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Tertiarisation of the Productive System of Slovakia: an Input-output Approach[1]

Yulia Melikhova[2] – Ladislav Bažó[3] – Ivana Holubcová[4]

Abstract

The aim of the paper was to study the process of tertiarisation of the Slovak economy during the period between 1995 and 2009 and to analyse the relations of services with the rest of productive activities. The empirical study conducted in this work is based on the data from the WIOD symmetric input-output tables. The main trends of the structural transformation of Slovak productive system in analysed period was that services (mostly business services) increased their share (in term of value added) within the whole economy and the overall degree of tertiarisation rose. Domestic services not only increased their capacity to encourage their own production but intensified their relations with the rest of the economic activities.

Key words

Services, tertiarisation, Slovak economy, input-output analysis

JEL Classification: C67, E23, F23, F62, O14

Introduction

During more than 40 years Slovak economy, being part of the former Czechoslovakia had been focusing all its efforts on the development of manufacturing. Such a strategy had its positive effects as Czechoslovakia had the highest standard of living among the socialist states (Baláž, 1995). After the dissolution of Czechoslovakia and the introduction of market reforms, services began to increase their importance within the economy. Although there are studies that show that the degree of tertiarisation of the Slovak economy is still relatively low (Camacho et al., 2012) The objective of this paper is to study the process of tertiarisation of the Slovak economy during the period between 1995 and 2009 and to analyse the relations of services with the rest of productive activities. For this purpose the input-output tables will be employed. The methodology based on the input-output analysis appears to be a very useful tool for the study of the interrelations taking place between different economic activities within a productive system.

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[2] Yulia Melikhova, Researcher; University of Granada, Institute of Regional Development, Edificio Centro de Documentación Científica, C/ Rector López Argüeta, s/n, E-18071 Granada (Spain); E-mail: yulia.melikhova@gmail.com

[3] Ladislav Bažó, Ing., PhD.; University of Economics in Bratislava, Faculty of Commerce, Department of Tourism and Services, Dolnozemská road 1, 852 35 Bratislava (Slovakia); E-mail: ladislav.bazo@euba.sk

[4] Ivana Holubcová, Ing., PhD.; University of Economics in Bratislava, Faculty of Commerce, Department of Tourism and Services, Dolnozemská road 1, 852 35 Bratislava (Slovakia); E-mail: ivana-h@yahoo.com

The remainder of the paper is organized as follows. The first section is dedicated to the presentation of the most important changes the Slovak economy has been experiencing since the beginning of the 1990s. In the second section, the main methodology is briefly introduced. The third section is dedicated to the empirical analysis. In the first place, the general situation on evolution of services participation within the Slovak economy is presented. After that, applying the methodology proposed, the tertiarisation effects are calculated and presented, first, at the level of the whole economy and then, at the level of economic activities. The main findings of the work are summarized in the last section.

1 An Economy in Transition

Slovakia has traditionally had a strong focus on heavy industry. The country started its transition as a part of the Czechoslovak federation. As all countries in transition, Czechoslovakia experienced a deep transition recession during the 1991-1992 period (Baláž, 1995; Zemanovičová, 2000; Strážovská, 2010). The Slovak economy was hit much harder than its Czech counterpart as its industrialization during the communist period made it more dependent on CMEA (Council of Mutual Economic Assistance) markets and assigned it the position of a processor of raw materials and producer of simpler manufactures. In late 1992, Czechoslovakia split into two independent states. As a consequence, Slovakia experienced the following problems: deformed prices, undeveloped competitive environment and economic losses arising from the division of property.

The government in 1994 decided to change the economic situation and adopted a new privatization strategy. The strategy focused on selling the large industrial enterprises, especially those in the chemical, oil and paper industry as well as metallurgy that formed a backbone of the Slovak economy by means of their export earnings. The beneficiaries were domestic investors, with dominant shares of top managers and/or businessmen. The aim was to create a domestic business/investor class that would restructure the economy and take it forward. In reality, nearly all the major enterprises were later resold to strategic foreign investors either voluntarily or due to insolvency (Beblavý, 2010; Strážovská, 2010).

The years 1998-2002 were also years of dynamic industrial restructuring following the collapse of the previous model. Large state-owned banks, technically insolvent by 1998, were consolidated and privatized, together with many utilities. The economic reforms (taxation, healthcare, pension, and social welfare systems) opened the country to potential investors and to objective to join the EU. The Slovak government gradually implemented various structural reforms, which together with the inflow of FDI and other factors, contributed to impressive GDP growth rates in the last decade.

Building upon manufacturing traditions, Slovakia's industries that attract a large number of foreign investors eager to take advantage of a cheap and skilled workforce, favourable tax rates, geographic location and a relatively liberal labour code are automobiles and electronics. The first significant investment was Volkswagen automobile factory in the suburb of Bratislava. In 2006 PSA Peugeot Citroen in Trnava and in 2007 Kia in Žilina started their production. Electronics giants Sony Corp. and Samsung Corp.

also have operations here. This foreign investment is concentrated almost exclusively in western Slovakia, creating a wide gap with the east. As the data of Table 1 demonstrate the categories of radio, TV, communication equipment and motor vehicles have experienced almost the highest growth rates within the whole productive system. But the most notable increase is observed in the branch of electricity, gas and water which reached 15.02% of the total inward FDI stock in 2009. Such a situation is explained with the privatization of this sector conducted in the beginning of 2000s in which German, French, Italian and Spanish companies took part.

As to the services sector and particularly business services, its importance for the foreign direct investment (FDI) has been significantly growing since 2000 in Central and Eastern European countries (Sass & Fifekova, 2011). Slovakia is not an exception. According to the OECD data on FDI in Slovakia, services accounted for almost a half of the total amount in 2010 (see Table 1).

Table 1 Foreign direct investment in Slovakia (stock), %

	2001	2010	Variation 2001-2010
TOTAL	100,00	100,00	777,65
AGRICULTURE AND FISHING	0,28	0,20	547,77
MINING AND QUARRYING	0,63	1,13	1487,20
MANUFACTURING	33,97	34,52	791,82
Food products	6,41	1,99	172,93
Textiles and wearing apparel	0,58	0,29	333,23
Wood, publishing and printing	3,03	1,85	436,10
Refined petroleum & other treatments	2,69	3,72	1114,02
Chemical products	2,82	2,05	539,86
Rubber and plastic products	1,57	2,05	1050,15
Metal products	5,55	6,04	854,01
Mechanical products	2,06	2,84	1108,97
Radio, TV, communication equipments	**0,85**	**3,22**	**3203,12**
Medical, precision and optical instruments	0,02	0,20	3659,08
Motor vehicles	**2,21**	**6,74**	**2581,16**
ELECTRICITY,GAS AND WATER	**0,31**	**15,02**	**42229,94**
CONSTRUCTION	0,62	1,29	1729,46
TOTAL SERVICES	50,87	47,84	199,76
TRADE AND REPAIRS	19,99	9,77	328,87
HOTELS AND RESTAURANTS	0,57	0,12	80,52
TRANSPORTS, STORAGE AND COMMUNICATION	12,53	4,46	212,11
FINANCIAL INTERMEDIATION	23,19	21,12	699,02
REAL ESTATE, RENTING AND BUSINESS ACTIVITIES	6,58	11,55	1440,57
Renting of machinery and equipment	0,33	0,59	474,16
Computer activities	0,36	0,45	1014,73
Research and development	0,48	0,02	-56,40
Other business activities	**1,41**	**4,70**	**2835,67**

Source: OECD, own elaboration.

After financial intermediation, the category of real estate, renting and business activities counts on an important share within the total value added (11.55%). Almost the whole increase of this group of activities is due to the growth of other business services which in 2010 counted on 4.7% of value added. Such a situation can be beneficial for the Slovak economy as studies demonstrate that business services are an outstanding set of activities because of the high level of employment and value added (Coffey & Shearmur, 1997; Cuadrado, 2003; Shearmur & Doloreux, 2008). Besides they play an important role for the economic development providing the productive systems with the competitive advantage (Lindahl & Beyers, 1999).

2 Methodology

The analysis of tertiarisation of the productive system under research will be carried out using the input-output tables. Namely, by means of the technical coefficients and Leontief inverse matrix coefficients the tertiarisation effects will be obtained. This methodology represents one of the techniques that enable to exploit the valuable economic information contained within the input-output tables (see for example Camacho & Rodríguez, 2010; Strambach, 2001).

The meaning of the tertiarisation effects will be presented only briefly[5]. Within a traditional multisectoral context, these effects are a result of the sectoral activation which refers to the processes of agrarisation, industrialisation and tertiarisation. In this study the process we are interested in is the tertiarisation. So, **direct effects** comprise first-order intersectoral relations between a productive sector and each branch of economic activity, namely, the immediate intermediate demand of each industry necessary to produce an additional unit of its product.

Total effect measures all the direct and indirect inputs, up to the n-relationship, necessary for the production of an additional unit of output. So, total effects jointly measure interactions among and within sectors, regardless of whether these interactions are direct or indirect.

The decomposition of total effects gives us a series of indirect effects: unisectoral, bisectoral and multisectoral. **Unisectoral effects** report own autoactivation effect of each industry. They represent the capacity of each sector to autonomously encourage its own industries. **Bisectoral effects** summarise the relationships between the industries of two of the three sectors (agriculture, industry and services). These effects can be of two types, depending on whether the driving sector is unique or composed of the industries of the sectors of the bisectoral activation. **Multisectoral effect** can be defined as a balance or residual. It is obtained by subtracting from the total effects the rest of effects described, namely, direct, unisectoral and bisectoral effects. Therefore, by calculating the multisectoral effects we can estimate to what extent structural change is explained by intersectoral relationships. In other words, if intersectoral relationships are weak then the multisectoral effect will be high and vice versa: a low multisectoral effect is a sign of a closely integrated production system.

[5] See Camacho (1999) for the detailed methodology.

Additionally, as the basic element of the analysis, it will be distinguished between internal and total effects. Internal effects are obtained from domestic input-output tables that include intermediate consumption of products produced internally, inside each region. Total effects in this case (are not to be confused with total tertiarisation effects described above) come from total input-output tables that refer to the intermediate consumption of products fabricated internally by a country and those imported. Therefore, we can distinguish, for example, between direct internal and direct total effects, on the one hand, and total internal and total total effects, on the other hand.

The existence of the effects coming from domestic and total input-output tables brings us to the term of the **degree of internationalisation**. It is the value of imported services inputs incorporated into productive processes. So, the degree of internationalization of direct effect is the difference between direct total effect and direct internal effect represented as percentage of direct total effect.

3 Results

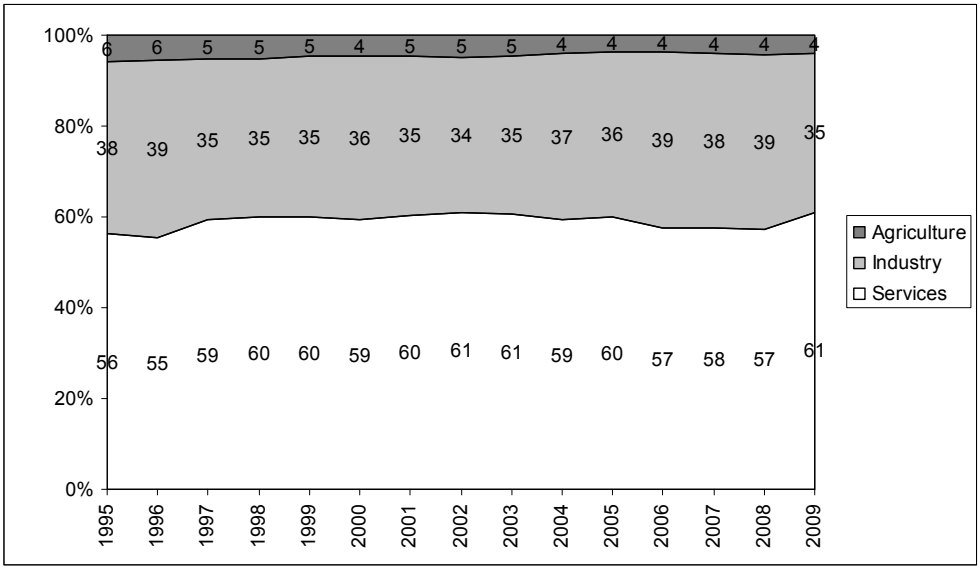
The empirical study conducted in this work is based on the data from the symmetrical input-output tables of Slovakia for 1995 and 2009. These tables come from the World Input-Output Database (WIOD) project funded by European Commission. They cover a relatively long period of 14 years which enables to analyse the changes experienced by the Slovak productive system from the moment immediately after the dissolution of Czechoslovakia and until nowadays. The productive system within WIOD is divided into 35 economic activities which are presented in the Appendix 1.

3.1 General situation: the participation of services within the productive system

The first approach to the tertiarisation of the Slovak productive system is carried out analysing the changes of the value added (VA) that took place between 1995 and 2009. Figure 1 reports the values for the three productive sectors: agriculture, manufacturing and services.

In spite of the length of the period analysed (fourteen years), the changes experienced by the economic sectors cannot be considered as dramatic. Only services sector increased its share within the total value added, from 56.3% to 60.9%. Due to the evolution experienced by the Slovak economy after the dissolution of Czechoslovakia it could be expected that the services share would increase much more. Other studies that analyse tertiarisation processes, register much more notable growth of importance of services during similar period of time (for example, see Camacho & Melikhova, 2012, for a case study of Spain and Portugal). As to agriculture and manufacturing, they reduce their shares 2% and 2.6% respectively.

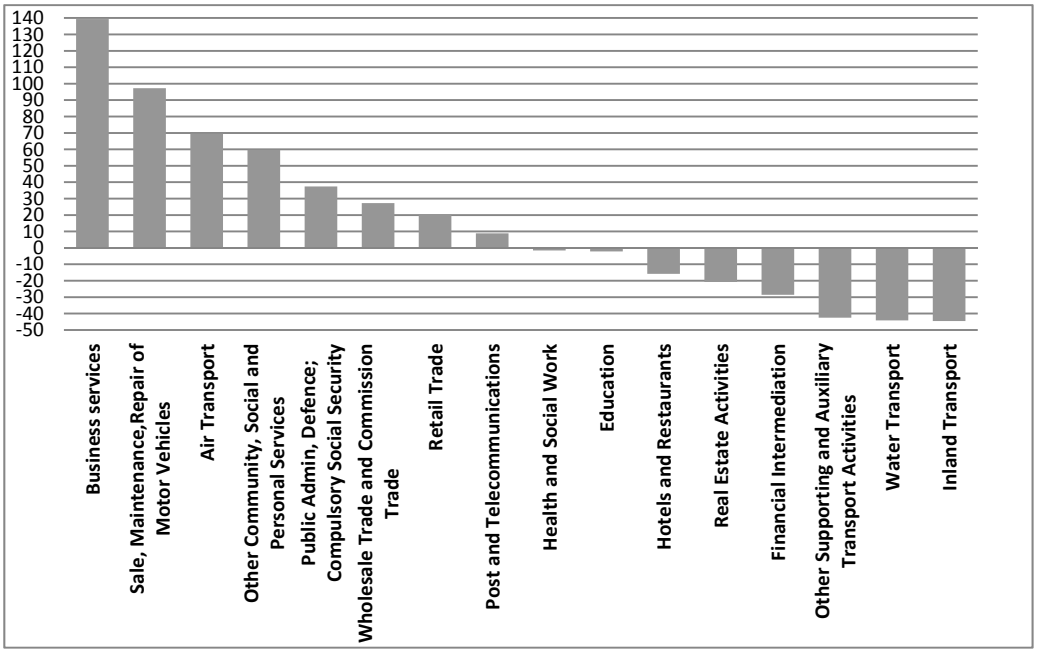
Figure 1 The value added evolution, 1995 - 2009



Source: Own elaboration.

If tertiary sector is the one that increased its share within the value added, it would be interesting to identify those service activities "responsible" for such growth. Figure 2 clearly demonstrates that business services are the leading activity as to the increase of the value added share which grew almost 140%.

Figure 2 Change of the value added share of service activities, 1995 - 2009

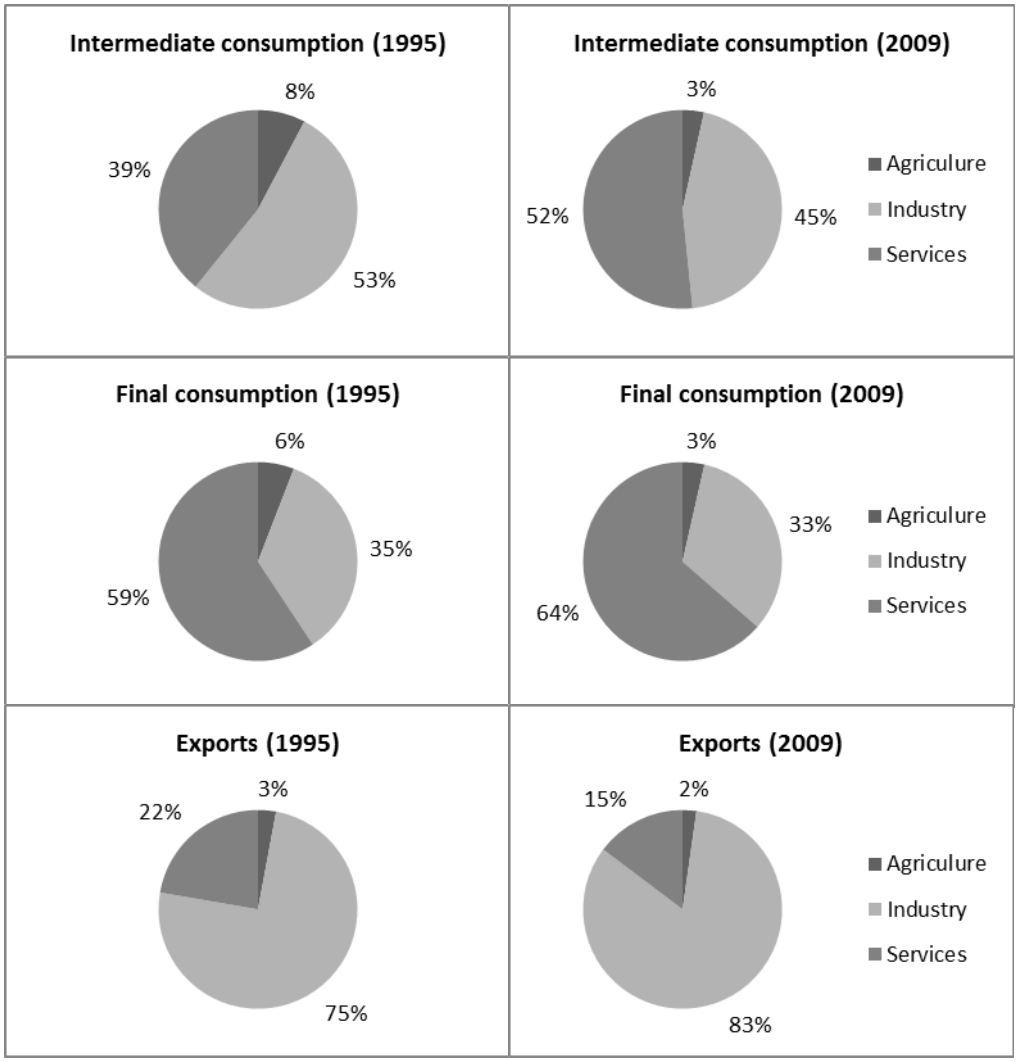


Source: Own elaboration.

In this way the share of these activities within the value added changed from 3.6% to 8.6% and represents in 2009, together with the wholesale trade (8.15%) the most important service activity in terms of the VA. These results in relation to business services are in line with the situation we observed in case of the FDI.

If the most notable growth is experienced by the business services which are mostly intermediate services, as the next step of the analysis we observe how the destination of the Slovak production has changed. The input-output tables provide us with the information on three categories that comprise the total output: intermediate consumption, final consumption and exports. Figure 3 reports data on the change experienced by these categories between 1995 and 2009.

Figure 3 Productive sectors' shares within intermediate consumption, final consumption and exports, 1995 - 2009



Source: Own elaboration.

The data reveal that in 1995 almost a half of Slovak services (45.17%) was directed to final consumption; meanwhile, the destination of 53.07% of manufacturing output was intermediate consumption. The secondary sector counted also on a highest share within exports (74.8%). In 2009, as it could be predicted taking into consideration the findings related to the growth of business services, the situation on intermediate consumption changes. Now services are the sector which counts on a highest share within the intermediate consumption. More than a half of service total output (51.62%) is directed to intermediate consumption. Tertiary activities with 63.6% continue to be also the most important category within the final consumption and industry with 83.03% within the exports. In this way, the exporting manufacturing activity experienced a notable increase during the analysed period. This fact could be related to the fact that foreign manufacturers that recently installed their plants in Slovakia export the most of their production (SARIO, 2012).

As to services exports, their share was reduced notably which means that the output of these activities is consumed mostly by the national economy. Consequently, it should lead to the increase of the degree of tertiarisation of Slovak productive system and to the improvement of intersectoral relations. Let us check if this assumption is correct in the next part of this work dedicated to the analysis of the tertiarisation coefficients. On the other hand, it is not clear that multinational companies which have their shared service centres in Slovakia, export most part of their production (Sass & Fifekova, 2011) as the level of services exports decreased.

Finally, our overview of the general situation related to the changes experienced by the tertiary sector within the Slovak productive system is concluded with an analysis of inputs. Namely, our interest is focused on imported intermediate consumption. Table 2 reports its share within imported total use and within total intermediate consumption.

Table 2 Imported intermediate consumption

	Imported intermediate consumption, % imported total use		**Imported intermediate consumption, % intermediate consumption**	
	1995	**2009**	**1995**	**2009**
Agriculture	56.63	41.53	10.33	11.62
Industry	63.67	66.44	31.61	48.05
Services	77.17	72.01	16.61	14.64

Source: Own elaboration.

The data reveal that most part of imported services is used as intermediate inputs by the Slovak productive system. Although the values are maintained above the 70% level, during the period 1995 – 2009 a reduction from 77.17% to 72.01% took place. This finding is in line with the fact which has just been revealed above. The Slovak productive system increases the consumption of national intermediate service inputs and reducing, in this way, the amount of imported ones. The share of imported manufacturing intermediate inputs increased slightly from 63.67% to 66.44%. A contrary trend is observed in agricultural sector.

If we consider the imported intermediate consumption as share of total intermediate consumption, the values are much lower. In case of services, only about 15% of total intermediate consumption is imported. Agriculture almost did not change the share of imported intermediate inputs within total intermediate consumption. As to industry, the values increased notably, from 31.61% in 1995 to 48.05% in 2009. This evolution can be due to the fact that assembly plants of multinational companies installed in the Slovak territory are supplied from abroad instead of maintaining a net of local providers contributing, in this way, to the development of the national economy in general terms (for example, reducing the degree of unemployment and increasing the level of economic activity).

3.2 Tertiarisation of the Slovak productive system

After this general image of the situation on the role services play within the Slovak economy, we go further in our analysis and verify if the increase of services share within the value added is accompanied with the increase of the degree of tertiarisation. To do so, the tertiarisation effects will be examined. They are obtained by means of both total and domestic input-output tables and are presented in Table 3.

Table 3 Average tertiarisation

	Total table			Domestic table		
	1995	**2009**	**1995=100**	**1995**	**2009**	**1995=100**
Direct effect	0.22946	0.24484	106.70573	0.17391	0.20756	119.34708
Total effect	0.53199	0.55866	105.01217	0.29953	0.33571	112.07860
Indirect effect	0.30254	0.31381	103.72769	0.12562	0.12816	102.01641
Unisectoral effect	0.12806	0.16440	128.37617	0.05881	0.10609	180.40440
Bisectoral effects (driver sector)						
Agriculture	0.00582	0.00260	44.67400	0.00442	0.00199	45.08393
Industry	0.13466	0.12664	94.04343	0.04938	0.03214	65.07527
Services	0.06895	0.08838	128.18656	0.04531	0.06037	133.24415
Joint	0.09364	0.10208	109.01215	0.02616	0.01856	70.92597
Multisectoral effect (balance)	0.02259	0.01141	50.49816	0.00997	0.00426	42.72664

Source: Own elaboration.

In relation to Table 3, the term of **average tertiarisation**, not mentioned in the methodology section, should be clarified. Average tertiarisation is calculated as an arithmetic mean of the effects of all the activities forming part of a productive system.

The results of Table 3 highlight an overall increase of tertiarisation during fourteen years period between 1995 and 2009. In this regard, two interesting facts call our attention. On the first place, the data clearly show that the tertiarisation effects obtained from the domestic input-output table experienced a more notable increase than those obtained from the total one. For example, the values of the direct effect grew 19.3% and 6.7% respectively. The most notable increase and the difference between

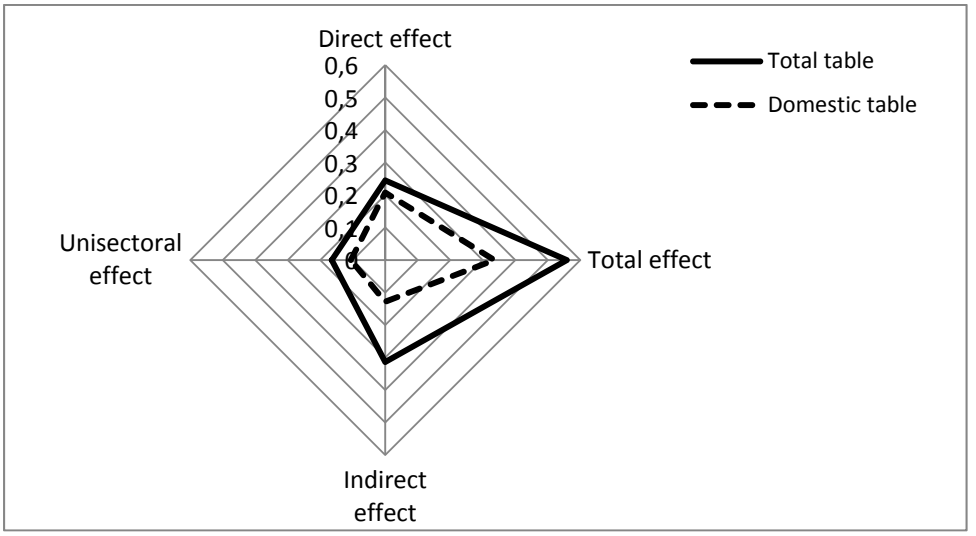
domestic and total tables are registered in case of the unisectoral effect (80.4% and 28.4% respectively). Actually, it is the second interesting aspect to be addressed later.

In this way, the data that highlight the difference between the growth of domestic and total effects of tertiarisation confirm the assumption made in the previous section. It concerned to the fact that domestic services have been intensifying their relations with the rest of the productive system. Besides, the results of the unisectoral effect point out that tertiary activities have been increasing their capacity to encourage their own production. And the case of domestic services is particularly notable as they have been strengthening their relations within the very sector. The results of the unisectoral effect are confirmed with the values of bisectoral effects in which agriculture and industry were driver sectors. These effects experienced very significant decrease. The bisectoral relations with agriculture diminished their intensity more than 50%. In this way Slovakia's tertiary activities do not only increase their level of integration with the rest of the productive system in general terms, but national and imported services are also self-integrated, presenting an intensive interrelation within the very sector. This interrelation becomes stronger especially in the case of domestic tertiary activities.

The evolution of multisectoral effect also confirms the strengthening of intersectoral relationships as it experienced a notable decrease in both total and domestic tables. It should be pointed out that again the reduction of domestic multisectoral effect of about 57% indicates that Slovak productive system becomes each time more integrated.

During this analysis of the tertiarisation effects, differences between total and domestic tables are being appreciated. These differences are due to the role played by the imported services inputs. In what follows we will try to identify what the role of imported services within the Slovak economy is. The situation in 2009 can be approached by means of Figure 4.

Figure 4 Tertiarisation effects: difference between total and domestic tables, 2009

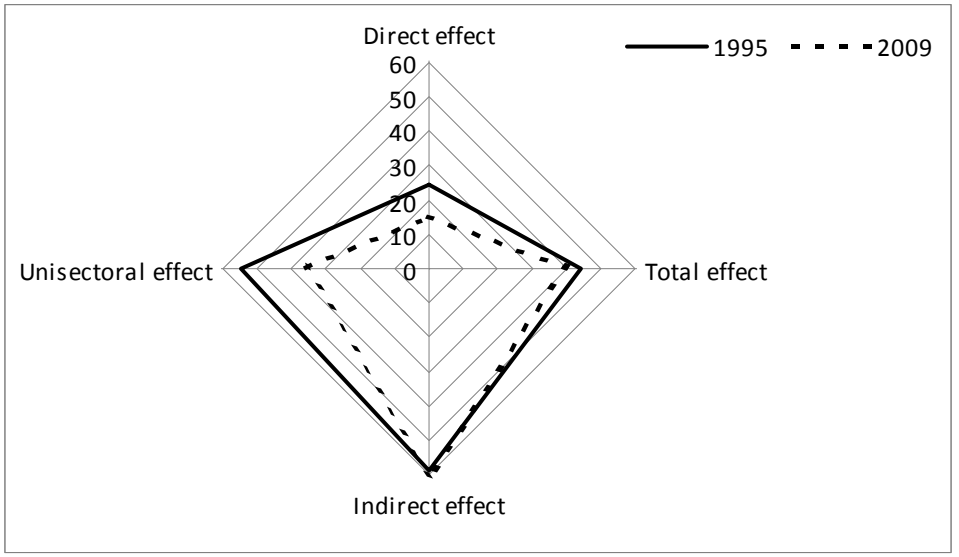


Source: Own elaboration.

The values of the direct effect reveal that the participation of imported services within the first order intersectoral relations was relatively low. On the contrary, imported services played an important role in indirect relations. As an exception the unisectoral effect which is also one of the indirect effects obtained by the decomposition of the total effects, can be pointed out. This fact can be considered as one more confirmation of the high degree of self-integration of Slovak services sector.

As it was pointed out in the methodological section, the amount of imported services inputs incorporated into the productive process can be appreciated by the degree of internationalisation. The evolution of this indicator during the period under research is shown in Figure 5.

Figure 5 Degree of internationalisation, %



Source: Own elaboration.

The fact that is clearly observed is a notable reduction of the degree of internationalisation between 1995 and 2009. This decrease is particularly significant in case of the unisectoral effect which can be directly connected to the previous findings of this work. An increase of the domestic supply of services has as a consequence a reduction of the consumption of imported services inputs. Although the immediate intermediate demand of services, namely, the direct effect was also reduced during the period analysed. An only slight decrease of the degree of internationalisation of the total and indirect effects means that imported services continue to be important inputs for the productive system as a whole.

3.3 Tertiarisation dynamics of the economic activities

After the analysis of tertiarisation at the level of the whole productive system it seems interesting to study the individual behaviour of economic activities. Appendix 1 reports data on total, direct and indirect effects for the whole set of activities forming

part of the Slovak productive system. For this purpose the domestic table was employed because, as it has been already observed in this work, these are precisely national services that maintain stronger relations with the rest of the productive activities. As to the multisectoral effect, the data for both domestic and total tables are reported in order to demonstrate this stronger integration of the domestic services into the national productive system in comparison with the imported services. The data for 2009 is represented as percentage of 1995.

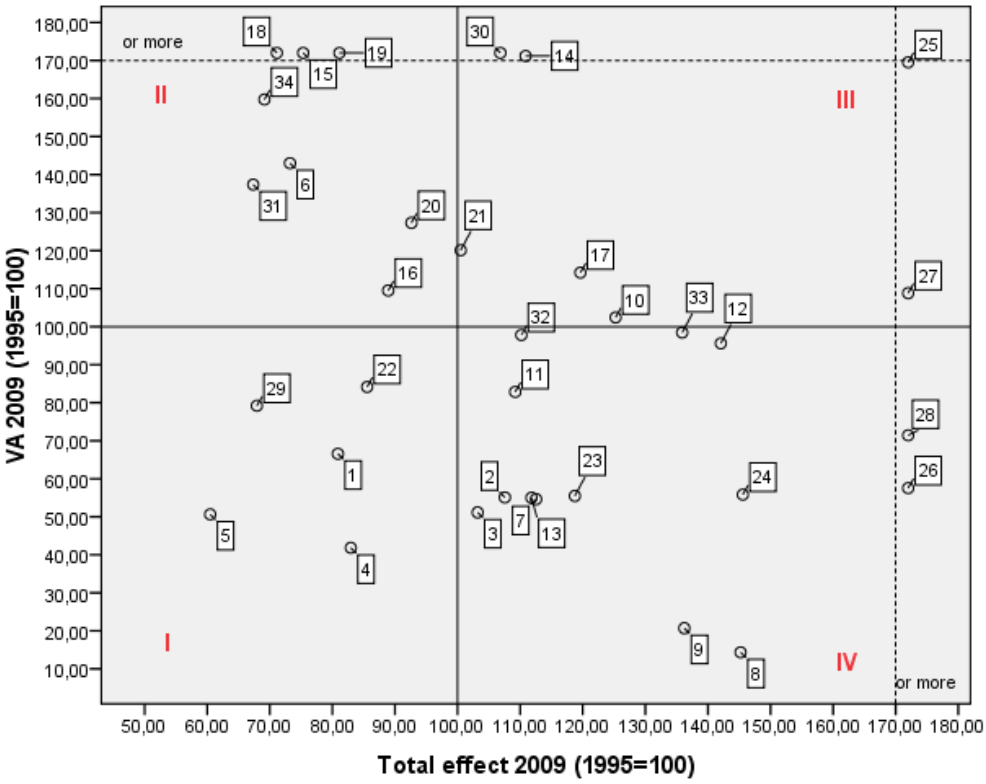
The results of Appendix 1 highlight that most part of the activities increased their degree of tertiarisation. This increase is particularly notable in case of several service activities such as Air Transport; Other Supporting and Auxiliary Transport Activities; and Financial intermediation.

The most part of the activities that increased their degree of tertiarisation experience a more notable growth of the direct effect in comparison with the total and indirect effects. This behaviour is in line with the trend that is being observed during this work. It is interesting that services with the highest growth rates, together with the activity of Electricity, Gas and Water Supply, experienced more notable increases of their total and indirect effects (in bold in Appendix 1). This fact is a clear reflection of the higher degree of integration of these activities into the productive system.

The decrease of the degree of tertiarisation is registered in case of traditional, low-technological activities such as Agriculture, Textiles, Leather, Wood Products, Construction, Hotels and Restaurants, Real Estate Activities or Public Administration. The case of Transport Equipment can be considered as worrying. Though this activity counts on less than 2.5% of value added within Slovak economy, it received an increasing amount of FDI during the last years (Table 1). The results of tertiarisation effects highlight that Transport Equipment, being so important activity for the development of certain areas of Slovakia, does not increase its demand of services inputs produces domestically.

If what is observed in general terms is an increase of tertiarisation, then it could be interesting to know if the activities that increased their degree of tertiarisation also increased their participation within the economy in terms of the value added. This assumption is based on the overall positive impact produced by services. Studies highlight the important role played by services for the general economic background expressed in terms of the per capita GDP (Eschenbach & Hoekman, 2006), for the employment (Moyart, 2005; OECD, 2005) and their relation with knowledge and innovation (Camacho & Rodriguez, 2005; Kleinknecht, 2000; Preissl, 2000). In this way, Figure 6 enables to relate the value added to the total effect for 2009 expressed in terms of 1995. The data was obtained from the domestic input-output tables. By means of Figure 6, the changes experienced by the Slovak activities during the period analysed can be appreciated. The abscissa axis reports the changes experienced by the tertiarisation of activities. The ordinate axis shows the variation of the value added which represents the productive dynamism.

Figure 6 Productive dynamism and tertiarisation: domestic table, 1995-2009 (1995=100)*



Source: Own elaboration.
* For activity codes see Appendix 1.

In the *quadrant I* of the Figure 6, there are activities that have been losing their relative importance from the point of view of both value added and tertiarisation. They can be called as *stagnated activities*. This is the case of only five activities Agriculture, Textiles, Leather Products, Hotels and Restaurants and Real Estate Activities.

In the *quadrant II* the activities with negative tertiarisation dynamics that increased notably their share within VA can be found. These are *activities with saturated tertiary relations*. They are represented by Wood Products, Transport Equipment, Other Manufacturing, Constructions, Sales of Motor Vehicles, Wholesale Trade, Public Administration and Other Community, Social and Personal Services. Several of these activities play an important role within Slovak economy as their value added shares exceed 7%. It is the case of Construction (9.49%), Wholesale Trade (8.15%) and Public Administration (7.12%).

Activities of dynamic tertiarisation are those whose both total effect and value added share increased during the period analysed. They can be found in the *quadrant III* and are represented by seven activities: Rubber and Plastics, Electrical and Optical Equipment, Electricity, Gas and Water Supply, Retail Trade, Air Transport, Post and Telecommunications and Business Services. From the point of view of the participation

within the value added Electricity, Gas and Water Supply (5.53%), Retail Trade (6.44%) and Business Services (8.61%) stand out. Together these activities represent more than 20% of the total value added. In this way their capacity to activate the tertiarisation process within the productive system is considerable. The role of business services is especially important thanks to their function as intermediate inputs.

The group of the activities situated in *quadrant IV* appears to be the most numerous: fourteen branches. They have not experienced any growth in terms of the value added but strengthened their demand of services inputs. Therefore, it can be considered that this tertiarisation process is due to the *intense outsourcing* of some of their services functions. Eight of these activities are manufacturing ones with relatively reduced shares within the value added. The highest share (3.89%) belongs to Basic Metals and Fabricated Metal. Four service branches count of a relatively important participation within Slovak economy: Inland Transport (3.33%), Financial Intermediation (4.07%), Education (3.4%) and Other Community, Social and Personal Services (3.51%).

Conclusion

The objective of this paper was to analyse the process of tertiarisation of the Slovak economy by means of the input-output analysis and using the data containing within input-output tables. The input-output tables available enable us to cover a relatively long period of time, from 1995 to 2009. During these fourteen years it is already possible to appreciate the main trends of the structural transformation taking place in a productive system.

The first approach by means of the value added points out that services increased their share within the whole economy. Although this increase could be expected to be more notable than 4%. Consequently, the shares of primary and secondary sectors were reduced.

The activities that increased their share within the total value added most of all are business services. It is interesting that the FDI in business services also experienced one of the highest growth rates.

The increase of the importance of services in terms of VA was accompanied with an increase of the share of these activities within intermediate consumption. On the contrary, the participation of services within export decreased during the period analysed. These both facts together indicate that Slovak services have been strengthening their relation with the rest of the economic activities.

The analysis of tertiarisation effects also reveals an overall increase of the degree of tertiarisation of the Slovak productive system. More interesting is that the data suggest that the domestic services have been intensifying their relations with the rest of the economic activities and increasing their capacity to encourage their own production. In this way, Slovak services become each time more integrated into the national productive system.

Another fact that calls our attention is a decrease of the degree of internationalisation, namely, the use of imported services. It is directly related to the increasing im-

portance domestic services inputs have been gaining during the period under research. Anyway, it could be interesting to conduct a more in depth analysis of the participation of Slovak services in the international trade. We leave this topic for the future research.

As to the economic activities, they present an uneven behaviour in relation to the use of services inputs within their productive processes. A simultaneous analysis of the changes within value added shares and degrees of tertiarisation reveal that the group of the activities of dynamic tertiarisation includes, among other, Electricity, Gas and Water Supply, Retail Trade and Business Services. These activities together represent more than 20% of the total value added, which denotes a considerable capacity to activate the tertiarisation process within the productive system. The role of business services is especially important due to their function as intermediate inputs.

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Appendix 1

Selected effects of tertiarisation, 2009

		Domestic table			Multisectoral effect (balance)	
		Direct effect	**Total effect**	**Indirect effect**	**Domestic table**	**Total table**
1	Agriculture, Hunting, Forestry and Fishing	96.94	80.87	67.78	15.95%	37.68%
2	Mining and Quarrying	118.99	107.56	94.95	0.29%	0.52%

3	Food, Beverages and Tobacco	125.41	103.20	83.68	8.86%	11.78%
4	Textiles and Textile Products	90.26	82.94	71.69	0.23%	0.51%
5	Leather, Leather and Footwear	74.81	60.48	42.49	0.25%	0.59%
6	Wood and Products of Wood and Cork	82.54	73.23	65.82	13.64%	15.89%
7	Pulp, Paper, Paper , Printing and Publishing	129.37	112.54	94.55	3.08%	3.82%
8	Coke, Refined Petroleum and Nuclear Fuel	141.34	145.23	150.60	0.60%	0.59%
9	Chemicals and Chemical Products	155.98	136.22	114.20	0.40%	0.72%
10	Rubber and Plastics	147.45	125.25	101.94	1.98%	2.22%
11	Other Non-Metallic Mineral	114.90	109.21	102.88	0.32%	0.63%
12	Basic Metals and Fabricated Metal	187.58	142.07	104.93	0.21%	0.46%
13	Machinery, Nec	127.11	111.81	94.36	0.24%	0.53%
14	Electrical and Optical Equipment	122.26	110.87	96.57	0.27%	0.65%
15	Transport Equipment	73.72	75.32	77.67	0.23%	0.52%
16	Manufacturing, Nec; Recycling	112.43	88.92	66.92	1.01%	2.03%
17	Electricity, Gas and Water Supply	**116.25**	**119.62**	**122.19**	0.21%	0.41%
18	Construction	64.42	71.13	77.27	0.39%	0.75%
19	Sale, Maintenance and Repair of Motor Vehicles and Motorcycles; Retail Sale of Fuel	84.63	81.12	74.52	0.08%	0.29%
20	Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	100.60	92.63	79.88	0.29%	0.78%
21	Retail Trade, Except of Motor Vehicles and Motorcycles; Repair of Household Goods	110.85	100.51	83.81	0.13%	0.39%
22	Hotels and Restaurants	92.80	85.55	75.40	0.95%	2.12%
23	Inland Transport	**115.92**	**118.74**	**123.98**	0.07%	0.23%
24	Water Transport	**130.15**	**145.58**	**177.96**	0.06%	0.20%
25	Air Transport	**267.30**	**278.81**	**302.36**	0.05%	0.16%
26	Other Supporting and Auxiliary Transport Activities; Activities of Travel Agencies	**319.34**	**353.03**	**423.47**	0.05%	0.16%
27	Post and Telecommunications	**184.89**	**189.40**	**199.73**	0.03%	0.14%
28	Financial Intermediation	**215.71**	**228.64**	**264.50**	0.04%	0.15%
29	Real Estate Activities	63.35	67.93	77.47	0.10%	0.30%
30	Renting of M&Eq and Other Business Activities	113.60	106.84	94.56	0.09%	0.29%
31	Public Admin and Defence; Compulsory Soc.Security	63.55	67.33	75.51	0.65%	1.69%
32	Education	115.67	110.19	103.23	0.22%	0.58%
33	Health and Social Work	158.48	135.89	104.36	0.23%	0.65%
34	Other Community. Social and Personal Services	70.83	69.15	65.73	0.13%	0.41%
35	Private Households with Employed Persons	NA	NA	NA	NA	NA