of jobs than the manufacturing sector.

The study is organised in four further sections. Section 2 summarises salient trends in the services sector with emphasis on developing countries. Section 3 discusses the driving forces behind the increase of the services sector in output and employment in both developed and developing countries. Section 4 presents empirical results of the analysis of the link between employment and international trade. The final section concludes.

Trade in services in the globalised world economy: Stylized facts



The services sector has been playing an increasingly important role in all dimensions of the world economy from output and employment to international trade. Nevertheless, many developing countries, especially Least Developed Countries (LDCs), are still lagging behind in developing competitive domestic services sectors. This section discusses the global trends in the services sector as well as its current status in the world economy from different dimensions. The section focuses on the current state of services in developing countries and tries to identify empirically key determinants of comparative advantages in services trade.

A. SALIENT FEATURES OF THE SERVICES SECTOR

The services sector has been the main economic activity and source of employment in the world economy for decades. In 2015 it accounted for around two-thirds of the world's output and about 55.5 per cent of global employment.¹ As the sector's global output reached

\$49 trillion,² it provided employment for 1.8 billion people around the world.³ The sector's contribution to national economic activities, however, is not the same across all economies. While its share is about 75 per cent in developed countries, it is only about 53 per cent in developing countries. Among developing countries, the services sector has a stronger presence in Latin America and the Caribbean, where the sector's share in national income has increased to 63 per cent.

1. Employment trends in services: shift between sectors

With more than 60 per cent of total employment, the services sector is particularly important in Latin America and the Caribbean, and to a lesser degree in Middle East and North Africa (table 1). In many parts of Asia and Sub-Saharan Africa agriculture still accounts for a significant share of employment. In the latter, agriculture constitutes 58 per cent of the total employment, as the region's stalling services export performance do not yet generate robust employment

Table 1. Distribution of Employment by Sector and by region, 2000 and 2015 (per cent)

COUNTRY	2000			2015		
	Agriculture	Industry	Services	Agriculture	Industry	Services
Africa	57.9	11.4	30.6	53.5	11.5	34.9
– Sub-Saharan Africa	62.9	9.5	27.6	58.3	9.4	32.3
– Northern Africa	32.6	21.4	46	27.7	23	49.3
Asia and the Pacific	40.8	13.9	45.3	27.5	18.3	54.3
– Central and Western Asia	41.1	18.3	40.6	32.5	20.8	46.7
– Eastern Asia	28.2	11.6	60.2	12.6	12.2	75.2
– South-Eastern Asia and the Pacific	47.6	16.6	35.8	35.6	20.2	44.2
– Southern Asia	57.2	16.2	26.6	43.1	25.4	31.5
Europe and Central Asia	14.2	27.9	57.8	9.4	24.8	65.8
– Eastern Europe	17.7	29.7	52.6	9.8	28.6	61.6
– Northern, Southern and Western Europe	5.4	28.8	65.8	3.4	22.8	73.8
Americas	12.7	22.6	64.7	10.2	20.4	69.3
– Latin America and the Caribbean	20.3	22	57.6	15.4	21.9	62.8
– North America	2.6	23.4	74	1.6	18.1	80.3
World	34.8	16.9	48.4	25.9	18.6	55.5

Source: ILOSTAT database.

growth. However, in all regions the share of services employment has increased during the last decade.

Employment shares of services have shown a similar trend to output growth. The sector has gradually become the world's biggest source of employment during the last decade, as the employment share of services climbed to 55.5 per cent while the share of agriculture fell to 25.9 per cent. In North American countries the sector now accounts for around 80 per cent of employment.

The relatively high annual growth rate of services exports (6.1 per cent in services vis-à-vis 5.4 per cent in goods during the 2005-2015 period) contributed to this job creation.

2. Trade in services increasing but measurement still a problem

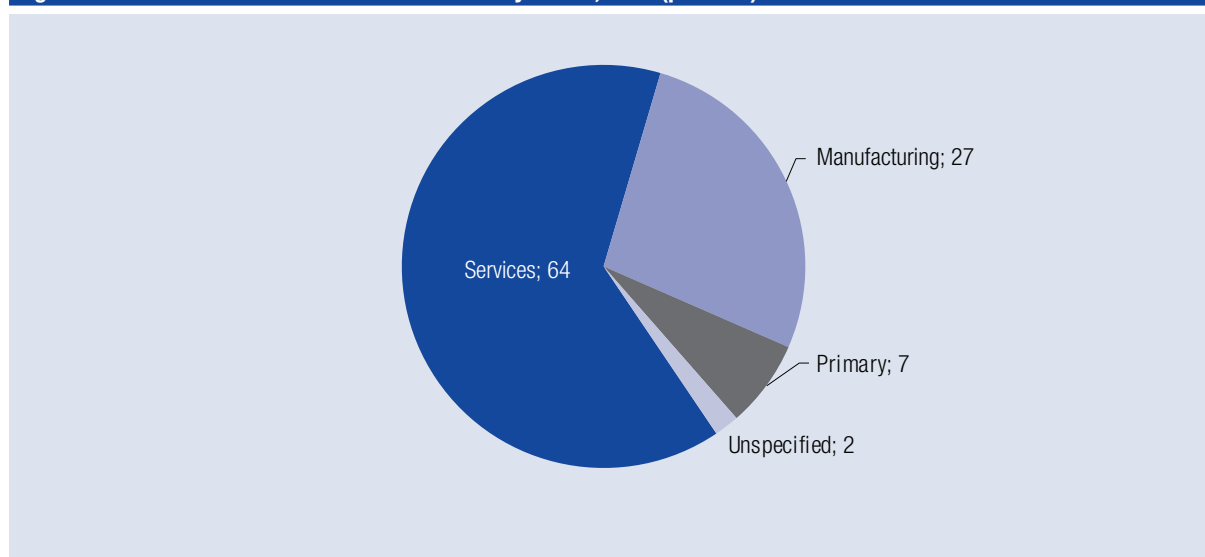
Despite the significant share of the services sector in both production and employment, it still accounts for a much smaller share of international trade due to non-tradability of many services activities. As of 2015, trade in services, which stood at \$4.8 trillion, accounts for less than 25 per cent of global exports in goods and services. The share is even lower in developing countries, at around 17 per cent.⁴

Despite the prominent position of industry in foreign trade flows, services exports have increasingly becoming an important source of external revenues

for some. The sector registered a 9.2 per cent annual export growth rate in developing countries during the 2005-2015 period, almost twice the growth rate of developed countries (4.8 per cent). Particularly in Asian developing countries, the services export growth rate reaches 10.2 per cent per year, faster than both African (4.8 per cent) and American (6.2 per cent) developing countries. Improved performance led to an increase in developing countries share in world services exports from 23.1 per cent in 2000 to 31 per cent in 2015.⁵ However, only Asian developing countries as a group managed to increase their global market share leaving other developing countries either with similar or smaller market shares.

Measuring the extent of trade in services is often difficult and hence official trade figures may underestimate its true share in world trade. According to the United Nations Conference on Trade and Development (UNCTAD) world inward foreign direct investment (FDI) stock figures, the services sector accounted for 64 per cent of world direct investments stock in 2014, rather close to its share in world GDP but significantly greater than its share in world trade (figure 1). However, UNCTAD (2017) reports that FDI services stocks may be overestimated by up to one third partly due to industry classifications that are based on the economic activity of foreign affiliates, rather than the industry of the multinational enterprise to which they belong.

Figure 1. Distribution of World Inward FDI Stock by Sector, 2014 (per cent)



Source: UNCTAD (2016) World Investment Report 2016.

Note: Others include purchase or sale of properties and unspecified items.

Among developing countries, only a few countries have managed to become global suppliers in services: China and India are the leading services exporters among developing countries followed by Singapore and Hong Kong (China). More importantly, the gap between the few successful cases and the rest of the group has been widening. Just ten countries produced about 70 per cent of developing countries' services exports in 2015, which corresponds to 21.2 per cent of the global total. The gap was much smaller a few years ago: the top 10 accounted for about 61.9 per cent of developing countries' services exports in 2005.⁶

3. Services trade at sectoral level

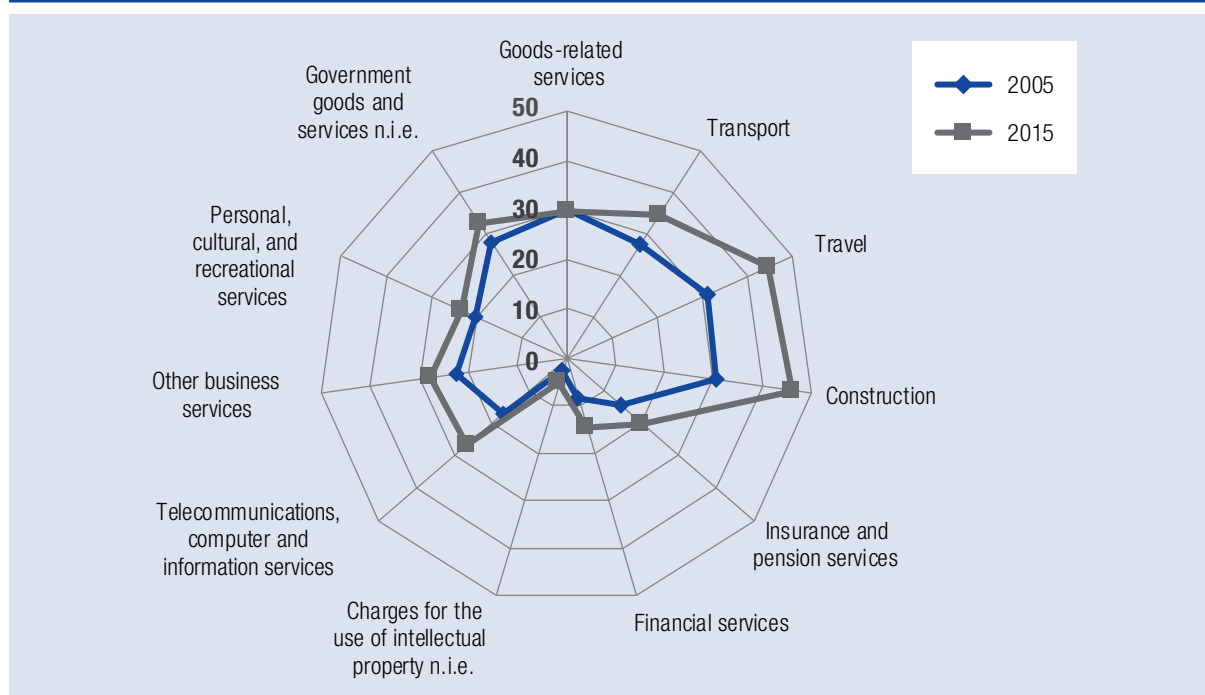
Travel, transportation and other business services are the three major services sub-categories in international trade. Together they account for more than 65.2 per cent of the global services exports. Other business services is a large category which includes diverse economic activities, from merchandising and other trade-related services, to professional and technical services such as legal, advertising, consulting, accounting and research and development (R&D). Together with computer and information services, other business

services is the fastest growing emerging services sector.⁷

Developing countries' rising share in services trade has been asymmetric across product categories. While they account for around 30 per cent of world services exports (figure 2) the share rises up to around 45 per cent in construction and travel services, in which developing countries gained a significant rise in market share during the last decade, falling to 5 per cent in charges for intellectual property and 14.5 per cent in financial services. There are noticeable increases in developing countries' share in telecommunications, computer, and information services as well as in financial services over the last ten years. Yet, out of a 10 percentage point increase in the telecommunications, computer, and information services exports share, about 8 percentage points is due to rising shares of Chinese and Indian services exports.

Despite this progress, many developing countries are still facing challenges in establishing internationally competitive productive capacities in the services sector. In many developing countries, services imports are increasing faster than exports leading to persistent, and for some countries widening, trade deficits in services trade (figure 3). From 1990 to 2015,

Figure 2. Share of Developing Countries in World Services Exports by Category, 2005 and 2015 (per cent)



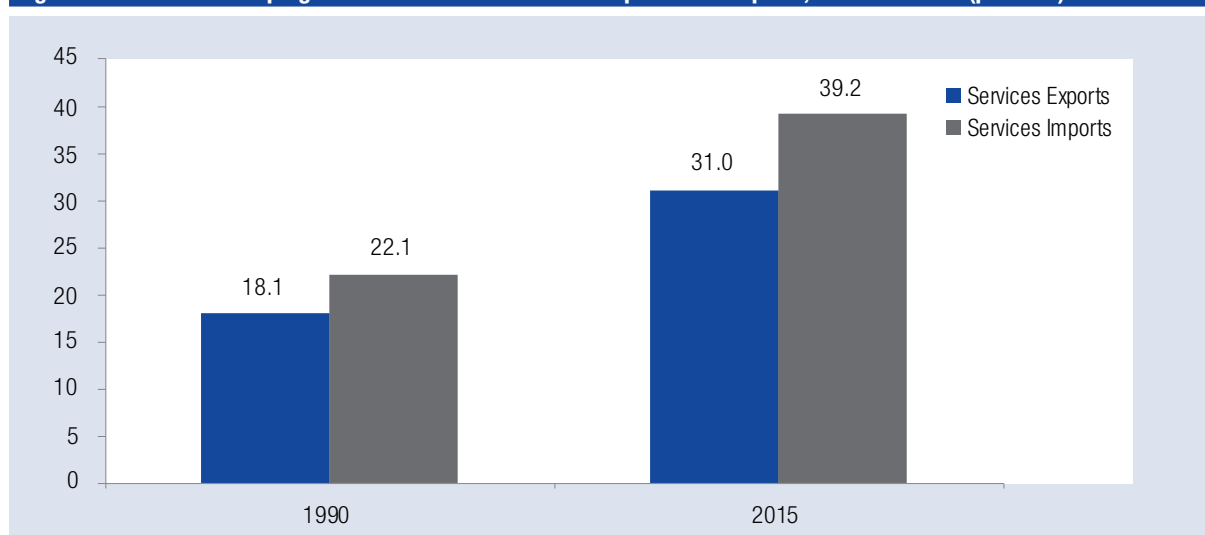
Source: UNCTADStat database.

the gap between world services imports and exports shares of developing countries widened from about 4 percentage points to 8.2 percentage points.

There is also stark contrast between developed and developing countries in services trade balance over the 2010-2015 period (figure 4). While most developed countries compensate their trade deficits in merchandise trade with surpluses in services trade, the opposite is the case in developing countries. Although the persistence of trade deficits in services is present across all regions of the developing world, it is particularly visible in LDCs.

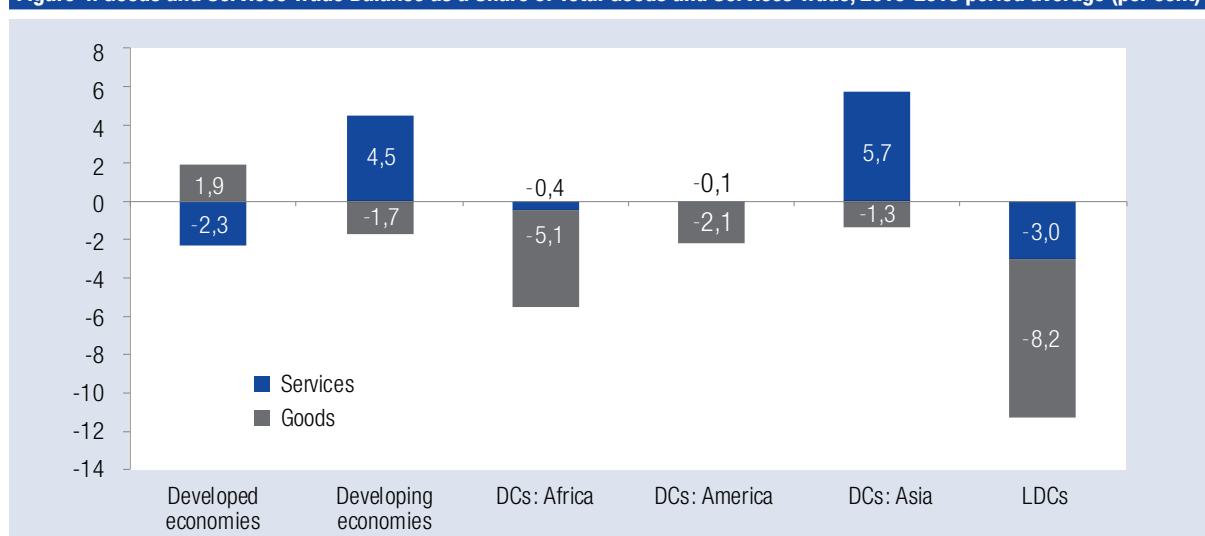
One may explain the contrasts in services trade balance between developed and developing countries by using the product cycle theory. As the theory would predict, developed countries are specialising in sophisticated processes of production as well as trade in services, while most developing countries are deepening their export base, mostly with less sophisticated processes and merchandise products. This is partly due to the differences in factor intensity of trade products and countries' factor endowments. As shown in the next section, traded products in services requires more human capital and physical capital than traded merchandise products.

Figure 3. Share of Developing Countries in World Services Exports and Imports, 1990 and 2015 (per cent)



Source: UNCTADStat database.

Figure 4. Goods and Services Trade Balance as a Share of Total Goods and Services Trade, 2010-2015 period average (per cent)



Source: UNCTAD calculations based on UNCTADStat database.

Note: Simple average of the shares of trade balance in goods and services over the period of 2000-2015.

Trade deficits in services are also persistent when longer term trade figures are studied. Over the last four decades only a few developing countries managed to improve their trade balance in services (table 2). With the exception of some Asian developing countries, most developing countries registered minimal progress in closing this gap.

B. DRIVING FORCES BEHIND THE RISING SHARE OF SERVICES IN THE WORLD ECONOMY

Several factors contribute to the increasing share of services in employment and economic activity. They include: increase in final consumer demand for services as a result of a rise in per capita income (high income elasticity of demand for some services); technological changes that increase demand for labour in services; outsourcing of services-related activities from manufacturing to specialised services firms (inter-industry division of labour); growing role of services as providers of intermediate inputs; demographic developments; and low productivity growth in services (See Baumol (1967), Lee and Wolpin (2006) and Wolff (2005)). This sub-section summarises the literature on the forces behind these global changes.

Changing demand patterns is an established idea that can explain changes in the composition of consumption over time. According to Schettkat and Yocarini (2006), for example, a real shift in final demand towards services is the major driver of recent global trends. Similarly, Soubbotina (2004) emphasises the role of income growth as well as productivity changes.⁸

A rise in per capita income can increase demand for services more than proportionately since demand for

these products are income elastic. Rising demand leads to reallocation of labour from other sectors towards services. Since most service jobs cannot easily be filled by machines (compared to agriculture and industry), services products often become more expensive relative to agriculture and industry over time. Growth of demand for, and consumer expenditure on, services gradually raise the sector's share in both employment and national income.

Liberalisation of trade and technological progress, especially in the information and communication technologies, ushered in **fragmentation of the production processes, outsourcing and offshoring**. The resulting global value chains – whereby cost minimisation strategies can result in goods and services being produced with intermediate inputs originating from several countries – are now evident in most industries and include a growing number of developing countries. Trade in intermediary goods has increased in all regions since 2002. Valued at over \$7 trillion in 2011, trade in intermediate products comprises the bulk of world trade (depicting a share of around 40 per cent). In a pattern similar to that of overall trade, around two thirds of intermediary trade flows relate to developed countries. However, developing countries, particularly in East Asia, have been increasingly participating in global value chains as part of their export-led growth strategies.

While trade in intermediate goods increased significantly, global value chains emerged as an opportunity for developing countries to create employment by bypassing the development and learning process of producing sophisticated products. The wage differential between developed and developing countries supported the relocation of production of manufacturing products, such as textile and electronics, from developed to developing

Table 2. Share of Services Trade Balance in Total Trade Volume, 1980s-2015 (per cent)

	1980s	1990s	2000s	2010-2015
Developed economies	0.5	0.6	1.1	1.9
Developing economies	-4.1	-1.9	-1.1	-1.7
– Developing economies: Africa	-5.5	-3.4	-3.1	-5.1
– Developing economies: America	-2.6	-2.0	-1.0	-2.1
– Developing economies: Asia	-4.2	-1.7	-0.9	-1.3
Least developed countries	-9.2	-9.5	-8.3	-8.2

Source: UNCTAD calculations based on UNCTADStat database.

countries with corresponding employment gains in these sectors in developing countries. The increased mobility of production has, however, also caused concerns over a race to the bottom regarding the wages and working conditions, increased barriers to entry for newcomers, and the risk of being locked in certain less favourable positions in global value chains from a sustainable development perspective.

The fragmentation of production and technological progress has also led to a “**servicification**” of **manufacturing**. The share of services in intermediate goods and services trade has increased between 1995 and 2009 from 24 per cent to 28 per cent (Baldwin and Lopez-Gonzalez, 2013). Three main factors contribute to this trend: First, production in different locations require higher transport and logistics inputs; second, regulatory requirements such as recycling have increased; and third, while strategic decisions, such as outsourcing of information technology (IT) and management services have become prevalent, and the relative importance of services such as research and marketing has increased. This has led to higher direct and indirect services trade which is clearly visible in international trade in value added figures. When both the direct and indirect domestic and foreign value-added content of gross exports are accounted, the share of services trade in total goods and services exports increases to 46 per cent. This is almost double the measure of direct services trade, at 25 per cent. Much of the services trade is invisible, since it appears as trade in goods.⁹ For example, to produce a car, banking, IT, transport and other services are used. However, conventional trade statistics are only capturing the export of the car, missing the services that are adding value to its production.

Demographic changes, such as aging of the population, also affect the composition of demand in favour of services, empirical studies find. According to the United Nations 2015 World Population Prospects report the number of persons aged 60 years or more has increased significantly in recent years in most countries and regions and this trend will continue in the near future (United Nations, 2015).

Aging of the population gradually changes the composition of demand in many countries. For example, Oliveira *et al.* (2005) estimates, by using OECD data, that aging of the population leads to a rise in demand shares for health care, followed by energy consumption and housing expenditure, in most of the countries in their sample. Similarly, Bodier (1999)

by using French expenditures surveys finds that consumption patterns of young and old generations are different. While young people tend to consume equipment, older people are more likely to spend a larger share of their consumption expenditure on leisure, health care or private services.

The increasing labour market participation rate of women can also lead to an enlargement of the services employment share. According to Fuchs (1980), since more women are choosing to work in formal markets instead of working at home and working wives are inclined to spend a higher proportion of their income on services, the share of services in the economy has been increasing over time. Similarly, for Erdem and Glyn (2001) a rise in the female labour supply is the most important reason for the rise in services employment.

According to Baumol (1967) **slower productivity growth** in services compared to the manufacturing sector is the reason behind the expansion of employment in the services sector. This phenomenon is also called “Baumol’s disease” as a rise in the share of services in output is mainly due to its weak performance in productivity (D’Augustino, *et al.*, 2006). Baumol (2001) also argues that technological advances have so far had a limited effect on the productivity increase in services sectors. In a similar vein, Fuchs (1980) argues that while the decline of agriculture is attributable primarily to differences in income elasticity of demand, the shift from industry to services is mainly due to differential rates of growth of output per worker.

C. WHY SOME COUNTRIES HAVE A COMPARATIVE ADVANTAGE IN SERVICES TRADE?

How can persistent services trade deficits and small shares of services in exports in many developing countries be explained? According to the Heckscher-Ohlin theorem, a country’s factor endowments hold the key in explaining a nation’s product composition of exports. In other words, factor endowments explain the product basket of a country and its comparative advantage. While capital abundant countries are specialising on capital intensive products, labour abundant countries are exporting labour intensive products, the theory predicts.

A common practice in the literature to identify the products that countries have comparative advantage in, is called revealed comparative advantage index. The method has been originally developed by Balassa (1965) and can be specified as:

$$RCA_j^i = \frac{X_j^i / X_T^i}{X_j^w / X_T^w} \quad (1)$$

Here, RCA_j^i is revealed comparative advantage of country i in product j , X_j^i is the exports of product j by country i , X_T^i is total exports of country i , X_j^w is world exports of good j and X_T^w is world total exports. Therefore, revealed comparative advantage of a country in a product is measured as the ratio of the product's share in the country's exports relative to the product's share in world exports. RCA ranges between zero and positive infinity. A country is considered to have comparative advantage in products that have RCA greater than one. Conversely, when the RCA is less than one then the country has revealed comparative disadvantage in that product.

In this section, we study the link between the countries' comparative advantage in services trade vis-à-vis their factor endowments as envisaged by the Heckscher-Ohlin theorem. The factor endowments figures by country are taken from UNCTAD Trade Analysis Branch database, from which data is available until 2014.

Neither factor endowments nor RCA in services trade themselves tell us much about the factor intensity of the sector in capital and human capital. Therefore, we will present the results in comparison with a benchmark case: merchandise trade.

Ex-ante it is difficult to judge the factor intensity of services sectors as it includes diverse activities from financial services to tourism. Nevertheless, service providers, such as communication services and computer and information services, often seek employees with solid educational background.

Therefore, one can expect the countries' success in services trade to be linked with their level and quality of human capital. Figure 5 plots human capital over RCA in services for 130 countries. Though observation points are rather dispersed, one can fit a positively sloped trend line between human capital and RCA in services. A similar plot for goods trade shows lesser variation among countries and a virtually flat, zero correlation, between human capital index and RCA in goods trade.

A similar picture appears when human capital is replaced by physical capital (figure 6). By using figures for 148 countries we can plot the positive correlation between physical capital endowments and RCAs in services of countries. Therefore, not only human capital but also good infrastructure in physical capital, such as telecommunication infrastructure and transportation networks, can play an important role in achieving sustainable export growth in services trade.

We can also roughly estimate revealed factor intensity of services by computing RCA weighted average human and physical capital endowments.¹⁰

$$WEndowment_{jk} = \sum_i E_k^i * RCA_j^i \quad (2)$$

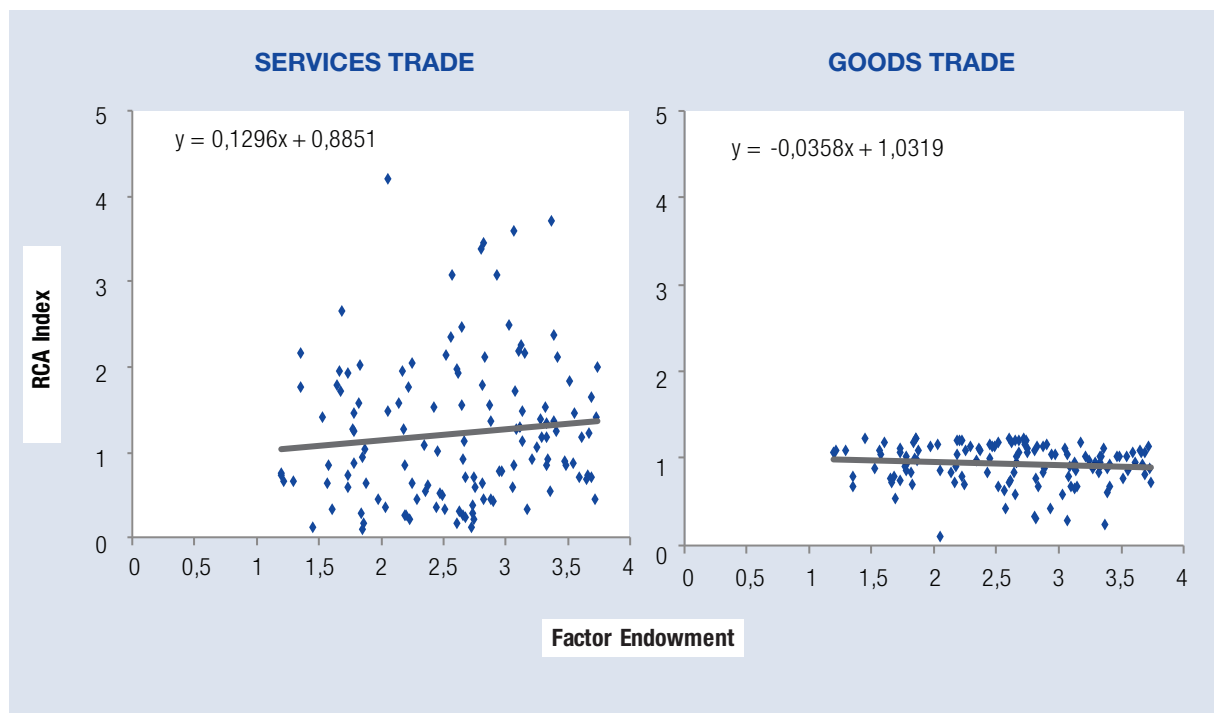
Where $WEndowment_{jk}$ is the RCA weighted k -factor endowment of product j and E_k^i is endowment of factor k in country i . In this paper we only calculate weighted human capital and physical capital endowment for trade in goods and services. Results confirm the earlier finding that services exports have a higher average human capital intensity than goods exports. Services export has an average human capital index value of 2.8 while goods export registers 2.1. Similarly, services exports physical capital index (141848) is greater than the same statistics for goods exports (90625).

These are very important findings as many developing, as well as least developed countries, are now seeking ways to become a regional, if not global, hub in commercial trade in services. The preliminary results show that the success depends on carefully designing national policies to address existing constraints on factor endowments such as physical and human capital.

There is also significant heterogeneity in human and physical capital endowments of services by sub-sector (figure 7). The "other business" services category, which includes research and development, professional and management consulting services and other technical trade related services, along with travel and transport, tops the list while construction and personal and cultural activities have the lowest human and physical capital endowment requirement.

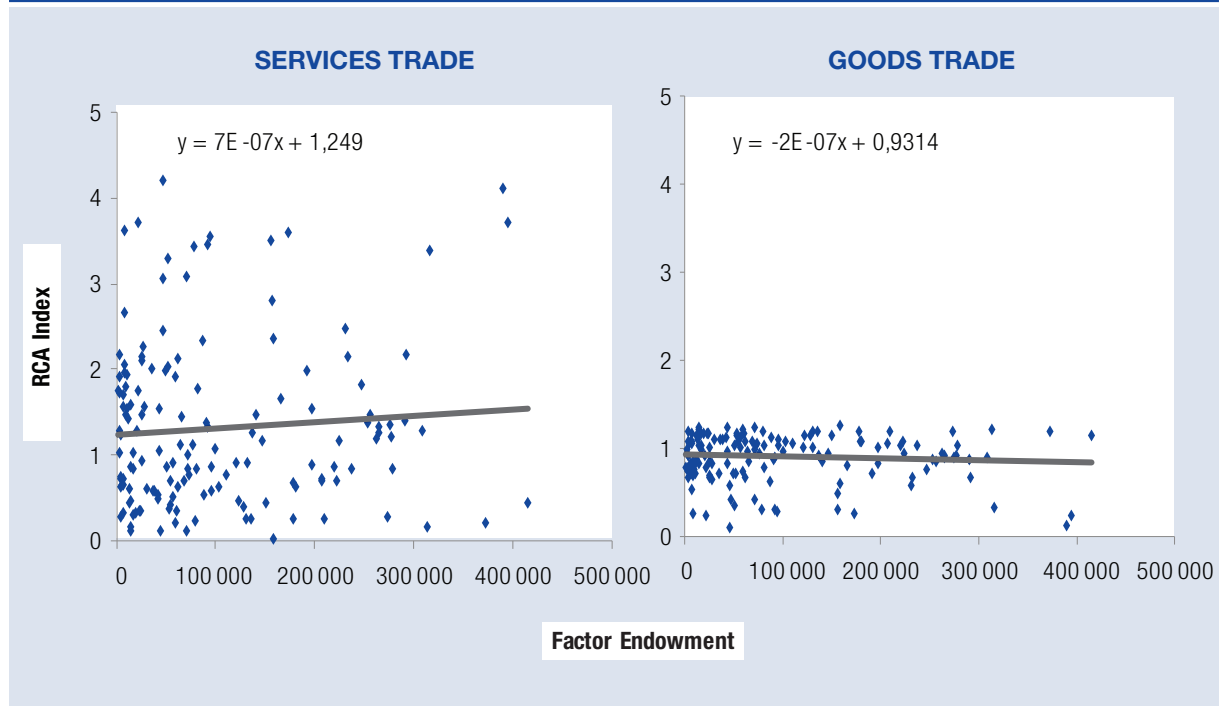
Quite a high number of developing countries, though they are often small economies, are among the best in RCA ranking for services trade (table 3). Seven developing countries and one transition economy are among the top 10 countries in the ranking. Small island

Figure 5. Revealed Comparative Advantage and Human Capital, 2014



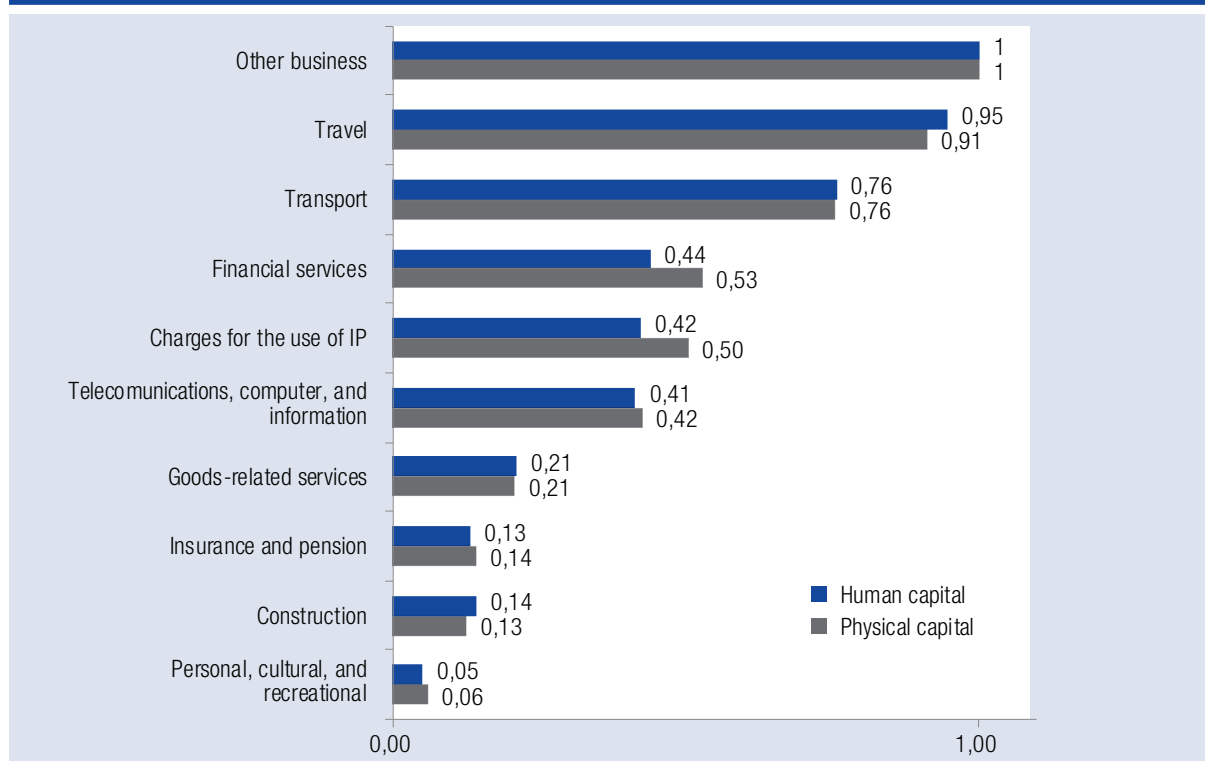
Source: Revealed Comparative Advantage indices were computed by using UNCTADStat database. Factor endowments were taken from UNCTAD database.

Figure 6. Revealed Comparative Advantage and Physical Capital, 2014



Source: Revealed Comparative Advantage indices were computed by using UNCTADStat database. Factor endowments were taken from UNCTAD database.

Figure 7. Revealed Comparative Advantage Weighted Average Human and Physical Capital Endowments by Services sector, 2014



Source: Revealed Comparative Advantage indices were computed by using UNCTADStat database. Factor endowments were taken from UNCTAD.

developing states like the Maldives and Aruba tops the list thanks to large tourism sectors. Sao Tome and Principe, Comoros, Malta, Bahamas and Barbados are other small island states that also benefit greatly from tourism revenues.

The economic structures of the top 10 economies in RCA ranking are in stark contrast with the bottom 10 in the ranking (table 4). The services sector plays a much smaller role in the latter group; in employment, exports, and national income. On average, services account for 78 per cent of employment and GDP in the former group while these shares are about 63 per cent and 45 per cent in the latter group respectively. The contrast is more striking in trade figures, while the services sector account for about 80 per cent of exports in the top 10 group, this is only 3.5 per cent in the latter group. In sum, the services sector plays a crucial role in creating employment, local productive capacities, as well as export revenues for these small economies in the top 10 list. For many countries lower in the ranking, overreliance on commodity exports such as oil has been constraining the development of services activities.

The composition of the trade in services varies among the highest ranking states, often depending on their development status (table 5). The high share of services in exports of developing and transition economies is mainly due to their revenues from travel account activities, which includes predominantly tourism revenues. Travel account captures more than 80 per cent of the services in Maldives, Bahamas and Sao Tome and Principe. In the developed countries of Luxembourg and Malta, however, financial services, technical, trade-related, and other business services as well as personal, cultural, and recreational services stand out. This helps to diversify their services exports on various services activities. Similarly, some developing economies on the list also receive important revenues in some non-tourism activities. Lebanon receives a significant share of financial services export revenues. Telecommunication services account for about 25 per cent of the services exports of Comoros. Technical, trade-related, and other business services are sizeable in the exports of Bahamas, Barbados, Lebanon, Sao Tome and Principe and Aruba.

Table 3. Services Employment, Export and GDP Shares in the Top 10 Countries in Services Revealed Comparative Advantage, 2014

	RCA in Services (index)	Services Share (per cent)		
		Employment	Exports	GDP
Maldives	4.21	68.1	90.9	78.1
Aruba	4.11	85.1(1)	88.7	84.2
Luxembourg	3.71	85.7	80.4	86.8
Sao Tome and Principe	3.71	..	80.2	71.1
Comoros	3.61	..	78.4	64.7
Malta	3.60	77.7	79.3	83.2
Lebanon	3.56	..	78.3	75.5
Bahamas	3.51	83.0(1)	76.5	79.8
Barbados	3.45	72.4	74.3	87.1
Montenegro	3.44	76.0	74.3	72.3
Simple Average	3.69	78.3	80.1	78.3

Source: World Bank WDI database for employment, UNCTADStat for exports and GDP figures.

(1) 2011 figure.

Table 4. Services Employment, Export and GDP Shares in the Bottom 10 Countries in Services Revealed Comparative Advantage, 2014

	RCA in Services (index)	Services Share (per cent)		
		Employment	Exports	GDP
Equatorial Guinea	0.03	..	0.5	27.6
Nigeria	0.11	55.3(1)	2.4	54.8
Venezuela (Bolivarian Rep. of)	0.11	71.1(2)	2.4	55.0
Angola	0.13	40.8(3)	2.8	45.8
Saudi Arabia	0.16	71.7	3.5	40.5
Lesotho	0.17	..	3.5	60.8
Iraq	0.22	..	4.7	38.8
Brunei Darussalam	0.22	80.8	4.8	32.4
Mexico	0.23	63.5	5.0	58.9
Oman	0.25	57.9(1)	5.5	38.6
Simple Average	0.16	63.0	3.5	45.3

Source: World Bank WDI database for employment, UNCTADStat for Exports and GDP figures.

(1) 2010 figure, (2) 2013 figure, (3) ILOSTAT figure for 2011.

Table 5. Distribution of Services Trade by Category, 2014 (per cent)

	Aruba	Bahamas	Barbados	Comoros ⁽¹⁾	Lebanon	Luxembourg	Maldives	Malta	Montenegro	Sao Tome and Principe	World
Goods-related services	-	-	1.3	0.0	0.3	0.1	-	1.1	1.3	-	3.3
Transport	5.5	4.5	4.1	7.6	8.7	5.4	7.1	4.4	17.1	0.2	19.2
Travel	78.7	85.0	67.8	56.0	44.2	5.4	89.4	11.4	66.3	80.1	24.1
Other services	15.8	10.5	26.8	36.4	46.8	89.1	3.5	83.1	15.2	19.6	53.4
Construction	0.3	-	0.0	0.0	4.4	0.5	-	0.0	4.7	1.2	2.1
Insurance and pension services	-	-	0.5	0.2	1.1	3.8	0.6	0.7	0.0	-	2.7
Financial services	0.7	-	2.1	0.0	12.4	56.0	-	29.5	0.4	-	8.8
Charges for the use of intellectual property n.i.e.	-	-	2.3	0.0	0.1	1.7	-	2.7	0.1	-	6.1
Telecom., computer, and information services	1.2	-	1.1	25.4	4.6	5.8	2.7	1.0	3.5	0.8	9.6
Telecommunications services	-	-	0.7	25.4	3.8	2.9	2.7	-	3.0	0.8	2.4
Computer services	-	-	0.3	0.0	0.8	2.7	-	-	0.5	-	6.7
Information services	-	-	-	-	0.0	0.2	-	-	0.0	-	0.5
Other business services	12.2	8.9	17.4	0.0	20.1	14.3	-	23.9	4.7	17.1	21.6
Research and development	-	-	0.0	-	0.1	0.8	-	0.0	0.6	-	2.8
Professional and management consulting services	-	-	4.4	-	6.5	3.2	-	1.8	2.7	-	7.2
Technical, trade-related, and other business services	12.2	8.9	13.0	-	13.6	10.2	-	22.1	1.4	17.1	11.3
Personal, cultural, and recreational services	0.2	-	0.0	0.0	3.5	6.4	-	25.1	1.9	-	1.0
Government goods and services n.i.e.	1.1	1.7	3.4	10.8	0.4	0.5	0.2	0.2	0.0	0.5	1.5

Source: UNCTADStat.

⁽¹⁾ 2013 figure.

The impact of trade in services on employment: An empirical analysis



Global trade is increasingly dominated by trade of intermediate goods and services as the fragmentation of the production process has steadily increased. Exported goods and services in the current world economy do not necessarily represent the value addition of that country as a significant amount of imported inputs from abroad may have been used. Gross trade may, therefore, not be very closely linked to domestic employment creation and poverty reduction in a country. Furthermore, as some case studies suggest, services exports may have a lower job-creating effect than merchandise trade. In this section, we study the link between trade in value added and employment, particularly trade in services.

A. TRADE, ECONOMIC GROWTH AND EMPLOYMENT: THE LINKAGES

The channels and nexus among trade, production and employment have been studied extensively in the literature. Yet, the links are not static as they evolve over time along the changes in the global economy. In this subsection we present a general overview of the findings in the literature.

1. Trade and employment in conventional trade models

The most influential traditional trade models do not directly address the effect of trade on the overall level of employment in an economy but provide insights about the relative demand for labour. As it is the abundant factor of production in developing countries, the demand for unskilled labour increases with rising international trade since exports of goods that use this factor intensively increase. According to the Stolper-Samuelson theorem, which is based on a Heckscher-Ohlin type of model, imports of products that use skilled labour relatively more intensively increase as well. During this process developing countries would specialise in the production of labour intensive goods and services such as light manufacturing and repair services and, consequently, create jobs for unskilled workers.¹¹ The consequence is that in developed countries the relative wage of skilled labour and in developing countries of unskilled labour would increase.

The new trade theory relaxes the assumption of constant returns to scale,¹² as decreasing production costs per unit gives rise to the emergence of large

enterprises and industrial specialisation (see Krugman (1979 and 1980)). The relation between trade and the emergence of agglomerations and concentration with corresponding effects on labour demand leading to increasing specialisation, such as steel production in the Republic of Korea and IT services in Bangalore, are also linked to scale effects.¹³

2. Trade and employment growth

The conventional trade theories tend to assume full employment and thus, trade mainly changes the allocation of resources, including labour, among sectors. However, the link between trade and employment can be more complex and works through several channels. One important channel is the relationship between trade and economic growth. If trade openness has a positive effect on growth, then one may expect this to lead to increased employment, as more goods and services can be produced domestically. Several studies have indeed found a positive correlation between trade and economic growth (see e.g. Winters et al. (2004) and ICITE (2012) for reviews). Others argue, however, that there is no significant positive correlation between trade openness and growth. For example, Rodriguez and Rodrik (2000) argue that “trade restrictions may also be associated with higher growth rates of output whenever the restrictions promote technologically more dynamic sectors over others”. Countries can be locked into an established pattern of production that – even if it makes efficient use of a country’s resource endowments – may not generate the more dynamic productivity gains that would lead countries to catch-up others (UNCTAD, 2012, page VIII).

More recently, there is a debate on the inclusiveness and sustainability of trade’s impact on economic growth, especially its effect on employment and the prevalence of jobless growth. Many African countries, for example, have experienced high growth rates in recent years, linked to high commodity prices and trade, with limited employment growth (ICITE, 2012).

In the current world economy where jobless growth is prevalent, the services sector can play an important role in creating employment through trade. A competitive services sector is an important determinant of growth and “there is increasing evidence that services liberalisation is a major potential source of gains in economic performance, including productivity in manufacturing” (Francois and Hoekman (2010)). According to Hoekman (2006) services content of

goods has been increasing across the board as the production chain of any product is using more and more of services activities such as R&D, finance, design, marketing, distribution and product/brand management.¹⁴ Therefore, services can be an engine for export growth and source of competitiveness in trade in services but also in goods.

3. Trade and productivity

The trade-growth-employment nexus is strongly linked to productivity growth. Trade can increase productivity and thus enhance countries' competitiveness leading to higher production, exports and job creation. At the same time, fewer inputs, including labour, are needed for a given output. Hence, the employment-enhancing competitiveness effect must be compared with the labour-saving productivity effect.

Trade has a positive effect on productivity in developing countries when new technologies are imported and spill-over effects from foreign direct investment occur. In addition to these effects, the "new" new trade theory has shown that participation of domestic firms in international trade increases the average productivity of that country, since the more productive firms expand while the less productive shrink due to higher import competition (Melitz, 2003). According to studies taking into account the heterogeneity of firms, only the more productive enterprises in an industry tend to export under increased exposure to international trade (Bernhard et al., 2005). In the United States of America, for instance, only 3 per cent of firms are exporters. When sectors are exposed to external competition, the more productive firms expand and others shrink within a sector leading to a reshuffling of jobs, not only between but also within sectors.

By using services productivity data for the Republic of Korea, Kim and Kim (2003) estimated the effect of the Uruguay round negotiations, accessions to the OECD and finally, the financial crisis in 1997 that lead to a gradual liberalisation of the services sector on the sector's productivity. They found improvement in productivity in services sectors, for example distribution services, after the large inflow of FDI due to liberalisations in the 1990s. Cali, Ellis and William te Velde (2008) argue that trade liberalisation in services can improve productivity of domestic firms by stimulating competition and bringing international best practices, better skills and technologies. On the trade side, Miroudot et al. (2012) estimates a rise in

productivity of services firms due to falls in tariffs and regulations. By using data for 61 countries and 21 sectors for the period of 1995-2007 they predict a 0.5 per cent rise in total productivity of services due to a 10 per cent fall in trade costs.

Other empirical evidence indicates an increase in the productivity of companies that source some services activities from suppliers abroad. According to Amiti and Wei (2006), advances in technologies now allow trade in some business and computing services that was not possible previously. They estimate that service offshoring accounts for about 10 per cent of the labour productivity increase in the United States manufacturing industries between 1992 and 2000, much higher than the productivity increases due to offshoring material inputs.

4. Trade liberalisation and employment

Trade liberalisation and expansion is often accompanied by broader reforms and other macroeconomic changes that make it difficult to disentangle the effect of trade on employment. However, a considerable amount of studies have assessed the link between trade and employment. Most of the literature focuses on industrial goods while there are only few studies looking at services trade.

Empirical studies on aggregates or industrial trade suggest that the degree of trade openness is not an important determinant of either overall employment or aggregate unemployment. McMillan and Verduzco (2011), for example, fail to find a correlation between trade liberalisation and industrial employment over a long period, 1980 to 2006, in a dataset including many developing countries. Similarly, using a different data set, the OECD (2007) does not find a significant correlation between the change in the employment-population ratio and in trade openness between 1995 and 2005.

Some studies distinguish between short- and long-run effects. They generally find that in the longer run the impact of imports on employment is more positive than the one in the short run (Görg, 2011). Hoekman and Winters (2005) conclude that "the direct effects of trade reform on aggregate employment are muted". An important reason is that displaced workers from activities where import competition increased are not easily absorbed by exporting sectors. Jansen et al. (2011) conclude that job creation in exporting sectors

may be disappointing. Some evidence suggests that the impact of trade liberalisation on labour markets operates more through wages than employment (Hoekman and Winters, 2005). The composition of the effect depends on the labour market characteristics, with more adjustment through wages in flexible labour markets such as the United States. The greater response in wages also appears to be the case in developing countries. Several papers have found that trade liberalisation decreased the industry wage premiums in those sectors that experienced the largest tariff reductions. (Porto and Galiani, 2008).

It is important to note that trade liberalisation of domestic markets does not always seem necessary for integration into the world economy, at least at the beginning of the process. The benefits of integrating developing countries into the world economy, including through export-led growth strategies, appear to have great potential, including the creation of jobs. Successful integration into the global economy was part of the most impressive development success story of the past decades. However, it has been argued that opening up a country's own markets is not sufficient, and may be even counterproductive. Chang (2003) shows that industrialised and newly industrialised countries alike all had high trade barriers during the early stages of their development. Thus, the millions of jobs that have been created in South-East Asia, for example, can be linked to trade but not necessarily to early trade liberalisation of domestic markets.

This view does not necessarily contradict the fact that more advanced countries have more open markets. Once an economy has reached a certain level of development with an industrial base, access to high quality inputs and technologically advanced capital goods are required to maintain competitiveness and innovation, especially with increasingly emerging fragmented production structures through global value chains. Cadot et al. (2011) have shown that trade liberalisation has a positive impact on diversification of middle income countries, for example, but this effect almost disappears in low income countries.

Some studies assess the link between services exports and employment. Manning and Aswicahyono (2012) compare the contribution of exports on employment by sector in Indonesia. By using input-output tables, the study estimates that exports account for almost two-thirds of new jobs created in the country during the period of 1995-2005. Over one-third of new jobs were created in services, the study concludes. Ghani

(2010) discusses India as a successful services-led growth example for developing countries. In Hyderabad, the capital of Andhra Pradesh, the number of information technology firms increased 8-fold and employment increased 20-fold as a result of a 45-fold increase in services exports from 1998 to 2008. Services-led growth is sustainable as it leads to a reduction in poverty levels and allows developing countries to enhance comparative advantages beyond the manufacturing sector, Ghani argues. Konan and Masakus (2006) argue that lower adjustment costs in the services sector contribute to relatively higher employment gains from service trade liberalisation compared to those from goods trade. Even after the liberalisation, they argue, services will continue to be provided locally and thus support domestic employment.

Mitra (2011), however, does not find such a strong effect of services trade liberalisation on employment. The paper estimates negligible effects of services exports and imports on employment in India, and proposes a set of policy measures to promote responsiveness of the sector to international trade. Policies to support specific sectors, where India has a potential comparative advantage such as healthcare and education, can enhance foreign demand as well as domestic employment, the paper argues. Similarly, skill upgrading and human capital formation in rural India as well as infrastructure investments can strengthen domestic supply capacity of the service sector. Cali, Ellis and William te Velde (2008) emphasise the importance of regulations. They warn that if not regulated properly, trade liberalisation in certain services sectors can bring instability, for example in financial markets, and may crowd out domestic producers. Similarly, Lehmann, Tamirisa and Wieczorek (2003) argue liberalisation of services sectors can lead to local establishment of foreign service providers which may displace unskilled labour and obstruct universal provision of utility services.

5. Outsourcing, Offshoring, FDI and Employment

Companies do not only make use of advanced technologies through imports but also increasingly through outsourcing and offshoring. Offshoring, i.e. procurement of material inputs or services by a firm from outside the host country, and its impact on employment has been the focus of many studies for developed countries. Two effects dominate the impact

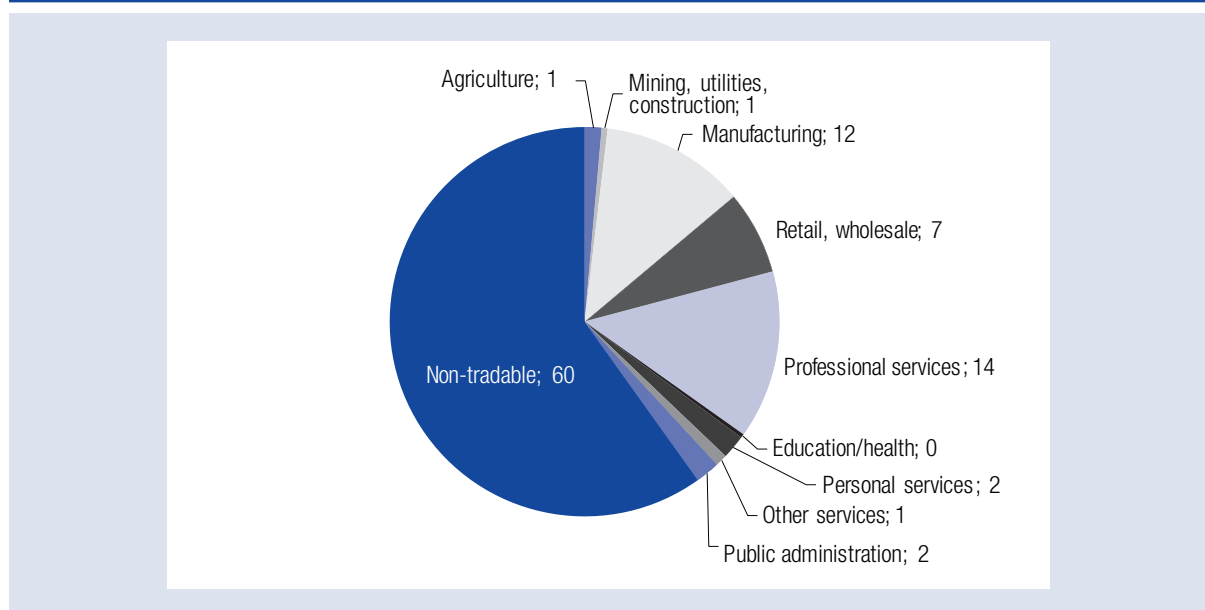
on employment in developed countries; the direct negative effect of relocating jobs abroad (the relocation effect in the terminology of Hijzen and Swaim, 2007), and a potential positive effect because of higher sales due to increased productivity and efficiency of the company (the scale effect). Two other (indirect) effects occur: if the company offers its goods and services at lower prices to other firms, which may then be able to expand their activities, and, if a decrease in prices for consumers increase their real income and thus consumption on other goods and services which raise employment in the benefiting sectors (Görg, 2011).¹⁵

The assessments of the effect of offshoring on employment and wages in the host country of the offshoring companies, mostly in the manufacturing sector in developed countries, reveal predominantly relatively small effects. Low-skilled workers appear more likely to lose and high-skilled workers to gain. The direction of outsourcing may matter as well. Ebenstein et al. (2009) find that in the United States offshoring to high-wage countries is positively correlated with manufacturing employment, while offshoring to low-wage countries is associated with declining employment. The authors also show that much of the pressure of offshoring operates through wages. Displaced low-skilled workers, for example, take up lower paid jobs in the services sector. Offshoring therefore appears to contribute to the increase in the skill premium. OECD (2007) confirms a small negative

effect on employment of offshoring while Hijzen and Swaim (2007), using the same data, show that the scale effect offsets the job losses due to higher sales.

Fewer studies assess the effect of services offshoring. In high income countries there is a growing concern that services offshoring will lead to job losses in the domestic economy with high-wage jobs being more and more affected. Jensen and Kletzer (2005) support the concern by arguing that – a significant share of employment is in the tradable services industry. They distinguish in their analysis between tradable industries and tradable occupations. A share of 40 per cent of total employment in the United States is in tradable industries (figure 8). Some large services sectors such as education, health care and public administration have a small share of employment in tradable industries but since the services sector is larger than the manufacturing sector a broader section of employment in the services sector is potentially exposed to international trade in services. Furthermore, some intermediate input production in services in non-tradable industries (e.g. computer programming in the banking industry) may be tradable even if the industry is not. Jensen and Kletzer estimate that 10 per cent of jobs in non-tradable industries may potentially be traded. Jensen and Kletzer also find that tradable services sector jobs such as professional services have a higher education and earn significantly more than workers in non-tradable activities.

Figure 8. Tradable Industries' Share of Employment (per cent)



Source: Jensen and Kletzer (2005).

Lanz et al. (2012) use a different approach and emphasise that tasks that can possibly be offshored are often complementary to tasks that cannot and thus tasks cannot be offshored as easily as initially thought. In their assessment of the “offshorability” of jobs they take the tasks being performed into account and find that only between 20 to 29 per cent of all jobs in major economies such as the United States, Canada and Australia could be offshored. Nevertheless, a significant share of jobs in the services sector is tradable, contrary to the previous beliefs that services jobs are mostly non-tradable.

The impact of offshoring of services tasks on employment has been assessed for a small number of developed countries, though there are too few studies to produce definitive conclusions. Amiti and Wei (2005, 2006) analyse the effect of services offshoring on employment in manufacturing and services industries in the outsourcing countries United States and United Kingdom of Great Britain and Northern Ireland. For the United States they find that offshoring has a negative impact on employment when the industries are very finely disaggregated in the analysis. However, when the industries are aggregated to 96 sectors the negative effect disappears indicating that workers who lose their job in one industry manage to find a job in another growing industry. Similarly, for the United Kingdom the authors find that jobs displaced by services outsourcing are likely to be offset by new jobs created in the same sector. Thus, they find no evidence of job losses from services offshoring.

Crino (2009) also finds no effect on the absolute level of employment but distinguishing between different skill levels indicates that service offshoring leads to a change in the composition in favour of more high-skilled workers. Lower skill-intensive services are offshored from developed countries who specialise more on high-skilled intensive tasks (Crino, 2009). Similarly, for the United States, Crino (2009b) finds, using occupational data, that services offshoring has a small negative effect on low-skilled workers but a positive effect on high-skilled services workers. Overall a small negative effect on employment from offshoring is found. Other studies find that offshoring can also have detrimental effects on employment of educated workers. Liu and Trefler (2008) find that United States educated workers face competition from educated but lower paid services workers in China and India and show a negative effect from offshoring. However, they also analyse the effect of inshoring, which is the sale of

services produced in the United States to unaffiliated buyers in China and India. This effect is positive and dominates the negative effect found from offshoring resulting in a small positive net effect. Similarly, Amiti and Wei (2005) point out that the United States and the United Kingdom have run the largest and second largest surpluses in services trade in the world in several recent years.

Services offshoring thus appears to have had little effects on employment levels so far in developed countries. Negative relocation effects appear to have been mostly offset by indirect positive effects on workers in other sectors or with different skill levels.

Offshoring of services activities is an opportunity for developing countries. The effect of trade in services and offshoring on workers in developing countries is however studied less.

Chanda (2011) considers the development of the services sector and employment effects in South Asia (Bangladesh, India, Pakistan and Sri Lanka). The services sector has revealed higher growth rates than the rest of the economy in South Asia between 1995 and 2009. The main sectors with significant employment and anticipated employment growth in services in South Asia are construction, tourism and hospitality, retail trade, health care, and IT business process outsourcing. Employment creation in services in South Asia has also been favourable compared to other sectors and regions since 2000. “Thus, there is evidence of services growth contributing to growth in services employment, particularly in more recent years” (Chanda, 2011). However, employment growth in services did not commensurate with the sectors output development. The International Labour Organization (ILO) (2015), for example, confirms that in South Asia the employment elasticity is relatively low, i.e. a low contribution of output growth to employment growth.

The same is also the case for the link between foreign direct investments in services and employment creation in the host country. Employment generation from services FDI is smaller than the employment generation from other sectors (UNCTAD, 2004). For example, data for Japan, Germany and the United States reveal that the share of outward FDI stocks in services is higher than the corresponding employment share. However, FDIs are still considered to generate employment in host countries and the job creation effect is increasing with the rise of export-oriented services.

Services FDI have increased disproportionately in recent decades (figure 9) and account for a large share of services trade. FDI inflows into developing countries accounted for 37 per cent of world FDI inflows in services between 2008-2010, an increase from 19 per cent in 1990-1992. Furthermore, indirect effects through high quality services from multinational enterprises and resulting positive employment effects in upstream industries in host countries contribute to employment creation. Dee (2011) shows that a 50 per cent liberalisation of investment in services could create employment between zero per cent in countries with open markets and 1.4 per cent in more restrictive sectors for skilled labour and between zero and 1.2 per cent for unskilled labour.

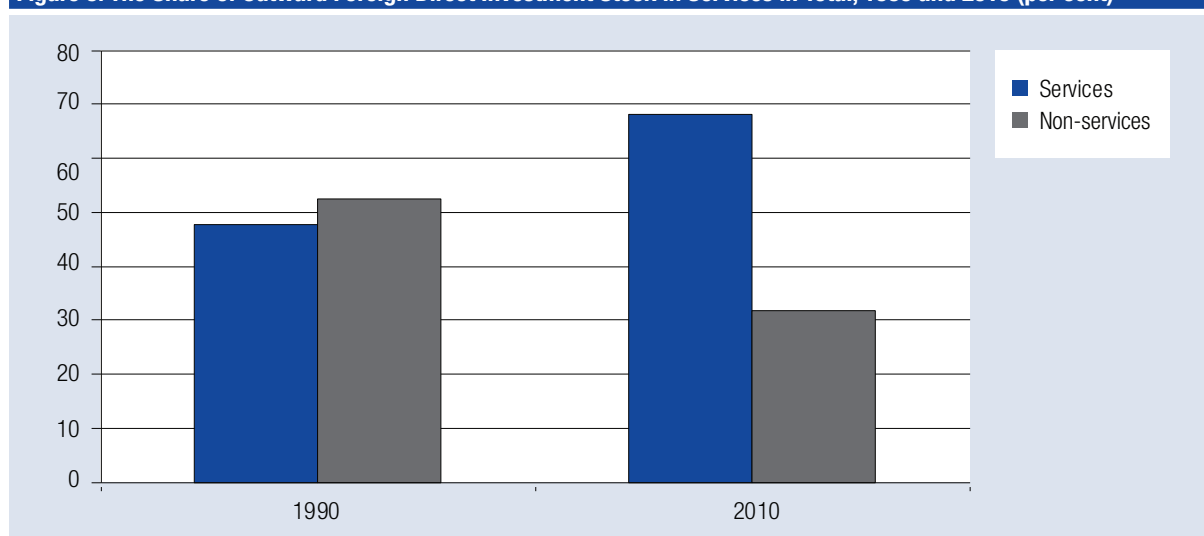
Due to the heterogeneity of the services sector, employment effects related to trade in services vary greatly by sector. In Peru relatively small but positive employment effects from exports in the services sectors; engineering consulting, logistics, computer related services, and booking-keeping and accounting, are expected (UNCTAD, 2015). Employment effects will be concentrated in the capital Lima particularly on skilled workers, and indirect economy-wide benefits will be limited. Tourism in Lesotho is a sector of key interest with the potential to create employment in the services sector which currently, despite its dominant position in GDP, contributes little to employment (UNCTAD, 2013a). In Nicaragua employment effects and indirect positive effects for the economy as a whole are also expected to be significantly positive

in telecommunications, financial services, road transportation, and tourism (UNCTAD, 2013b). All categories of workers would be positively affected from a successful development of the four sectors. Positive effects, however, are less related to trade and exports in some of the sectors. The business process outsourcing sector has been identified as a key sector for economic growth and employment opportunities for highly skilled workers in Uganda, including through exporting that service. According to the Uganda BPO Association, the total BPO size has significantly increased in recent years to reach an estimated 3000 people (UNCTAD, 2014).

Potentially negative effects for employment and poverty reduction efforts could stem from liberalisation of the distribution sector in Uganda. The distribution sector provides employment for 10 per cent of the workforce and employs mainly low skilled workers. Reforms and liberalisation in distribution services could lead to a crowding out of the small stores and vendors, risking a severe social impact through unemployment of the unskilled workers.

Thus, growing offshoring and the high tradability of services tasks and jobs create an opportunity for developing countries to create productive employment. Services jobs in developing countries are often better paid than those in other sectors and increasing productivity and efficiency of the services sector in developing countries will have a positive impact on employment in other sectors. Moreover, due to scale and indirect effects, offshoring is not a

Figure 9. The Share of Outward Foreign Direct Investment Stock in Services in Total, 1990 and 2010 (per cent)



Source; UNCTAD World Investment Report data.

zero-sum game for either insourcing or outsourcing countries, meaning that there is little evidence that jobs created in developing countries would be lost in countries where companies offshore.

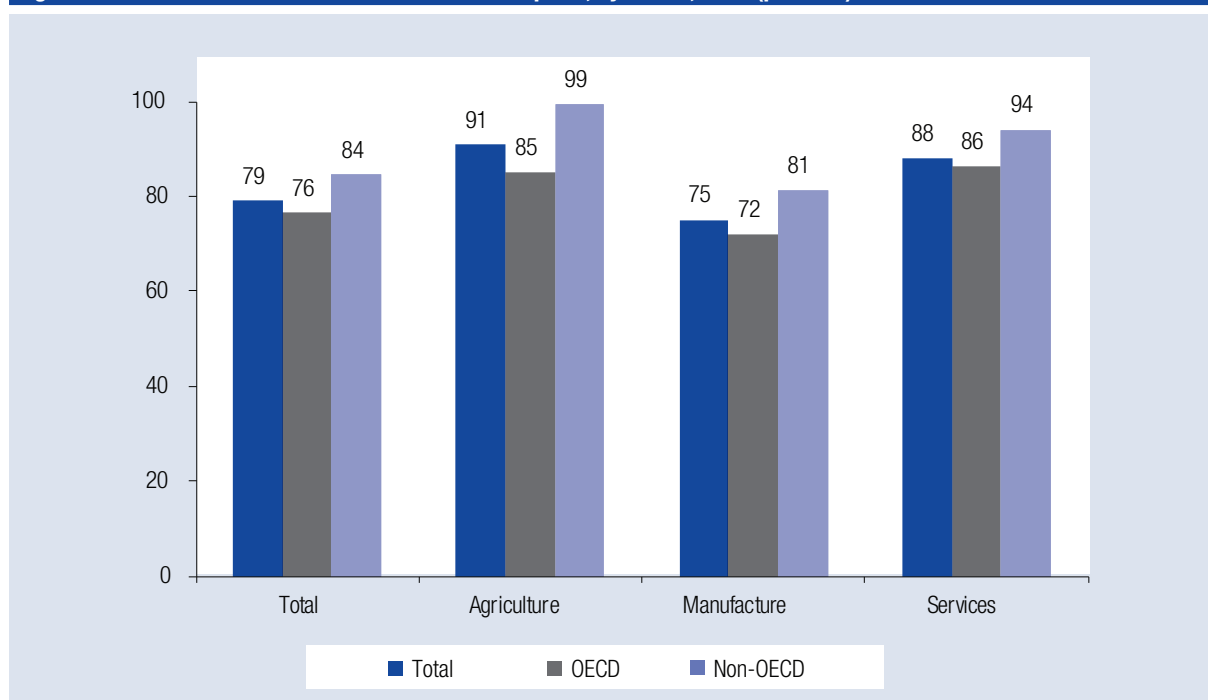
B. EMPLOYMENT AND TRADE IN VALUE ADDED: EMPIRICAL RESULTS

Conventional official trade statistics which measure value of products crossing national borders tend to overestimate the domestic contribution of national economies to world exports due to the double counting problem, especially in countries which extensively use imported inputs in domestic production. The double counting arises when imported foreign intermediate inputs used in domestic production are recorded as domestic exports when products are exported abroad; conventional trade figures could not separate domestic value added from foreign imported content of domestic exports. In this respect, WTO-OECD database based on world input-output tables is an important step towards measuring “actual” value of domestic contribution to trade. The database¹⁶ that provides statistics on domestic value-added content of exports for 40 countries, 30 developed and 10 developing countries, is used.

According to the database, the average share of domestic value added in gross exports stood at 79 per cent in 2009 (figure 10). In non-OECD countries the share is 84 per cent, higher than the OECD countries’ average. This could indicate a lower integration of many developing countries to the global value chains. Indeed, supply chains tend to be localised in few clusters around the world such as North America, Europe, and East and South-East Asia (Baldwin and Lopez-Gonzalez, 2013).

The domestic content share varies greatly across main sectors as well. When aggregated into three main sectors, while agriculture attains the highest domestic value-added content, manufacturing comprises the lowest domestic value added. In services, the figure is 88 per cent and the share is higher in developing countries than in developed countries. The highest shares of foreign inputs in gross exports are found in electrical and optical equipment (33 per cent), and transport equipment (30 per cent), as global value chains play an important role in those sectors. Together with machinery and equipment (24 per cent) and manufacturing, not elsewhere classified (n.e.c.), and recycling (23 per cent), these four core-manufacturing sectors have generally high shares of foreign input content in exports.¹⁷

Figure 10. Domestic Value-Added Share of Gross Exports, by Sector, 2009 (per cent)



Source: UNCTAD based on WTO-OECD TiVA database.

In this section trade in value added statistics from the WTO-OECD database for 2005, 2008 and 2009 years are used. Employment statistics for corresponding years, countries and sectors were taken from WIOD database.¹⁸ The following simple specification (equation 3) is estimated to identify the correlation between the log of employment (employment_{ijt}) and the log of exports (exports_{ijt}) for country i , sector j and year t :

$$\text{employment}_{ijt} = \alpha + \beta * \text{exports}_{ijt} + \varepsilon_{ijt} \quad (3)$$

The equations for both gross exports and value-added exports are estimated, while including controls for country, sector and time fixed effects (table 6). In general, we find the export elasticities consistently higher in the value-added exports specification than the gross exports, though coefficient differences are usually very small. We repeat the same experiment for the four main manufacturing categories (core manufacturing: Electrical and optical equipment, transport equipment, machinery and equipment (n.e.c.), and manufacturing (n.e.c.) and recycling) which have a high share of trade in intermediate goods and thus have a high imported input content of gross exports.¹⁹

We find a stronger association between employment and exports when trade in value added is used. Though the coefficient of exports is statistically significant for both gross and value added exports at a significance level of 5 per cent, it is bigger (0.534 versus 0.471) when the latter series are used. We also find the explanatory power of the value-added model slightly higher (higher R2) and a better fit (higher adjusted R2 and lower root mean square error) compared with the model in gross exports.

The analysis shows that employment and exports are positively correlated, and that employment is more responsive to changes in value added exports than in gross exports, though the difference is small. In core-manufacturing, however, the difference is significant, one per cent higher value-added exports is associated with 0.53 per cent higher employment in core-manufacturing. Yet, the elasticity is smaller for the gross exports specification: 0.47 per cent. Figure 11, which plots employment on value added exports for core-manufacturing, shows a clear positive correlation between exports and employment levels. In other sectors, where the imported input content of gross exports is lower, the employment elasticity with respect to either value added trade or gross trade is similar. Thus, in the sectors where the global value chains play important roles e.g. core-manufacturing sectors including electronics and transport equipment, changes in employment are more closely associated to changes in value added exports than to changes in gross exports, while in others where this link is weak, the statistical association does not change with the choice of export measurement.

The second part of our empirical study is on estimating and comparing the export elasticity of employment by sector. We find that the nexus between employment and export performance varies significantly across sectors (table 7 and figure 12). While in manufacturing a one per cent increase in value added exports is associated with a 0.42 per cent increase in employment, in services this figure is about 0.12 per cent. This, however, does not mean that an increase in services exports creates a smaller number of jobs compared with the same percentage increase in merchandise export. As internationally non-traded

Table 6. Gross Exports and Value-Added Exports Model Estimates

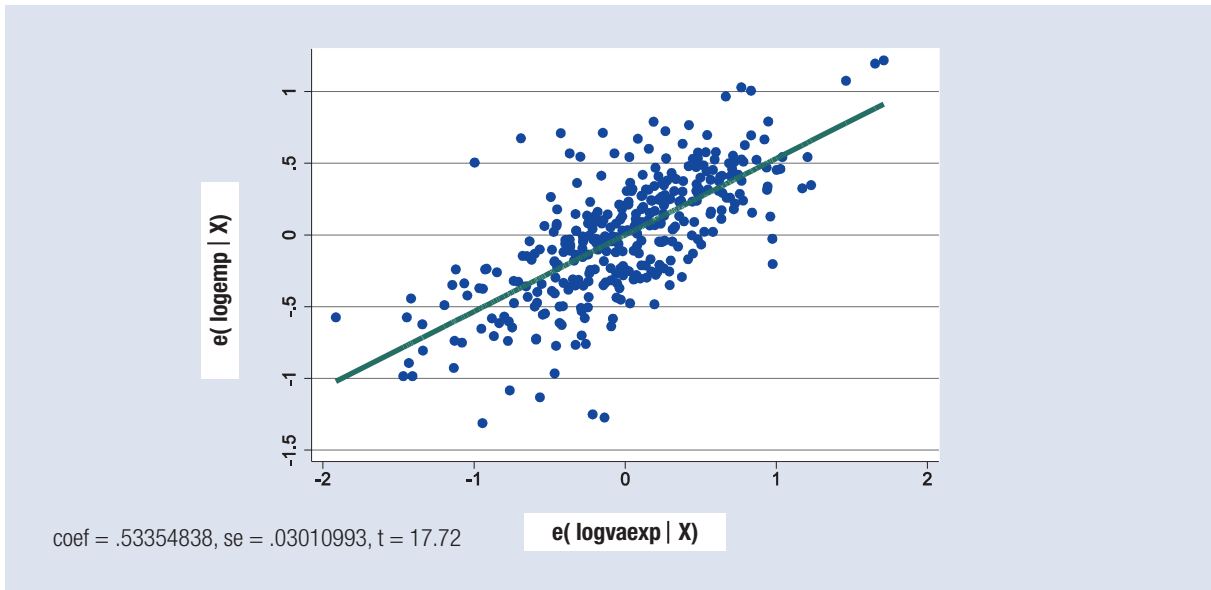
	Gross exports model	Value added exports model
Exports	0.471**	0.6
(15.84)	0.534**	-1.9
(17.72)	-5.5	-3.4
Number of observations	359	359
R2	0.9672	0.9705
Adjusted R2	0.9638	0.9674
Root MSE	0.33118	0.31435

Source: Authors' estimations.

Note: t-statistics are in parenthesis.

** Significance at 5 per cent level.

Figure 11. Employment and Value-added Exports in Core-manufacturing



Source: Authors' estimations.

Table 7. Value Added Exports Model Results by Sector

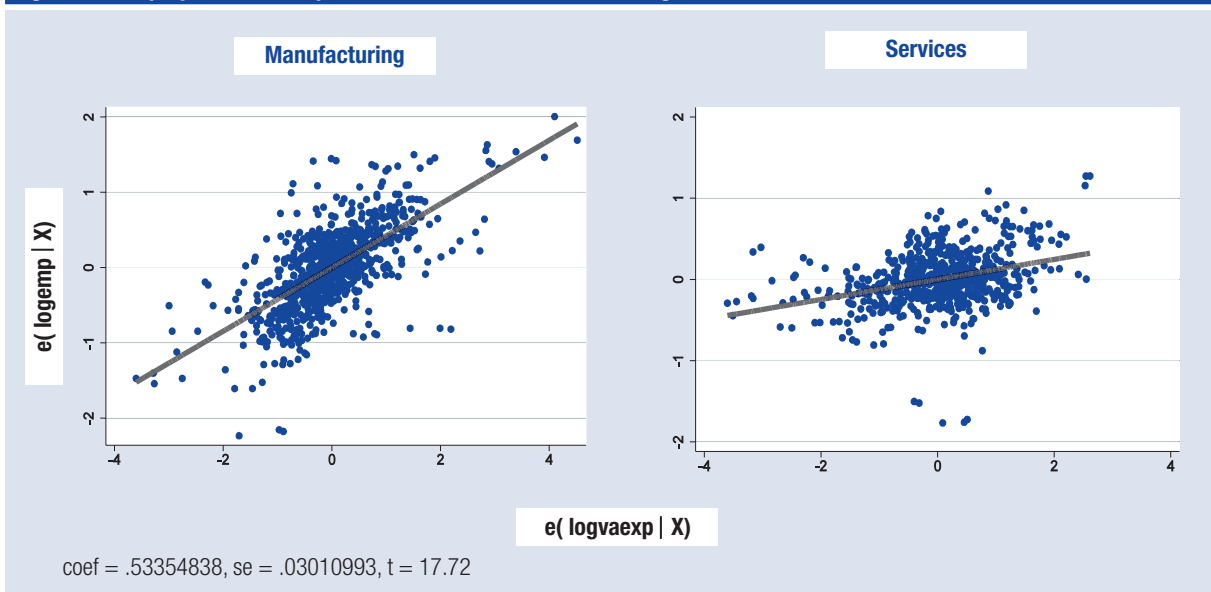
	Manufacture	Services
Value Added Exports	0.423** (26.94)	0.123** (8.68)
R2	0.971	0.973

Source: Authors' estimations.

Note: t-statistics are in parenthesis.

* and ** indicates significance at 10 per cent and 5 per cent levels.

Figure 12. Employment and Exports Correlation for Manufacturing and Services Sectors



Source: Authors' estimations.

products and services account for different shares of output in the manufacturing and services sectors, an asymmetry in exports employment effects emerges. Indeed, while the services sector represents only 19 per cent of international trade, it accounts for 66 per cent and 44 per cent of world output and employment respectively. A second explanation that has been discussed in the literature is that those services sectors that are mostly traded internationally could have disproportionate productivity gains when exports increase so that job creation remains limited.²⁰

However, when the smaller share of the services sector in international trade vis-à-vis the manufacturing sector is taken into account, one can estimate larger absolute job creation effect for services exports. Ernst and Peters (2012), for example, have shown for Indonesia that the job creation effect of exports in many labour-intensive services sectors are as high as in agriculture and even higher than in most manufacturing sectors.

In order to study this argument, we calculate the number of newly created jobs as a result of an increase in exports of services and manufactures by using the coefficients from table 7 for selected 10 countries (table 8). We use two different scenarios, in case 1 we measure the effect of \$1 billion extra exports of value added exports in services and manufactures. In case 2 we increase value added exports by 1 per cent for each industry group.

As it is shown in table 8 while \$1 billion extra value added exports of services sector exports creates 26.8 thousand new jobs in the United States, in

manufactures the same amount only generates 8.5 thousand new employments. Similarly, a 1 per cent increase in services increases services employment by 158.8 thousand, while the same increase in manufactures only creates about a third of that amount. In other words, as in the case of Ernst and Peters (2012), we estimate greater absolute employment effect of services exports than manufactures exports for the United States exports.

The result, however, is not uniform across the other sample country cases used in the study. While the results for the United Kingdom, France, Brazil, Japan, Mexico and Germany are similar to the United States case, we reach to different results for Turkey, India and China. In the latter group of countries, even absolute effect of export growth is bigger for manufactures than services sector.

The difference between these two groups of countries is linked to the share of services in total employment. We ordered the countries from the biggest to the smallest according to the ratio of services to manufactures employment as of the latest year in our database (table 9). For the first seven countries that have a reasonably high services sector in employment, extra services exports generate more employment in the economy than an equal amount or percentage increase in manufactures exports. For the last three countries on the list the picture is less clear as we can find cases that services export growth may not generate more jobs in absolute terms than manufactures.

Table 8. Employment Effect of Increase in Value Added Exports by Sector, 2009 (thousand people)

	Case 1		Case 2	
	Services	Manufactures	Services	Manufactures
Brazil	183.0	62.3	82.4	51.7
China	136.1	108.1	396.7	627.5
Germany	14.6	5.4	40.1	30.3
France	13.7	5.1	26.6	12.5
United Kingdom	12.0	7.0	33.7	11.9
India	172.8	263.6	191.8	238.6
Japan	27.9	10.1	57.0	36.4
Mexico	111.5	36.0	41.9	31.7
Turkey	34.7	27.2	14.8	16.3
United States	26.8	8.5	158.8	54.4

Source: Authors' estimations.

Table 9. Employment Levels and Ratio of Services over Manufactures Employment Increases, 2009

	Employment	Employment Change(2)	
	2009 Levels(1)	Case 1	Case 2
United States	10.1	3.2	2.9
United Kingdom	9.7	1.7	2.8
France	7.3	2.7	2.1
Brazil	5.5	2.9	1.6
Japan	5.4	2.8	1.6
Mexico	4.6	3.1	1.3
Germany	4.6	2.7	1.3
Turkey	3.1	1.3	0.9
India	2.8	0.7	0.8
China	2.2	1.3	0.6

Source: Authors' estimations.

⁽¹⁾ 2009 employment in services sector over employment in manufactures.

⁽²⁾ Change in services sector employment over changes in manufactures employment.

Policy conclusions and remaining challenges



The services sector has been commanding an increasingly large share of the world economy. Despite its crucial role in positively integrating developing countries into the global services economy and trade, the challenges for many developing countries remain high. Maximising positive contributions and pro-development outcomes of the services sector and trade requires good policies, adequate regulations and strong institutions, together capable of creating an enabling environment for the services economy to flourish and prosper. Explicitly addressing the services-trade-employment nexus would be a key trade and development challenge under the 21st century new trading environment.

The study confirms what intuitively many have expected; that the link between gross trade and employment is weaker than the link between value added exports and employment, mainly in sectors that have prevalent value chains. Global value chains are present and important in a few sectors, including automobiles and electronic parts. In other sectors, where global value chains are less prevalent, the elasticity of employment to exports does not change by the choice of trade series; gross exports, or value-added exports.

Furthermore, although the analysis empirically shows that the job creation effect of services exports is weaker than that of manufacturing or agricultural, when we take into account the smaller share of services sector in international trade vis-a-vis output and employment, the link between exports and employment in traded services sectors may become stronger than manufacturing sector.

These results provide important insights and policy conclusions for policy makers. Services exports can be used to achieve higher growth and employment if necessary sustainable development policies are set in place. The services sector, however, poses extra challenges for developing countries as it is found to be more human and physical capital intensive compared with the manufacturing sector.

On the policy side, building productive capabilities and enhancing export competitiveness requires a

comprehensive, integrated and coherent strategy at the national level. Regulatory and institutional frameworks that are best fit to local conditions and priorities are critical for a good functioning of services sectors, particularly infrastructure services, as their performance is highly dependent on the quality of regulations. Measures are also needed to maximise the sector's positive spill-over effect, so that the sector can better contribute to economy-wide growth and job creation. Complementary measures to link the sectoral development with job creation and retention, and facilitating and safeguarding labour market adjustment, would be critical. These would include capitalising on new growth poles of IT-enabled services, temporary movement of services providers and green jobs, as well as better integration of women into the labour market and formalising of the informal economy.

At the international level, efforts are needed to advance the development-led services trade agenda to unleash the potential of services trade. All forms of cooperation – multilateral, regional and bilateral, as well as North-South, South-South and South-South-North – are important to revitalise trade cooperation in the realm of services. Designing the adequate content, pace and sequence of liberalisation, and coordinating this process with the implementation of national policies and regulations, would be fundamental for the creation of an enabling environment for services trade. This process should contribute to a more balanced development of international trade in services, especially in the areas of export interest to developing countries, while also allowing them a space to implement measures to build domestic productive capacities, export competitiveness and create employment. Cooperative measures such as enhancing regulatory cooperation on services trade to create a more facilitative policy environment, as well as promoting common infrastructure and network development, innovation and greater value addition in services value chains, would also make an important contribution.

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ENDNOTES

- ¹ ILOSTAT database (http://www.ilo.org/ilostat/faces/oracle/webcenter/portalapp/pagehierarchy/Page137.jspx?_afLooP=700726202788079&clean=true#!%40%40%3F_afLooP%3D700726202788079%26clean%3Dtrue%26_adf.ctrl-state%3D12h2ud0s7m_306)
- ² UNCTADStat
- ³ ILOSTAT database
- ⁴ UNCTADStat
- ⁵ UNCTADStat
- ⁶ UNCTADStat
- ⁷ UNCTADStat
- ⁸ The income elasticity argument is also challenged by some empirical studies in the literature. According to these studies, low productivity in services is also leading to higher prices in services and once the share of services in real output is considered, the share remains constant over time (D'Augustino, et al., 2006).
- ⁹ UNCTAD calculation based on WTO-OECD database
- ¹⁰ For further details, please read Shirotori and Tumurchudur (2010). A similar approach based on product space has also been popularised by Ricardo Hausmann, Dani Rodrik, Bailey Klinger and Cesar Hidalgo where a sophistication measure of exported products is calculated as per capita income weighted average RCA indices. See Hausmann et al. (2007) and Hidalgo and Hausmann (2010) for further details.
- ¹¹ The traditional theory is about relative wages for relatively abundant and scarce factors, e.g. skilled and unskilled workers, but has been extended to address unemployment and underemployment. 12
- ¹² The theory, with monopolistic competition, can also explain intra-industry trade, e.g. the Republic of Korea exporting cars to Europe and Europe exporting cars to the Republic of Korea.
- ¹³ The assumption of decreasing production costs per unit gives rise to potential success of industrial policy measures that protects or subsidises certain industries until they become competitive in world markets or even to continue with such interventions. The infant industry argument is related to that theory. Expanding industries, as a result of exports, achieve a cost advantage (economies of scale) and that leads to increasing productivity.
- ¹⁴ In developing countries, 26 % of inputs into production of traded goods are coming from the services sector (Lanz and Maurer, 2015).
- ¹⁵ A potential diversion effect exists if a more productive firm gains market shares and replaces other domestic firms with corresponding negative effects on employment in the displaced firms.
- ¹⁶ OECD-WTO TiVA database: www.oecd.org/trade/valueadded
- ¹⁷ Share of imported inputs in gross exports in electrical and optical equipment, transport equipment, machinery and equipment (n.e.c.), as well as manufacturing (n.e.c.) and recycling sun-sectors in 2009 are 33%, 30%, 24% and 23% respectively. The goods and services exports average is 21% in the same year.
- ¹⁸ World Input-Output Database: <http://www.wiod.org/>
- ¹⁹ Share of imported inputs in gross exports in electrical and optical equipment, transport equipment, machinery and equipment (n.e.c.), as well as manufacturing (n.e.c.) and recycling sun-sectors in 2009 are 33%, 30%, 24% and 23% respectively. The goods and services exports average is 21% in the same year.
- ²⁰ Chang et al. (2006) discuss, for example, linkages between labour productivity shocks and employment.

