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► **To cite this version:**

Rabeh Morrar, Faïz Gallouj. The Growth of the Service Sector in Palestine: The productivity challenge. Finding Growth Through Service Activities In Barren Times, RESER-Aix-Marseille Université, Sep 2013, Aix en Provence, France. halshs-01222937

**HAL Id: halshs-01222937**

**<https://halshs.archives-ouvertes.fr/halshs-01222937>**

Submitted on 31 Oct 2015

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**XXIII International Conference of RESER  
Finding Growth Through Service Activities  
In Barren Times  
September 19th-21st 2013, Aix en Provence, France**

**The Growth of the Service Sector in Palestine:  
The productivity challenge**

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**Abstract:** This paper is one of the first to discuss service sector productivity in Palestine. We have empirically addressed the main factors that are responsible for growth in productivity in the Palestinian service sector, and discussed the impact of intra-sectoral heterogeneity on the growth of productivity using a panel data provided by the Palestinian Central Bureau of Statistics. The results show that FDI has a positive and significant influence on the growth of labor productivity. Capital-intensive service sectors have a high influence on the growth of labor productivity compared to other sectors, while public services and traditional services such as retail trade, the sale and repair of motor vehicles and land transport are the main areas responsible for weak growth in service productivity. The political instability also negatively affects the growth of productivity in the service sector. In order to increase productivity in traditional services, new policies should be adopted, based on the use of ICTs. Government should adopt an efficient plan aimed at absorbing the thousands of unskilled workers who lost their jobs inside Israel, and this should be based not on expansion of the public sector but on the rehabilitation of these workers, employing them in the various economic sectors.

**Keywords:** Services, productivity, economic performance, Palestine

**Introduction**

The Palestinian economy faces many challenges. Firstly, it is highly dependent on the Israeli economy - more than 73% of Palestinian imports of goods and services originated in Israel in 2010 (PCBS, 2012). Secondly, the restrictions imposed upon it by Israel impede the development of a viable Palestinian economy. These restrictions take several forms: control over raw materials, control over the borders of Palestinian areas and prevention of the construction of industrial zones. They result in political instability, and they distort the investment climate. Thirdly, the productive sector suffers from a lack of competences and financial resources in both public and private sectors. The Palestinian Authority mainly depends on foreign aid to support its budget. The final challenge results from the technological revolution and strong growth in ICTs seen over the past two decades; this has accelerated economic openness and trade liberalization, creating a high competitive pressure on the Palestinian fragile economy.

In the course of the past twenty years, Palestine has experienced a high increase in the significance of the service sector, in comparison with other productive sectors (manufacturing and agriculture). The service sector's share of GDP grew steadily from 50% in 1995 to 60% in 2009, while manufacturing sector's share fell from 21.3% in 1994 to 13.8% in 2009. Value added grew by 14.3% between 1995 and 2010, production by 13.3%, and labour by 7.3%. This confirms the fact that the Palestinian economy is a service economy, and that service sectors will be playing a leading role in the Palestinian economy in the coming years, strengthening its competitive power at both local and national levels.

Unlike other productive sectors, service activities in Palestine are characterized by their ability to emerge and develop in unstable and complex environments. In contrast to the manufacturing sector, which is heavily dependent on the import of raw materials from or through Israeli distribution channels, incurring high transaction costs and taking a very long time, development of the service sector is less dependent on availability of raw materials. The service sector in Palestine mainly depends on human resources - classified as skilled (education, knowledge-intensive services, etc.) and unskilled labour (retail and wholesale trade, hotels and restaurants, personal services, etc). Lastly, unlike the manufacturing sector which mainly depends on complex technologies and machines (costly and difficult to source), the service sector is able to exploit the progressing ICT sector.

Service sector productivity growth in Palestine was around 6.5% between 1995 and 2009, which is higher than the one experienced in other developing countries. For example, the growth of productivity in Middle East and North Africa (MENA) was only about 1.5% between 2000 and 2008 (UN national accounts, 2009). This higher growth of productivity is explained by the fact that the service sector in Palestine was very impotent before 1995 because of the Israeli occupation of the Palestinian lands, which impeded the development of service sectors. It should be noted that before that date some sectors like ICTs, financial services, R&D didn't even exist. It is only after the signing of the Oslo agreements between Israel and Palestine in 1993, that Palestine experienced a high development of its service sector, which led to a higher growth of the service sector productivity than that of other similar economies in the region or other developing countries.

However, the increase of the growth rate of the service sector productivity hides a high heterogeneity between service subsectors themselves. The data published by the Palestinian Central Bureau of Statistics (PCBS) in the last two decades show that between 1995 and 2009, traditional and public services experienced low growth in productivity (e.g. 6.77% for retail trade, 6.28% for transportation and 5.77% for hotel and restaurants) in comparison with some other sectors mainly new born ones (e.g. R&D grew by 200.7%, ICT by 30% and real state by 124.6%). This might negatively impact the overall productivity growth in the service sectors because the traditional and public services account for more than 90% of service firms and organisations in Palestine and employ more than 85% of employees, while the high productivity growth sectors are still very small sectors that employ low number of employees. In this context, in comparison with the manufacturing sector, the service sector productivity growth is slow. Between 1995 and 2009, productivity in the manufacturing sector grew by 9.1% - as against 6.5% in the service sector. Given that

the Palestinian economy is a service economy, this negatively influences the overall productivity.

To the best of our knowledge, this paper is the first to discuss service sector productivity in Palestine. Its main objective is to empirically determine the main factors that are responsible for the productivity growth, and the factors that explain the productivity growth gap between service and manufacturing sectors. A further objective of this paper is to discuss the intra-sectoral heterogeneity of the Palestinian service sector and its impact on the growth of productivity, and how the political instability in Palestine leads to such a heterogeneity.

This article is organized as follows: first, it provides a general overview of the service sector in Palestine, and then discusses the productivity challenge in services and the relationship between service development and productivity growth. Finally, it investigates the determinants of productivity growth in the Palestinian service sector using data provided by PCBS.

## **1. The Service sector in Palestine: a general overview**

Since 1970s, the service sector in Palestine has faced many restrictions and distortions which have hampered its growth and development. Until the mid-1990s, certain service sectors (such as the R&D, financial and telecommunications sectors) either didn't exist in Palestine, or were very small. Other sectors (such as air and sea transport) still do not exist in Palestine. In the past 20 years, following the Oslo Accords of 1993, much effort has been put in by both the private and public sectors in a bid to reform and restructure the service sector. This has resulted in an increased contribution by the service sector, in terms of GDP and employment, as well as fast growth in some service sectors such as the public sector, postal services and telecommunications, and the real estate sector.

### **1.1 Service sector dynamics in Palestine: two distinct periods**

The dynamics of the service sector in Palestine can be split into two distinct periods. The first of these is that of the Israeli occupation of the Palestinian territories. The second began in the mid-1990s after the Oslo Accords was signed between Israel and the Palestinian Authorities.

During the first period, Palestinian service sectors were focused on activities which facilitated Israeli domination of the Palestinian economy. This was true of retail and wholesale trade, which facilitated the flow of Israeli products into the Palestinian market, as well as of the land transport developed in order to freight Israeli products and transport the Palestinian labour force from Palestinian areas to Israel (Jafari et al. 2003; Naser, 2003). Other service sectors (such as the financial sector, tourism and telecommunications) grew very slowly due to occupation restrictions. Moreover, the strict restrictions imposed on international trade between Palestine and the rest of the world led to weakness in the support services for international trade, including international transport, marketing, insurance, refrigeration and storage (Jafari et al. 2003; Naser, 2003).

Some of these distortions in the service sector continued even during the second period, following the Oslo Accords and the establishment of the Palestinian Authority. If we exclude public services, then retail trade and repair of motor vehicles

and motorcycles are still the most prominent services in Palestine, comprising around 72% of the firms and employ more than 60% of the private sector labour force.

A large proportion of workers who were deprived of their jobs in Israel because of the political situation after the second Intifada<sup>1</sup> in 2000 were employed either in public services (mainly security forces) or in the retail trade, where most jobs are unskilled. For example, based on PCBS data, the number of employees in retail trade grew by around 7% in 2001 and 5% in 2002, i.e. the number of employees increased from 62,000 in 2001 to 70,000 employees in 2002.

In some services (such as knowledge-intensive services), the employment rate decreased because of the second intifada. For example, in the first year of intifada (2001), employment in real estate activities decreased by around 21%, R&D by 31% and ICT by 6%.

The second period saw changes in the structure of the service sector, such as the rising of new service activities like financial services, research and development, ICT services and tourism. The period of peace which followed the end of the first intifada, and the signature of the Oslo Accords in 1993, prompted the flow of Foreign Direct Investment - mainly in the financial and telecommunications sectors. Furthermore, local investors invested in sectors such as hotels, restaurants, and business services.

Nevertheless, the share of these activities in the value added, the production, the employment, and the productivity of the whole service sector remains very weak. Furthermore, these activities face tough competitive pressure from Israel and other countries in the region. For example, in 2009, only 3.1% of the labour force worked in postal services and telecommunications, 0.66% in computer and related activities and 0.26% in the R&D sector. The ratio of value-added to overall value in the service sector is less than 1% in computer and relative activities, R&D and real estate activities. There are many reasons for this: (I) the lack of corresponding competences under occupation, ii) Israel's persistent control over the movements of goods and people across the frontiers of the Palestinian territories, even after the Oslo Accords, iii) uncertainty in the sustainability of the peace period, which discourages foreign investors, iv) manufacturing sector weakness.

These structural weaknesses in the Palestinian service sector are not corrected by relevant public policy. This policy gap, which was evident during the occupation period, remains after the Oslo Accords. In contrast with other developing or emerging countries such as India, Malaysia or the Gulf countries, the Palestinian Authority does not establish any public policy to support the development of the service sectors in general or strategic capital and knowledge services where ICTs can play a prominent role in prompting growth in productivity. Most of the workshops, conferences and round tables held in the Palestine over the past two decades have focused on which policies should be adopted in order to develop the manufacturing sector - considered the only one likely to furnish growth and competitiveness.

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<sup>1</sup> Intifada or uprising is a description of the period in which the conflict between Israel and Palestine is active. The first Intifada was between 1987 and 1993.

The transportation sector is limited to land transport. Neither air nor water transport exists. Israel still does not allow Palestine to build an airport in the West Bank, and it destroyed the only airport in Gaza at the beginning of the second intifada. It still bans the construction of a seaport in Gaza - the only Palestinian channel to the Mediterranean Sea. Of course all these limitations have a strong negative influence on international trade, tourism, education, and hotels and restaurants.

The public sector in Palestine grew sharply after the institution of the Palestinian Authority, which employed thousands of employees in the ministries and public departments and in the security forces, in order to perform the functions transferred to it by the occupation authority. Therefore, between 1995 and 2000, the absorptive capacity of employment for the service sector (mainly in the public sector) grew by 5% annually, reaching 61% of the total labour force in 2000. This evolution mainly led to the rise of disguised unemployment, mainly in public services, and put huge pressure on the fiscal budget.

By the beginning of the second intifada in 2000, public sector employment increased at a fast pace because – as we mentioned earlier – many of the employees who lost their jobs in Israel because of the second intifada in 2000 were employed in public services. For example, the proportion of workers in the public sector in the West Bank increased from 19% in 2000 to 23% in 2002, and from 31.5% in 2000 to 41.4% in 2002, in the Gaza strip. It should also be noted that the employment rate of Palestinians in Israel decreased from 18.8% in 2000 to 9.3% in 2002.

There was no economic justification for increased public sector employment; this was just an unstudied strategy implemented by the Palestinian government in order to solve the severe unemployment caused by the second intifada. Obviously, the productivity of labour in the public sector heavily declined, given that the increase in labour was not offset by equivalent increases in value-added or production.

While the wages of employees in the public sector were increasing, average weekly hours worked - and therefore production - was declining. For example, the average weekly hours worked in the public sector fell from 41.86 in 1999, 39.1 in 2001 to 24.41 in 2010. In contrast, the hourly wage increased from 7.69 NIS in 1999, 7.89 NIS in 2001 to 11.93 NIS in 2010 (Daoud and Shanti, 2012).

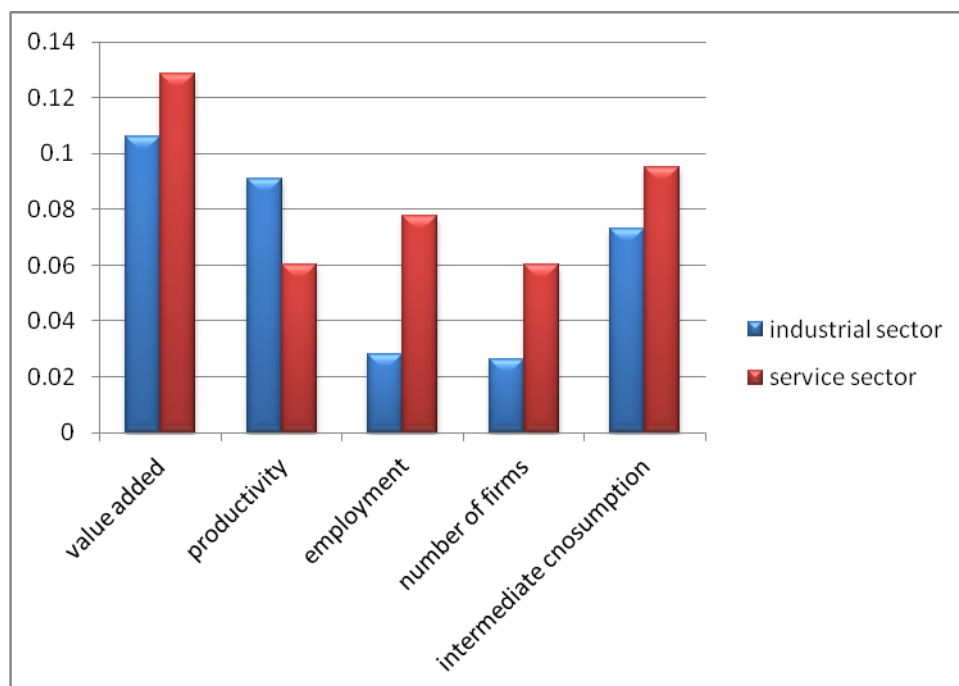
## **1.2 The economic performance of the service sector in Palestine**

In this section we describe the economic performance of services for the period 1995-2010, using indicators such as international trade, number of employees, number of firms, value added, etc. We begin with a general comparison of the service and manufacturing sectors, before addressing the service sector by its various subsectors, and finally we consider foreign trade in services.

### **1.2.1 Service Sector vs. Industrial Sector**

As illustrated by several indicators in Figure 3, with the exception of productivity, service sector performance was better than industrial sector performance over the past two decades.

**Figure 3:** Growth in value added, productivity, employment, number of firms, and intermediate consumption between 1995 and 2010 in the service and industrial sectors



Source: Author calculation based on PCBS data

The service sector employment growth rate was 3 times higher than that of the industrial sector. This is mainly due to the occurrence of the second intifada in 2001, which led to the closing of many industrial firms because of Israeli restrictions on the import of raw materials and the long siege against Palestinian cities (especially Nablus, the main industrial city). Furthermore, as mentioned above, many of the employees who lost their jobs in Israel were absorbed by the service sector - mainly into public defense and the retail trade. According to PCBS data, for example, in 2001 the employment rate increased by 6.6% in the service sector - whereas in the industrial sector, it decreased by 15%.

The increase in number of firms, value added and intermediate consumption was also higher in services than in manufacturing. In 2010, 66.9% of employees in Palestine were employed in the service sector, and the service sector contributed to around 66% of value added (see Table 1). This confirms our previous statement that Palestinian economy is a service economy

**Table 1:** Distribution of value added, production, employment, number of firms, and intermediate consumption between Palestinian economic sectors in 2010.

	Ratio of value added	Ratio of intermediate consumption	Production ratio	Employment ratio
Service sector	66.2%	31.6%	54.3%	66.9%
Industrial sector	25.2%	52.1%	34.3%	19.5%
Construction sector	3.4%	7.6%	4.7%	1.67%

Agriculture sector	5.2%	8.7%	6.6%	11.8%
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### 1.2.2 Service Sector Structure in Palestine

Table 2 shows that there is a high level of heterogeneity between service sub-sectors in terms of major economic indicators such as employment rate, number of firms, output and value added, etc. This heterogeneity is however not specific to the Palestinian economy, since it holds true for all service economies.

**Table 2:** Percentage of firms, employees, compensation of employees, output, intermediate consumption and value added in service sector in 2009

Sector	Value added (%)	Intermediate consumption (%)	Output (%)	Compensation of employees (%)	# Of employees (%)	# Of firms or institutions (%)
Sale and repair of motor vehicles	9.20	10.38	9.41	6.76	9.20	8.98
Wholesale trade	9.50	5.61	8.72	4.53	3.65	2.36
Retail trade, repair of personal goods	28.8	31.1	29.31	16.05	43.89	59.45
Hotels and restaurant	4.20	11.16	5.64	4.92	6.39	0.562
Land transport	1.60	4.08	2.13	2.90	1.57	0.52
Supporting & auxiliary transport	1	0.85	0.96	0.66	0.55	0.44
Postal services and telecommunication	23.6	8.72	20.67	11.20	2.22	0.38
Real estate activities	0.27	0.39	0.29	0.27	0.17	0.21
Renting of machinery without operator	0.32	0.29	0.31	0.18	0.40	0.43
Computer and related activities	0.34	0.51	0.38	0.47	0.48	0.62
R&D	0.36	0.19	0.32	0.93	0.19	0.05
Other business activity	2.59	4.32	2.94	4.31	3.61	3.59
Education	6.52	5.94	6.40	24.14	8.75	2.57
Health and social work	6.01	7.88	6.39	10.58	6.62	4.66
Sewage and refuse disposal	0.01	0.02	0.01	0.02	0.01	00
Membership organisation activities	2.43	3.56	2.66	8.83	5.54	2.00
Recreational culture and sporting activities	1.31	1.63	1.37	1.63	2.50	2.08
Other service activity	1,78	3.37	2.10	1.63	4.25	6.02

**Source:** Author calculation based on PCBS data

In 2009, distribution and social services represented the largest service sectors in Palestine, in terms of employment. Retail trade accounted for nearly 44% of employees and 59.5% of firms, and social services accounted for around 28% of



employees and 17% of firms in the service sector. Other personal services such as the sale and repair of motor vehicles accounted for around 9% of employees and 9% of firms in the service sector. This result confirms that the distortions introduced by more than 30 years of occupation are still alive and kicking after the Oslo Accords.

Knowledge-intensive and capital-intensive services such as postal services and telecommunications, R&D, computer and related activities and business activities still accounted for just a small share of employees and firms in the service sector. For example, the computer and related services and R&D sectors respectively account for around 0.4% and 0.1% of employment in the service sector. This result illustrates the weak interest in knowledge and R&D services in Palestine, which will negatively affect the ability of the economy to innovate and develop.

Except for postal services and telecommunications, the value added and output of these sectors represent only a small share of the value added and the output of the whole service sector. For example, the value added for computer and R&D activities accounts for less than 1% of the total, indicating weak performance of these sectors in Palestine.

The relatively high proportion of value added and output of the postal services and telecommunications sector (around 20% for output and 24% for value added) in Palestine illustrates the prominent role that this sector is playing, and appeals for more investment in it, as well as its inclusion in the core interest of public policy.

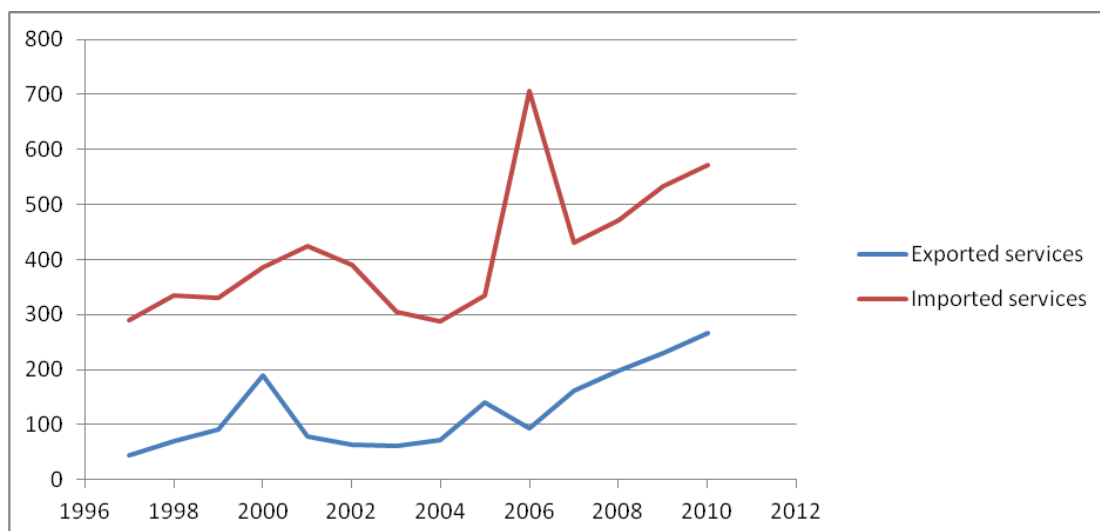
The public sector contribution to value added and output is relatively low. For example, value added was around 6% in both education and the health sector, 2% in activities of membership organisation and 1% in recreational culture and sporting activity. Taking into account the high level of employment in these sectors, the productivity level will be negatively impacted.

### **1.2.3 International trade in the service sector**

International trade in the service sector has steadily grown over the past two decades (see Figure 2). Based on Palestinian Central Bureau of Statistics (PCBS) data, Figure 2 shows that service exports increased from \$44.1 million in 1997 to \$266.1 million in 2010. Service imports also increased from \$290.2 million in 2007 to \$572.2 million in 2010.

The gap between service and industrial sector exports is decreasing. The ratio of service to industrial exports increased from 11.5% in 1997 to 46% in 2010. This is mainly related to the growth of the service sector over the past two decades and to the service sector's aforementioned ability to deal with the political situation in Palestine and bypass barriers impeding goods and peoples movements. The improvement of security and the political situation since the end of the second intifada in 2006 has led to growth in some service sectors - the tourism, hotel and restaurant sectors, for example - through the influx of tourists, mainly to religious sites in Jerusalem and Bethlehem.

**Figure 2:** International trade in services between 1997 and 2010



Source: Author calculation based on PCBS data

## 2. The productivity issue in the service sector

Productivity is the basic economic indicator built to measure production efficiency and economic growth. It is defined as the relationship between output and the inputs necessary to produce it. This definition is built on the hypothesis that the output is tangible and well defined (therefore relatively easy to measure). However insofar as they concern intangible and interactive products, services raise important issues about the definition and measurement of productivity (Delaunay and Gadrey, 1987; Hill, 1977; Gadrey, 1996, 2000; Djellal and Gallouj, 2008). We consider some of these prior to discussing the relationship between development of the service sector and growth in productivity.

### 2.1 Measuring productivity in the service sector

The measurement of productivity in manufacturing raises several problems and issues which have been addressed at length in the literature (Schreyer, 1996; Gullickson and Harper, 1999; Nordhaus, 2000). In services, the problems are more severe (Djellal and Gallouj, 2008; Maroto and Rubalcalba 2008; Wölfl, 2004; Bosworth and Triplett, 2000; Griliches, 1992) and given that world economies are now mainly service economies, the mismeasurement and underestimation of service productivity is likely to lead to an incorrect evaluation of overall economic performance. The productivity gap between the manufacturing and service sectors is also related to measurement issues.

The main difficulty in measuring service productivity lies not in the definition and measurement of inputs (labour and capital) but in the identification and definition of output. These difficulties are related to the fluid nature of the service process, the intangibility and invisibility of service production and the co-production or co-creation of many services.

For example, Maclean (1997) states that production in the service sector is underestimated mainly in financial services, real estate, business and personal services, because of their intangible nature and because their quality depends on the inputs provided by users of the services in question.

Recent measurement experiments consider complementarity between productivity and quality (Johnston and Jones, 2004; Van Ark, 2006). In other words, in order to measure productivity, they use such indicators as utility, quality, availability, etc. This has changed the value of productivity in many countries, to reflect the service sector's actual role in the economy (Triplett and Bosworth, 2007).

## **2.2 The relationship between service sector development and growth in productivity**

The relationship between service sector development and growth in productivity is more apparent in developed countries. Growth in productivity comes mainly from productive services (ICT services, R&D, KIBS, telecommunications, transportation, etc.) and the intensive use of ICTs in most service sectors.

Several reasons push developed countries towards introducing drastic changes in their strategies with regard to development of the service sector and stimulation of service productivity. Firstly, most developed countries are now service economies in which the service sector accounts for the largest proportion of both GDP and employment. Secondly, the proportion of service products in international trade is steadily increasing in most of these countries. It is therefore important to adopt new policies, intertwined with globalization and open market operations. Thirdly, many service activities which had been protected by monopoly power have become open to competition and require new policies aimed at encouraging investment and increasing competition.

Productivity is affected by numerous factors: at human level (skills, experience, training, education, etc.), firm level (organisation structure, innovation, technology, etc.), and national level (economic growth, regulation, public policy, globalization, openness, etc.).

In the case of South Korea, Jones (2009) explains the fact that labour productivity growth in the service sector has been weak (relative to manufacturing) by weak competition in services resulting from strict product market regulation, a low level of import penetration and inflows of Foreign Direct Investment (FDI). This demand eliminating domestic entry barriers, reducing barriers to trade and FDI inflows, reforming regulations and laws, and upgrading competition. Another challenge aimed at accelerating growth in service productivity in South Korea is the restructuring of small SMEs (which account for more than 90% of employment in the service sector) focusing on high-growth potential service sectors such as financial services and telecommunications.

Many works consider labour productivity in the service sector to be affected by globalization and trade liberalization (Sjoholom, 1997; Javantha Kumaran, 1999; Chin Chen and Yir-Hueih, 2000; Mei Hsu & Been-Lon Chen, 2000; Phan, 2004). Sjoholom (1997) found that the openness strategy in Indonesia led to increased service trade as well as improved service productivity. The same result has been established for Thailand (Javantha Kumaran, 1999), Australia (Phan, 2004) and South Korea (Kwak, 1994).

Foreign Direct Investment (FDI) is one of the most important outputs of globalization. It leads to the inflow of knowledge and technology (technology spillover), skills and experiences of developed economies. The positive relationship between FDI in the service sector and labour productivity has been experienced in many countries. In Taiwan, Mei Hsu & Been-Lon Chen (2000) found that FDI in the service sector (mainly in SMEs) led to increased service exports and labour productivity. Chin Chen and Yir-Hueih (2000) studied the relationship between FDI and service productivity in 10 Asian countries, finding a positive relationship based on the ability of these countries to absorb foreign knowledge and technologies. Koirala and Koshal (1999) established that FDI in Nepal led to increased productivity in foreign firms, in comparison with local firms. This was mainly due to greater use of capital-intensive technology. Similar results were reported in the case of South Africa by Robert and Thoburn (2004), who found that FDI in the textile sector led to a major increase in labour productivity, due to the intensive use by foreign firms of capital technology.

Lack of experience, skills and knowledge in the service sector limits local economies' ability to take advantage of FDI. Local employees might not be able to deal with modern technology or absorb skills and experiences originating in foreign countries (Ismail et al. 2010).

The literature also addresses the relationship between immigration and the economic performance of home country, leading to ambivalent conclusions.

Some studies underline the positive impact of immigration on the economic performance of sending countries. This is mainly due to increasing income from remittances, access to finance for starting new businesses, increasing ability to smooth consumption, and tapping into the knowledge and resources provided by the international community (Azam and Gubert, 2006). According to Ratha et al. (2010) migrants from developing countries sent over \$315 billion to their origin countries in 2009.

Other studies underline the negative impact for immigration. For example, Bhagwati & Hamada (1974) and Stark & Wang (2002) disagree on whether immigration is good for sending countries. Immigration of high skilled labor or the so-called "brain drain" can cause a loss of public resources invested in their education, reduce the productive capacity, and worsen the business environment mainly in the sectors which need for high skilled labor like knowledge intensive business services, ICT, health and education.

It is difficult to understand the economic performance of Middle East economies (Palestine, Lebanon, Syria, Jordan, etc), only relying on economic factors as explanatory variables. Political variables in countries experiencing (civil, political or armed) conflicts play an important role. The literature provides many references that establish a negative relationship between political instability and economic performance (Evia et al. 2008; Polachek and Sevastianova, 2010; Alesina et al. 1996). Political instability can distract resources away from production, tends to reduce investment and is therefore likely to reduce economic growth and productivity.

### **2.3 Strategies to enhance service productivity in developing countries**

Developing countries have adopted a set of strategies to prompt the growth of the service sector and to enhance the overall economic performance. In particular, during the last two decades, many developing countries have introduced regulation reforms in order to attract local and foreign investments and facilitate trade in services. Therefore service exports in developing countries have been steadily growing over the last two decades, even more than in most of developed countries.

In the Middle East, the service sector experienced significant changes in policies and regulations, with the aim to enhance the contribution of service sector in economic growth and productivity. For example, according to Dubai Chamber of Commerce Statistics, the United Arab Emirates' investments in the service sector increased from 40% in 1985 to 72% of total investments in 2003, which led to increasing the share of the service sector in GDP from 38% in 1985 to 71% in 2003.

In Jordan, which economy is similar to the Palestinian economy in terms of structure and scarcity of natural resources, the government adopted a set of policies to develop the service sector and to prompt its overall productivity. First, in 2000 the government offered tariff and tax reduction for investment projects in many service sectors like hotels and restaurants, hospitals, shipping, railways, tourism, distribution of water. Second, it launched the Jordan Services Modernization Program “JSMP” in cooperation with private sector and NGOs. This program supports SMEs in the service sector in order to increase their competitiveness in local and international market and enhance the share of service products in Jordanian exports.

In Egypt, despite the high contribution of the service sector in GDP (more than 55%), the potentials of this sector are not exploited efficiently, and therefore its productivity is still low (Ghoneim and Helmeiy, 2007). Many of the service sub-sectors are not exploited enough either for local or for international demand. The contribution of the service sector in GDP mainly involves tourism and transportation (Suez Canal). Ghoneim and Helmeiy denote that both public and private policies should be directed towards the adoption of an overall reforming plan where capital and knowledge intensive services should play a prominent role in order to enhance the productivity in the service sector,

### **3. Determinants of Productivity in the Palestinian Service Sector**

The service sector has grown steadily in Palestine over recent decades. It now accounts for the largest share in terms of value added, number of firms, employment, and GDP. However productivity growth in services is weaker than in the industrial sector

The purpose of this section is to try to establish which factors result in productivity growth in the service sector. This will help determine factors or policies which could help bridge the productivity gap with the industrial sector.

There is high fluctuation in service sector productivity growth. This is mainly related to the complex political situation in Palestine, and the restrictions imposed by Israel. For example, productivity growth fell by nearly 29% between 2000 and 2002, then grew by almost 21% in 2003. The highest productivity growth rate was in 2008, one year after application of the economic reform plan adopted by Prime Minister Salam

Fayyad, which entailed building vital infrastructures and institutions for a Palestinian state, attracting FDI mainly in telecommunication and financial sector, and cleaning up corruption.

### 3.1 Methodology and Empirical Approach

The difficulty of accessing data about certain economic indicators in Palestine has hampered the construction of a comprehensive model which includes all variables likely to impact productivity growth. For example, the literature considers laws and regulations, use of technology, and innovation to play a significant role in improving productivity growth in the service sector - yet there is no available data about such variables in Palestine.

Furthermore, the Palestinian Central Bureau of Statistics (PCBS) only provides sectoral-level data (as opposed to firm-level); we are therefore limited, here, to sectoral-level analysis.

In this section, we develop an econometric approach to analyzing the determinants of growth in labour productivity in the service sector, using panel data for the period between 1995 and 2009. A sample size of 234 is used; this was obtained by multiplying the number of service sectors (18) by the number of years between 1997 and 2009 (13). The data about both the dependent and independent variables are obtained from the PCBS which provides this kind of data starting from 1995.

We conclude that a fixed effects approach will be preferable in scenarios. Using the Lagrange multiplier test, we found the data structure to be consistent with panel data; pooled OLS regression is therefore not the appropriate method for estimating our relationship. Secondly, using the Hausman test, we found a correlation between the individual characteristics of service subsectors, and other independent variables.

In the fixed effect model, 17 dummy variables are defined for each of the service sectors, while sewage and refuse disposal sector is used as a reference sector for building the dummy variable.

Given the methodological issues outlined above, our empirical approach is based on the following equation:

$$Productivity_{it} = \beta_0 + \beta_1 (ci/firm)_{it} + \beta_2 (nb\_firm)_{it} + \beta_3 FDI_{it} + \beta_4 (exp/output)_{it} + \beta_5 K_{it} + \beta_6 (migrant) + \beta_7 D_1 + \beta_8 D_2 + U_i$$

*Productivity* represents the dependent variable which is measured using labour productivity (value added/# of employees). We use the growth in labour productivity between two years because it offers a dynamic measure for economic performance. *Ci/firm* is the growth ratio of intermediate consumption to number of firms in each sector, which measures the impact on labour productivity of firms' use of intermediate consumption. *Nb\_firm* accounts for the growth rate in number of firms in each service sub-sector. Data shows that the service sub-sectors having a high growth rate in the number of firms are characterized by the highest labour productivity growth rate. *FDI* represents the share of Foreign Direct Investment in each service sector. FDI has increased sharply in the last two decades. It increased from \$595.5 million in 1997 to \$1378.3 million in 2010, which confirms the prominent role played

by FDI in the Palestinian economy. *Exp/output* represents the growth of ratio of export to output. This variable measures the degree of service sector globalization and openness, which, in many countries, plays a significant role in pushing productivity growth. Sectors which seek to enhance exports should improve competitiveness and therefore production efficiency. *K* is growth in capital input employed by the service sector. Firm-level data usually shows a positive relationship between large firms and labour productivity. *DI* is a dummy variable for capital intensity sectors ( $DI=1$  if the service sector is capital intensive). If  $K/L$  is above average value then the service sector uses capital-intensive technology. Many studies found a significant relationship between intensity of labor and productivity growth. *D2* is a dummy variable denoting the political instability, which equals one if the conflict between Palestine and Israel is active, and zero if not. In this view, the period between 1995 to 2009 is divided into three phases. The first from 1995 to 2000 after the signing of Oslo Agreement experienced a state of stability and relative prosperity and growth in investments in most of the economic sectors. The second is the period of 2<sup>nd</sup> Intifada between 2000 and 2005. It negatively impacts most of the economic sectors because of the destruction by Israel of the infrastructure, the invasion of Palestinian areas, the closure of Palestinian areas by hundreds of checkpoints which highly impeded the trade between different areas inside Palestine and between Palestine and other countries. The third period between 2006 and 2009 experienced a high decrease in violence between, although 2008 has experienced an Israeli war against Gaza. The variable “Migrant” represents the number of international migrants from Palestine. This variable measures the effect of immigration on the economic performance of the service sector. It is expected to have low impact on the productivity growth of the service sector. Based on PCBS data, the number of emigrants from Palestine is considered low in comparison with countries that experience political instability. This is attributed to the bad 1948 experience of Palestinian people regarding displacement and emigration. For example, based on PCB data, the number of emigrants in 2009 was only 7,122 persons, and 35% of them are students, meanwhile, the number of returnees to Palestine was 6,426.

### 3.2. Results and Discussion

Table 3 summarizes the main results of the regression equation estimation. Durbin Watson test of autocorrelation shows no existence of autocorrelation, and Wald test denotes no trace of heteroscedasticity. The level of determination of the independent variables gives  $R^2$  around 0.96, which means that they explain around 96% of the change in the growth of productivity. The degree of tolerance for the independent variables gives values less than 10, which means no multicollinearity in the model.

We found that the ratio of intermediate consumption to number of firms has no significant impact on labour productivity. This means that sectors with strong growth in intermediate consumption do not necessarily have strong growth of production. For example, intermediate consumption in the retail trade grew by 12% between 1995 and 2009, whereas productivity grew by only around 7%. A similar result holds for hotels, restaurants, and computer activities. This result contradicts the findings of Rao et al. (2004) who concluded that intermediate input intensity is the most important contributor to labour productivity in the USA service sector. This contribution might be explained by the nature of the intermediate inputs. Indeed ICTs and knowledge account for a high proportion of intermediate consumption in developed countries - which is not the case in developing countries.

Strong growth in the number of service firms has a positive impact on labour productivity. This is illustrated by postal services, telecommunications, and R&D. For example, postal services and telecommunications have strong growth in both number of firms (around 370%) and productivity (around 30%) between 1995 and 2009. Public policy should thus be oriented toward prompting investment in knowledge-intensive services such as R&D, real estate services, and capital-intensive services such as postal services and telecommunications.

In our analysis, FDI (which is mostly in postal services and telecommunications and financial services) has limited influence on the growth of service productivity. This result is not consistent with Jones (2009) or Mei Hsu & Been-Lon Chen (2000), who establish that higher FDI inflow leads to higher labour productivity in the service sector. The low impact of FDI on productivity growth (around 0.07) is explained by the fact that FDI is still weak in Palestine because of the political situation and Israel's control over more than 85% of Palestinian lands.

Export growth has no significant impact on growth of labour productivity, which is mainly related to fluctuation in trade in services, due to the political situation and the second intifada. Furthermore, the trade liberalization policies implemented in Palestine were mostly not beneficial to the Palestinian economy. They led to a rise in the trade deficit, especially given the restrictions on the movements of goods and services imposed by Israel. For example, Israel's control of the borders between Palestine and the rest of the world, as well as its checkpoints between cities, restrict the flow of tourists into Palestine. This is limited to holy cities such as Jerusalem and Bethlehem, and causes significant harm to the tourism, hotel and restaurant sectors.

Capital growth has a positive impact on labour productivity, which is consistent with the results provided by the literature.

**Table 3:** Results of growth determinants in service productivity estimation

Variable	Coefficient	T-test
g_(Ci/firm)	-0.122	0.304
g_nb_firm	0.481	0.003***
g_FDI	0.073	0.003***
g_(export/output)	1.676	0.88
g_(K)	0.213	0.02**
D1	0.598	0.001***
D2	0.195	0.049
Migrants	0.913	0.77
<b>Service sector</b>		
Sale and repair of motor vehicles	0.167	0.51
Wholesale trade	0.875	0.001***
Retail trade, repair of personal goods	-0.10	0.74
Hotels and restaurant	0.489	0.075*
Land transport	0.640	0.15



Supporting & auxiliary transport	0.632	0.02**
Postal services and telecommunications	1.08	0.00002***
Real estate activities	0.91	0.001***
Renting of machinery without operator	0.39	0.188
Computer and related activities	0.65	0.19***
R&D	0.75	0.006***
Other business activity	0.3	0.329
Education	0.53	0.0005***
Health and social work	0.23	0.665
Sewage and refuse disposal	2.1	0.412
Activities of membership organization	0.88	0.32
Recreational culture and sporting activities	0.54	0.22
Other service activity	0.99	0.103
N	234	
Lagrangian Multiplier Test (chisq = 24.7621, p-value = 6.486e-07)		
Hausman Test (chisq = 10.674, p-value = 0.00898)		
R <sup>2</sup> = 0.96		
Durbin Watson test= 2.02		
Wald test for heteroscedasticity P-value=0.65		

\*Significant at 0.10 level of significance

\*\*Significant at 0.05 level of significance

\*\*\*Significant at 0.01 level of significance

In line with the literature (Rao et al. 2004; Uppenberg and Strauss, 2010), we note that capital-intensive business services have more impact on labour productivity than labour-intensive services. This is also consistent with the fact that capital-intensive services are characterized by a strong productivity growth. For example, PCBS data indicates that postal services and telecommunications productivity grew by 30% between 1995 and 2010.

This result provides an explanation for the weak performance of the Palestinian service sector regarding productivity growth. Indeed most service sectors in Palestine are labour-intensive (trade, sales and repair of motor vehicles, and hotels and restaurants). Furthermore, they mainly employ unskilled workers.

More than 12,000 students graduate from Palestinian universities every year, yet in 2010 around 45% of them remained unemployed (PCBS, 2010). Skilled labour is thus not appropriately exploited in the service sector. Furthermore, even those graduates who are employed lack the relevant skills and trainings needed in their jobs. This results in the creation of a gap between the service sector growth and productivity growth within the service sector.

To increase the labour productivity in the service sector, the government should adopt a national programme for the rehabilitation of the thousands of workers who lost their jobs in Israel after 2001, upgrading their abilities and merging them into the Palestinian economy in a rational way. Universities and private organizations should implement innovative programs in order to enhance the abilities and know-how of graduates. This will enable service activities to employ them appropriately and enhance their productivity. Furthermore, to meet international standards, most service sectors - and especially distribution services - should invest much more heavily in knowledge and ICTs within their supply chain.

The impact of the political instability and the increase of violence between Israel and Palestine will weaken the growth of productivity in the service sector. During the period of second Intifada between 2000 and 2005, Israel laid siege to the Palestinian areas with hundreds of checkpoints between cities and villages, as well as daily invasions of the Palestinian areas, which seriously affected all the economic activities in Palestine. Negative influence on service sectors was apparent mainly in retail trade, wholesale trade, transportation, tourism and real state because of checkpoints and Israeli destructions of infrastructure (mainly roads),.

Result of regression analysis shows no significant impact of migration on the growth of productivity. This result is normal given that the period of study didn't experience a remarkable migration from Palestine, even the period of second Intifada when the socio-economic situation in Palestine was very miserable. Palestinian people had a bad experience with migration in 1948 (when the State of Israel was created); they left their houses for a short period to protect their life and then became refugees in all over the world until present.

With the exception of the education sector, public services have no significant impact on productivity growth in the service sector. This confirms weak productivity among workers in public services. With regard to the education sector, Palestine has the lowest illiteracy rate in the Arabic countries. According to the Palestinian Central Bureau of Statistics, illiteracy was 6% in 2009, and the rate of enrolment in basic education (grades one to ten) has steadily grown over the past two decades. The Ministry of Higher Education has taken into account relevant policies and documents developed nationally and internationally in order to improve the performance of the education sector, including (a) The Palestinian Reform and Development Plan 2008-2012; (b) The Education for All Plan and its Terms of Reference; and (c) The Millennium Development Goals.

Postal services and telecommunications have the highest impact on the growth of productivity. This sector combines high use of capital-intensive services, a large share of FDI, high employment of skilled labour (engineers, IT experts, accountants, and consultants), and high growth of value added. It is also considered the most innovative sector, thanks to the diversity of services it offers, its processes and marketing approaches.

The real estate sector has also a very positive impact on productivity growth. This is related to high growth in the construction sector following the Oslo Accords and the construction of the Palestinian institutions. Furthermore, the construction sector attracts most investors due to the high demand for housing in Palestine.

ehT R&D sector also has a strong effect on the growth of labour productivity. This is related to the outstanding efficiency of workers in this sector, who are mostly well-educated and highly skilled workers. Demand for R&D services is also rising in other sectors such as telecommunication, financial services, drugs manufacture, etc. In developed countries, R&D is one of the most productive sectors in the economy, leading to spillover effects on all other economic sectors and enhancing overall economic productivity. However, in Palestine, this sector suffers from a lack of interest from both public and private sectors. For example, R&D accounts for less than 0.1% of employment and less than 0.05% of number of firms in the service sector in 2009. Neither the Ministry for Higher Education, nor most Palestinian universities allocate a budget to R&D.

The hotels and restaurants sector is characterized by low impact on productivity growth, despite having seen strong growth following the Oslo Accords. This may be consistent with the restrictions imposed by Israel on the tourism sector. Many foreigners who come to visit the holy sites in Jerusalem and Bethlehem have to travel via Israeli airports, and these visitors are used to book hotels inside Israel. Moreover, Arabs from most Arabic countries are not allowed to enter Palestine. The Palestinian ministry of tourism should also adopt a plan to encourage tourism in the Palestinian area, encouraging the use of ICT (internet, facebook, etc.) in particular. The private sector should also invest more heavily in restaurants and hotels, using ICT to connect them.

Traditional service sectors in Palestine such as retail trade, or the sale and repair of motor vehicles and land transport, have no significant impact on productivity growth in the service sector. This confirms what we have mentioned previously about weak productivity growth within these sectors, the unskilled nature of the labour force, and the limited use of capital-intensive technology and ICTs. Land transportation is hampered by the many impediments introduced by hundreds of Israeli checkpoints throughout the Palestinian areas, and infrastructure weakness - especially the absence of major roads and railway lines between cities.

## **Conclusion**

In this work, we have empirically addressed weak productivity growth in the Palestinian service sector. The results show that those sectors with strong growth in intermediate consumption do not necessarily have strong production growth, whereas sectors with strong growth in number of firms have a positive impact on the growth of labour productivity. Trade liberalization policies implemented in Palestine were inefficient in enhancing the growth of labour productivity in services. Trade in services still suffers from a deficit, mainly due to Israeli restrictions against the Palestinian economy. FDI has a positive and significant influence on the growth of labour productivity – providing a clue as to the role FDI are likely to play in developing countries, given their ability to provide spill-over effects in terms of new knowledge and technologies. FDI should therefore be directed towards capital-intensive services and business services, in order to prompt the growth in these sectors which will go on to enhance growth in labour productivity. Capital-intensive service sectors have a significant influence on the growth of labour productivity. Therefore, in

order to increase their contribution to productivity, service sectors should invest far more heavily in new technologies - mainly ICTs. The international migration of Palestinian people has no significant impact on the productivity growth of the service sector, which is related to the low ratio of migration in the last two decades. It appears that the period of active conflict and violence negatively affects the growth of service productivity. This means that the stopping of the Israeli occupation of the Palestinian areas is one of the key factors likely to enhance the productivity of service sector in Palestine.

Public services and traditional services such as retail trade, the sale and repair of motor vehicles and land transport are the main areas responsible for weak growth in service productivity. These sectors employ more than 80% of service sector employees, yet they suffer from weak productivity growth which strongly influences overall growth of service productivity. Capital-intensive and knowledge-intensive services have a high impact on service productivity growth - but up until now, these constitute only small sectors in terms of number of firms and employment rates, and are not able to drive the productivity growth rate in the service sector.

To increase productivity in traditional services, new policies should be adopted, based on the use of ICT by service firms or public institutions. Government should adopt an efficient plan aimed at absorbing the thousands of unskilled workers who lose their jobs inside Israel, and this should be based not on expansion of the public sector but on the rehabilitation of these workers, employing them in the various economic sectors.

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