DOI: 10.5604/01.3001.0014.1210

PRZEGLĄD STATYSTYCZNY
R. LXIII – ZESZYT 3 – 2016

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FINANCIAL SERVICES INPUT AS A SOURCE OF ECONOMIC GROWTH IN THE EUROPEAN UNION COUNTRIES

1. INTRODUCTION

In the wide-ranging literature on the relationship between financial development and economic growth, different approaches can be identified with respect to the role of financial institutions and markets in stimulating economic growth. Lucas (1988, p. 6) dismissed finance as an "over-stressed" determinant of economic growth. At the other extreme, Miller (1998, p. 14) argued that "[the idea] that financial markets contribute to economic growth is a proposition too obvious for serious discussion." Between these two diametrically opposed approaches one can find three other lines of research: (1) Finance follows enterprises (Robinson, 1952, p. 86) – finance does not cause growth but responds to changing demands from the "real sector", so a faster economic development results in higher demand for financial services, which stimulates the development of financial institutions and markets (the demand-following view); (2) Financial development has a positive impact on economic growth, as credit is the basic source for enabling business, including innovative activities. Thus, a business cycle depends on financial activity (Fisher, 1933), and well-functioning banks support technological innovation by identifying those entrepreneurs who have the greatest chances of implementation of innovative products or processes (this approach was initiated by Schumpeter, 1912, and later developed by Minsky, 1982, 1990, as well as by a wide range of other research); (3) There are dynamic interactions between finance and growth, as the financial system influences growth, and growth transforms the operation of the financial system (the theoretical literature in this line of research is comparatively less well-developed).

An extensive survey of the literature can be found in Levine (2005)[2]. Based on different theoretical models he defined financial development[3] as involving improvements in financial functions that may influence savings and investment decisions and hence economic growth, i.e. in the (i) production of *ex ante* information about possible

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[2] A review of the existing literature can also be found in Kasprzak-Czelej (2010).

[3] It is measured by different indicators, among them: the ratio of credit to the private sector to GDP; the ratio of stock markets' size to GDP; the ratio of broad money to GDP; the margin between lending and deposit interest rates and the EBRD transition index of financial institutional development.

investments; (ii) monitoring of investments and the implementation of corporate governance; (iii) trading, diversification, and management of risk; (iv) mobilization and pooling of savings; and (v) exchange of goods and services. Summarizing the bulk of the existing research Levine stated that it is not just a question of finance following industry, but neither it is just industry following finance, which means that additional inquiry into the co-evolution of finance and growth is required.

In recent years some new empirical studies have proven the positive effect of financial development on economic growth in emerging markets (Africa: Ncube, 2007; India: Krishnan, 2011; North Africa: Kouki, 2013; Asia: Bayar, 2014; 42 emerging markets: Masoud, Hardaker, 2012 – bi-directional relations with respect to stock market; South Africa: Sunde, 2012 – bi-directional relations), as well as in economies after transition, i.e. the new EU member states (Caporale et al., 2014, 2015).

All these works examine the relationship between the development of financial institutions and markets and economic growth. However, to the best of the author's knowledge there are no studies on the impact of financial services input on output and productivity growth. This paper contributes to the research literature by presenting how the methodology of decomposition of output growth can be used to calculate the contributions of financial services input to gross output (GO) volume growth (in different industries and in the whole economy). What is worth stressing, this methodology can be also used to calculate the contributions of other components of intermediate input. This is shown in the paper, as FS input contribution is compared with the contribution of knowledge-intensive business services (KIBS), which have been already recognized as affecting output and productivity growth (to find out more on KIBS input contribution, see Wyszkowska-Kuna, 2016).

The goal of the paper is also to compare the results of the decomposition of GO volume growth for two periods: 1995–2007 and 2008–2009, to find out how the recent financial crisis affected economic growth in the EU countries, and how FS input contributed to the growth or decline in GO volume when the crisis started. For both periods I calculated the EU weighted averages for the results of the decomposition of GO volume growth, with the weights assigned based on each country's share in the total EU's GO. On the basis of the results of the decomposition of GO volume growth, one can also analyse whether and how FS input affects productivity.

Finally, one should note that the indicator proposed in this paper can be used in further research on the relation between financial services development and economic growth and productivity improvement.

2. REVIEW OF THE LITERATURE ON THE ROLE OF PRODUCER SERVICES IN ECONOMIC DEVELOPMENT

The division of services into intermediate and final was first introduced by Greenfield (1966, p. 11), and then developed by Browning, Singelman (1978, p. 489–90). Browning and Singelman distinguished two groups of intermediate services, i.e.:

(1) distributive services: transport and storage, communication, wholesale and retail trade and (2) producer services: financial services, insurance, real estate and business services.

In the literature one can find various papers studying the impact of services supporting economic activities on output and productivity growth in companies using these services. Stigler (1956) was the first to note that a company's development stimulates its demand for producer services, which in turn contributes to the development of external service providers. A decade later, Greenfield (1966, p. 11) noted that services input may have an impact on production conditions, comparable with those of the physical inputs.

Increased interest in the role of producer services has been visible only since the 1980s, but they were analysed in the context of final, not intermediate, consumption. This led to the belief that the economies where services dominates over industry and agriculture may experience slower growth in terms of output and productivity, because service activities have a lower potential for productivity growth than industrial and even agricultural activities (the model of unbalanced growth: Baumol, 1967; Baumol et al., 1989). Thus service prices may relatively increase,[4] which could limit demand for them and eventually also economic development (this phenomenon is called the "cost disease").

A new approach was presented by Oulton (2001, p. 606), who saw that demand for producer services has characteristics of intermediate consumption. Thus it should not decline in the long run, and what's more, if producer services contribute to output growth in companies using them, it should rather accelerate economic growth. Among the studies showing positive effects of producer services on output and productivity growth the following should be mentioned:[5] Windrum, Tomlinson (1998, 1999), Antonelli (1999, 2000), Tomlinson (2000), Katsoulacos, Tsounis (2000), Drejer (2002), Baláž (2003, 2004), Cagno di, Meliciani (2005), Baker (2007), Camacho, Rodriguez (2007), Desmarchelier et al. (2013), Wyszkowska-Kuna (2016). One should note, however, that none of these studies separately analysed the impact of financial services input on output and productivity growth.

3. METHODOLOGY

In order to assess the contribution of the various inputs to aggregate economic growth, the growth accounting framework can be applied. This methodology was theoretically motivated by Jorgenson, Griliches (1967) and put in a more general input-output framework by Jorgenson et al. (1987).

[4] A relative increase in service prices is a result of wage growth in service industries (not experiencing productivity growth) due to wage growth in other industries (experiencing productivity growth).

[5] Antonelli, Katsoulacos and Tsounis studied the impact of communications and business services; Drejer and Baker of business services; Camacho and Rodriguez of high-tech knowledge-intensive services (telecommunications, computer and R&D); and the others of aggregated values of communication, financial and business services.

The starting point for the analysis is production possibility frontiers, where industry gross output (GO) is a function of capital, labour, intermediate inputs and technology, which is indexed by time (*T*). Each industry (indexed by *j*) can produce a set of products and purchases a number of distinct intermediate inputs, capital and labour inputs to produce its output. The production function is given by:

$$Y_j = f_j(X_j, L_j, K_j, T), \tag{1}$$

where: Y – is output; X – is an index of intermediate inputs, either purchased from domestic industries or imported; L – is an index of labour service flows; K – is an index of capital service flows.

Output is expressed in producer prices, and the costs – in purchasers' prices. Under the assumptions of competitive factor markets, full input utilization and constant returns to scale, the growth of output in the period between any two discrete points of time, say t and t–1, can be expressed as the cost-share weighted growth of inputs and technological change A^Y (Jorgenson et al., 1987, p. 32–40; O'Mahony, Timmer, 2009, p. 376):

$$\Delta lnY_j = \bar{v}_j^X \Delta lnX_j + \bar{v}_j^L \Delta lnL_j + \bar{v}_j^K \Delta lnK_j + \Delta lnA_j^Y, \tag{2}$$

where v^i denotes the two period average share of input i in nominal output defined as follows:

$$\bar{v}_j^X = \frac{1}{2}\left[\frac{P_{jt}^X X_{jt}}{P_{jt}^Y Y_{jt}} + \frac{P_{jt-1}^X X_{jt-1}}{P_{jt-1}^Y Y_{jt-1}}\right], \tag{3}$$

$$\bar{v}_j^L = \frac{1}{2}\left[\frac{P_{jt}^L L_{jt}}{P_{jt}^Y Y_{jt}} + \frac{P_{jt-1}^L L_{jt-1}}{P_{jt-1}^Y Y_{jt-1}}\right], \tag{4}$$

$$\bar{v}_j^K = \frac{1}{2}\left[\frac{P_{jt}^K K_{jt}}{P_{jt}^Y Y_{jt}} + \frac{P_{jt-1}^K K_{jt-1}}{P_{jt-1}^Y Y_{jt-1}}\right], \tag{5}$$

and: $j = (1, 2, \ldots, n)$, and $\bar{v}^X + \bar{v}^L + \bar{v}^K = 1$.

Each element on the right side of equation (2) indicates the proportion of output growth accounted for by growth in intermediate inputs, capital services, labour services and technical change. Technical change is measured by total factor productivity (TFP).[6]

Jorgenson et al. (1987) pointed to the possibility of calculating the volume growth of labour, capital, and intermediate inputs with taking into account not only the volume growth (e.g. hours worked in the case of labour input), but also the changes in input's composition (e.g. in hours worked by different types of labour), which are

[6] Jorgenson et al. used the term "changes in productivity", whereas O'Mahony and Timmer "multifactor productivity", but they both mean the same as "total factor productivity".

referred to also as changes in the quality of input. Then the growth of output in the period between two points of time (t and t–1) is expressed also by equation (2), but the components ΔlnX_j, ΔlnL_j, ΔlnK_j have the following form (Jorgenson et al., 1987, p. 92–94, 130–131, 160–161; O'Mahony, Timmer, 2009, p. 377):

$$\Delta lnX_j = \sum_x \overline{w}^X_{x,j} \Delta lnX_{x,j}, \tag{6}$$

$$\Delta lnL_j = \sum_l \overline{w}^L_{l,j} \Delta lnL_{l,j}, \tag{7}$$

$$\Delta lnK_j = \sum_k \overline{w}^K_{k,j} \Delta lnK_{k,j}, \tag{8}$$

where:

$$\overline{w}^X_{x,j} = \frac{1}{2}\left[\frac{P^X_{x,jt} X_{x,jt}}{\sum P^X_{x,jt} X_{x,jt}} + \frac{P^X_{x,jt-1} X_{x,jt-1}}{\sum P^X_{x,jt-1} X_{x,jt-1}}\right], \tag{9}$$

$$\overline{w}^L_{l,j} = \frac{1}{2}\left[\frac{P^L_{l,jt} L_{l,jt}}{\sum P^L_{l,jt} L_{l,jt}} + \frac{P^L_{l,jt-1} L_{l,jt-1}}{\sum P^L_{l,jt-1} L_{l,jt-1}}\right], \tag{10}$$

$$\overline{w}^K_{k,j} = \frac{1}{2}\left[\frac{P^K_{k,jt} K_{k,jt}}{\sum P^K_{k,jt} K_{k,jt}} + \frac{P^K_{k,jt-1} K_{k,jt-1}}{\sum P^K_{k,jt-1} K_{k,jt-1}}\right], \tag{11}$$

and: (j = 1, 2, …, n; l/k/x = 1, 2, …, q).

Sectoral quality remains unchanged if all components of intermediate, labour and capital inputs within an industry j are growing at the same rate. Sectoral quality rises if components with higher productivity are growing more rapidly, otherwise quality falls.

Taking into account both these methods of decomposition of output growth, it is possible to allocate output growth not only to intermediate, labour and capital inputs, but also with respect to different components of these three main types of input. In the EU KLEMS database intermediate inputs are subdivided into three components: energy, materials and services. For the purpose of the present study financial services input (herein after called FS input) is split of services inputs and the decomposition of output growth is made also with the allocation into FS input contribution.

This method can be applied to the decomposition of output growth not only in each industry, but also with respect to total industries, as in the present study. To assign GO volume growth in the EU countries (WIOD, 2014) to the contributions of intermediate, labour, capital inputs and TFP, average annual growth rates of each input volume should first be calculated, and then they should be weighed by average shares of their costs in GO value.

Intermediate inputs (II) are calculated by summing firms' expenditures on all raw and manufacturing materials, as well as services (values are taken from input-output tables), while FS input is calculated by summing firms' expenditures on services purchased from three industries, i.e.: Financial intermediation services, except insurance and pension

funding services (65 – industry codes according to NACE Rev. 1.1); Insurance and pension funding services, except compulsory social security services (66); and Services auxiliary to financial intermediation (67) (WIOD, 2013). To calculate the average annual growth rates of II and FS input volume, it is necessary to deflate the values of II and FS input components. II values are deflated by deflators for intermediate inputs, while the components of FS input (i.e. X_{65}, X_{66}, X_{67}) by deflators for GO for industries "Financial services" (65–67) (WIOD, 2014).[7] KIBS input (compared with FS input in figure 2) is calculated by summing firms' expenditures on services purchased from the following industries: Computer and related services – 72, Research and development services – 73; Other business services – 74) (Wyszkowska--Kuna, 2016, p. 82).

Labour input is the number of hours worked by persons engaged (WIOD, 2014). The category "persons engaged" is broader than the category "employees", because it includes, in addition to employees, self-employed workers (Timmer et al., 2007, p. 25).

Capital input is the value of real fixed capital assets in 1995 prices multiplied by the number of hours worked per person engaged (WIOD, 2014). The number of hours worked per person engaged is used as an indicator showing the shift-factor, i.e. the degree to which capital assets are used in the analysed period, depending on the economic situation.

Capital stocks have been constructed on the basis of the Perpetual Inventory Method (PIM) in which the capital stock (K) in year t is estimated as the sum of the depreciated capital stock in year t–1 plus real investment (I) in year t:

$$K_t = (1 - d)K_{t-1} + I_t \tag{12}$$

with d the depreciation rate. The depreciation rates are taken to be geometric and industry-specific (from less than 4% in e.g. Education and Public Administration to more than 10% in financial and business services) (Erumban et al., 2012, p. 6–7).

For the majority of the EU countries long time-series of investments are available and there is no need to have information on an initial stock estimate. However, for some countries (Bulgaria, Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, Poland, Romania and Slovak Republic) no investment data before 1995 was available, and thus the ICVAR method was used[8]. In the ICVAR method, industry specific ratios of value added to capital stocks were used of a country at a similar stage of development (often Spain). These industry-specific ratios (averaged over 5 years to smooth out business cycle fluctuations) were applied to the 1995 value added to derive the

[7] In the WIOD database (as in the EU KLEMS database) there is no data on the values of deflators for particular components of II. Thus, the components of FS input for total industries (i.e.: X_{65}, X_{66}, X_{67}) are deflated by GO deflator for industries 65–67, which have delivered FS input. The same method is applied to the KIBS input's deflation. One should also note some weaknesses in data showing the values of deflators, as the same values of deflator are used for industries 65, 66, 67, and 72, 73, 74. What's more there are some differences in the values of deflators in the WIOD and the EU KLEMS databases.

[8] Only in the case of Belgium the Harberger method was used (Erumban et al., 2012, p. 7).

1995 capital stock. For years after 1995 the PIM method was used based on this 1995 estimate (Erumban et al., 2012, p. 6–8).

Labour compensation is the compensation of all persons engaged, while capital compensation (WIOD, 2014) is derived as gross value added minus labour compensation (O'Mahony, Timmer, 2009, p. 380).

4. DATA SOURCES AND ANALYSED PERIOD

The data needed for the decomposition of GO volume growth are available in two databases, i.e.: the EU KLEMS and the WIOD, both developed by the European Commission as a part of the EU 7th Framework Programme. In the present study the WIOD data are used, due to the availability of data on capital investments for all the EU countries (in the EU KLEMS such data are available only for some of the EU countries) and of more recent data (the WIOD usually contains data till 2009, whereas the EU KLEMS only till 2007). Data on capital investments are available only till 2007, and therefore a complete decomposition of GO volume growth is possible only for the period 1995–2007, but for the next two years GO volume growth and the contribution of intermediate inputs, including financial services input, to this growth have been calculated. Analysis of the subsequent years is not possible due to the lack of relevant data.

The creation of the EU KLEMS and the WIOD databases gave the opportunity to work on more complete and comparable data between countries (O'Mahony, Timmer, 2009, p. 396), which has created new opportunities for research on the decomposition of output volume growth. However, one should keep in mind that in both cases the data for some years have been created by interpolation, and haven't been derived directly from statistical sources. Thus their completeness should be treated with a fairly significant degree of approximation, which leads to caution when interpreting the results of the studies based on them. One should also note the risk of lower reliability of data on service industries than on manufacturing industries. This is due to the fact that when constructing these databases a variety of additional data sources were used, which are generally less numerous and often more incomplete in the case of service industries (O'Mahony, Timmer, 2009, p. 390). Finally the problems with measuring service output, especially in areas such as financial or business services (O'Mahony, Timmer, 2009, p. 390–391), should be mentioned.

5. RESULTS OF THE DECOMPOSITION OF GROSS OUTPUT VOLUME GROWTH INCLUDING THE ALLOCATION INTO FINANCIAL SERVICES INPUT CONTRIBUTION TO THIS GROWTH

Table 1 shows average annual growth rates of GO volume in the period 1995–2007 for total industries in the EU countries (column 2) and their decomposition into the contributions of: labour inputs (column 4); capital inputs (column 5); intermediate

inputs (II – column 6) and changes in TFP (column 3). For the purposes of the research conducted in the present paper, FS input contributions (column 7) were calculated as a part of II contributions. They have been calculated for aggregated values of FS input in each country, which means they do not include changes in the composition of FS input. Therefore, their values are not equal to summed values of: FIS input contribution (Financial intermediation services, except insurance and pension funding services input contribution – column 8); I&PFS input contribution (Insurance and pension funding services, except compulsory social security services input contribution – column 9), and SAtFI input contribution (Services auxiliary to financial intermediation input contribution – column 10), which include changes in the composition of FS input. The values of both FS input contributions are compared in figure 2.

Table 1.

Gross output volume growth[a] in 1995–2007, and its decomposition into the contributions of: labour, capital and intermediate inputs, including financial services input[b], and changes in TFP, in the EU countries

Country	GO	TFP	Labour input	Capital input	II	**FS input**	FIS input	I&PFS input	SAtFI input
AUT	3.52	0.71	0.28	0.37	2.16	**0.05**	-0.02	0.02	0.07
BEL	2.64	0.18	0.33	0.45	1.68	**0.07**	-0.07	0.03	0.14
DNK	3.18	0.29	0.36	0.40	2.13	**0.13**	0.09	0.01	0.03
FIN	4.53	1.17	0.38	0.35	2.63	**0.03**	0.01	0.01	0.02
FRA	3.24	0.84	0.19	0.21	1.99	**0.17**	0.07	0.03	0.08
DEU	2.35	0.60	-0.04	0.30	1.49	**0.07**	0.00	0.03	0.04
GBR	3.26	0.71	0.24	0.50	1.81	**0.09**	0.01	0.06	0.02
GRC	3.58	0.31	0.37	1.34	1.56	**0.28**	0.28	0.02	0.00
IRL	7.73	0.46	0.95	1.42	4.90	**0.57**	0.27	0.19	0.13
ITA	2.11	0.02	0.31	0.31	1.47	**0.11**	0.06	0.01	0.05
LUX	8.32	0.51	0.83	0.61	6.37	**5.43**	1.88	0.04	3.59
NLD	3.00	0.69	0.35	0.36	1.60	**0.07**	0.05	0.00	0.02
PRT	2.64	-0.03	0.25	0.95	1.48	**0.23**	0.17	0.04	0.03
ESP	4.17	0.14	0.91	0.63	2.49	**0.20**	0.04	0.06	0.13
SWE	3.35	0.93	0.20	0.52	1.70	**0.01**	-0.02	0.02	0.01
BGR	4.27	0.68	0.04	0.31	3.24	**0.05**	0.02	0.03	0.00
CYP	5.17	1.28	0.79	0.46	2.64	**0.36**	0.30	0.02	0.04
CZE	5.63	0.90	-0.03	0.45	4.31	**0.07**	0.04	0.02	0.01
EST	7.85	2.00	0.07	1.19	4.60	**0.37**	0.23	0.03	0.11
HUN	6.63	1.72	0.05	0.18	4.68	**-0.05**	-0.05	0.00	0.00
LAT	6.74	1.63	0.30	1.27	3.54	**0.18**	0.04	0.19	0.01

Country	GO	TFP	Labour input	Capital input	II	**FS input**	FIS input	I&PFS input	SAtFI input
LTU	5.76	1.39	0.23	1.55	2.60	**0.04**	0.03	0.00	0.01
MLT	3.73	0.51	0.21	0.58	2.43	**0.51**	0.43	0.04	0.31
POL	6.44	1.91	-0.07	0.30	4.30	**0.18**	0.12	0.02	0.04
ROU	4.49	0.75	0.08	0.57	3.09	**0.05**	0.03	0.01	0.01
SVK	6.88	1.34	-0.02	0.90	4.66	**-0.12**	-0.11	-0.02	0.01
SVN	4.61	1.16	0.05	0.64	2.76	**0.10**	0.05	0.04	0.01
EU[c]	3.12	0.57	0.24	0.40	1.91	**0.13**	0.04	0.03	0.06

[a] Average annual growth rate for total industries. [b] FS input contributions to GO volume growth (total and with respect to its components) have been calculated on the basis of formulas 6 and 9, while intermediate inputs contributions on the basis of formula 3. FS input contributions calculated for aggregated values of FS input in each country. [c] The EU(27) weighted average, with weights assigned based on each country's share in the EU's gross output.

Source: own calculations based on: WIOD, 2013, National Input-Output Tables: *Time Series Supply and Use Tables, Use Tables at Purchasers' Prices,* WIOD database; WIOD, 2014, *Basic Data on Output and Employment*, WIOD database.

The highest value of FS input contribution to GO volume growth, at much higher level than in any other EU country, took place in Luxembourg. FS input contribution amounted there to 5.43, which accounted for 85% of total II contribution and 62% of GO volume growth in this country, which means that FS input was by far the most important source of GO volume growth (the highest among the EU countries). However, one should note that Luxembourg is a special case – it is a small economy, specific in terms of its sectoral structure and position within the EU, recognized as a tax haven and an offshore financial centre (OFC), and characterised by very favourable regulations, political stability, financial security and its location in the centre of Europe (Tax Justice Network, 2007; Mainelli, Yeandle, 2007, 2009).[9] Therefore, it does not seem reasonable to compare Luxembourg with other EU countries.

The second highest value of FS input contribution to GO volume growth was reached by Ireland (0.57, however it was 9.5 times lower than in Luxembourg), followed by Malta (0.51), Estonia (0.37), Cyprus (0.36), Greece (0.28) and Portugal (0.23). Three of them (Malta, Cyprus and Ireland) have been also recognized as tax havens and OFCs.[10] Among the abovementioned countries only Ireland, Estonia and Cyprus recorded high rates of GO volume growth, which indicates that FS input was

[9] Tax havens are low-tax jurisdictions that provide investors with opportunities for tax avoidance or paying lower taxes (Desai et al., 2004, p. 1). OFCs are located in tax havens and they exploit the structures that can be created using the tax haven's legislation for the benefit of those residents elsewhere. They combine some of the following characteristics: a high number of financial institutions that mainly serve non-residents, financial systems out of proportion with the domestic economy`s need, low or no taxes, light financial supervision and regulation, flexible use of different company structures, and high levels of bank secrecy and anonymity (Levin, 2002, p. 2).

[10] In recent years Luxembourg and other EU countries perceived as tax heavens have taken some actions to change their image, which is in line with the EU policy to eliminate regulations supporting tax avoidance within its member states (Blomeyer, Sanz, 2013). However, the elimination of all differ-

an important, but not the main, source of GO volume growth. In Poland, FS input contribution also had a relatively high value (0.18), which was accompanied by a high rate of GO volume growth. In Slovakia and Hungary FS input contribution to GO volume growth recorded negative values, with relatively high rates of GO volume growth.

In the last row in table 1, the weighted averages for the EU(27) are presented, with the weights assigned based on each country's share in the EU's GO (in 1995 prices). They show that the EU average FS input contribution to GO volume growth was at a medium level (0.13), which accounted for 4.2% of the EU average GO volume growth. Eleven countries (Luxembourg, Ireland, Malta, Estonia, Cyprus, Portugal, Spain, Greece, Latvia, Poland and France) reached values above the EU(27) average.

In percentage terms (in relation to GO volume growth – figure 1) FS input most significantly contributed to GO volume growth (excepting Luxembourg) in Malta (13%), Portugal (approx. 8.5%), Greece and Ireland (almost 8%), and Cyprus (approx. 7%). In these countries, as well as in four other (Italy, France, Spain and Estonia), the importance of FS input contribution for GO volume growth was above the EU(27) average (4.2%).

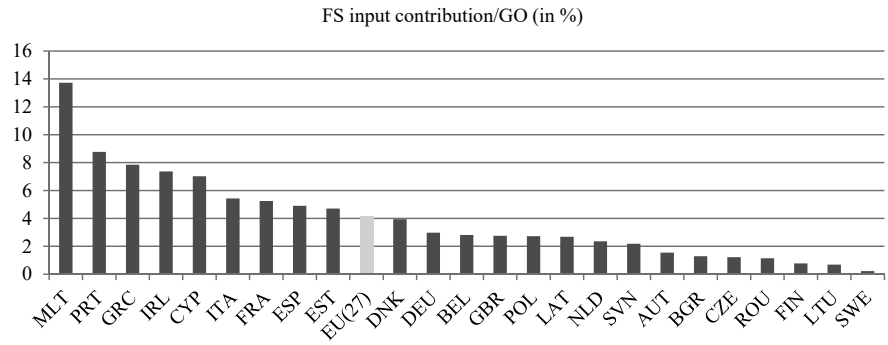

Figure 1. The ratio of financial services input contribution to gross output volume growth and gross output volume growth, in 1995–2007 in the EU countries[a]

[a] Except for Luxembourg (because of much higher value of the ratio in comparison with other EU countries), as well as except for Hungary and Slovakia (because of negative values of FS input contribution).

Source: own calculations based on the values of GO volume growth and FS input contribution from table 1.

Among the countries with a surprisingly high importance of FS input contribution to GO volume growth Portugal and Greece should be mentioned. Greece (similarly as Austria, Finland, France and Sweden) was recognized by the OECD as a potentially harmful tax regime, whereas Madeira, being a part of Portugal (similarly as Belgium, Frankfurt in Germany, Campione d'Italia & Trieste in Italy, the Netherlands and Hungary) were recognized as tax havens, although none of them was recognized

ences in tax regulations is not possible, and thus some EU countries remain more attractive for foreign businesses than others (Parietti, 2016).

as an OFC. This may lead to the conclusion that the importance of FS input contribution may also depend on some other factors, e.g. the level of competition on the market (the methodology used in the paper assumes perfect competition), or some others. One should also bear in mind that there may also be some differences between the countries covered by the study in the quality of relevant data, which may have an impact on these results. Thus it seems advisable to continue research in this field in order to identify the factors that determine the importance of FS input contribution in different countries.

The countries with high FS input contribution usually recorded TFP change on the medium level (except for Cyprus and Poland). On the contrary, relatively high growth of TFP can be noticed in Slovakia and Hungary.

In figure 2 there are values of FS input contributions calculated in two ways: (1) for aggregated values of FS input in each country (FS input1 – as in table 1) and (2) for summed values of the contribution of each type of FS input – i.e. summed values of the contribution of: FIS input, I&PFS input, and SAtFI input (FS input2). The values of FS input2 contributions include changes in the composition of FS input (Jorgenson et al., 1987). In the case of those countries where higher values were reached for FS input2 contribution, one can speak of positive changes in the composition (quality) of FS input. These positive changes are a result of a relative increase in the importance of new products based on more advanced technologies and knowledge, which in turn results in their higher productivity. The highest differences between the two values (26 percentage points – pp) are visible in Malta, where changes in the composition are due to the high increase in SAtFI input contribution. It should be noted that in Malta these services recorded a very low value of GO (0.002 million) in the base year, which later resulted in its very high average annual growth rate (the increase to 29 million euro meant that average annual growth rate was 125%). Large differences are also visible in Luxembourg (9 pp; changes in the composition due to the increasing importance of FIS and SAtFI inputs contribution), Latvia (6 pp, changes in the composition due to the increaseing importance of I&PFS input contribution and to a lesser degree of SAtFI), and Spain (4 pp, changes in the composition due to the increasing importance of SAtFI and I&PFS input contribution).

For comparison, the values of KIBS input contribution are presented in figure 2. FS input contribution was generally lower than KIBS input contribution, with the exception of Luxembourg (where FS input contribution was 6 times higher than KIBS input contribution), Greece and Cyprus (more than twice higher), as well as Malta and Portugal.

In 2007–2008, most countries maintained GO volume growth and positive values of FS input contribution. The exceptions were Estonia, Ireland and Latvia, which recorded a decline in GO volume and negative values of FS input contribution. In turn, Luxembourg, Malta, and France recorded negative values of FS input contribution with GO volume growth (the opposite situation took place in the UK and Denmark, i.e. positive values of FS input contribution while GO volume declined). In 2008–2009, all

countries, including Poland, recorded a decline in GO volume and all countries (except Bulgaria) negative values of II contribution. The highest negative values of FS input contribution can be noticed in Luxembourg (-2.75 in 2008 and -4.05 in 2009), and then in Ireland (-0.53 and -0.46), Estonia (-0.27 and -0.46) and Latvia (-0.27 and -0.34).

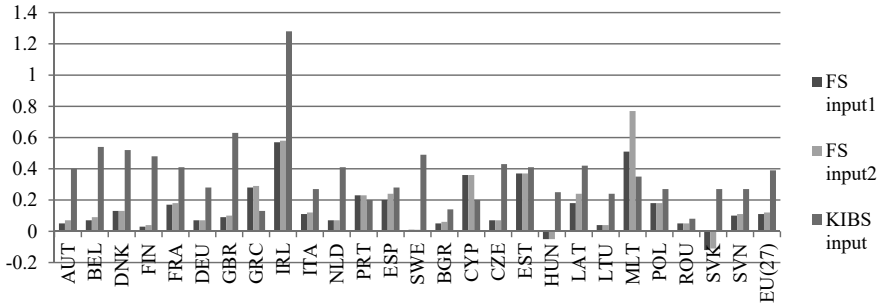

Figure 2. The contributions of financial services input and knowledge-intensive business services input to gross output volume growth, in 1995–2007 in the EU countries

FS input1 calculated for aggregated values of FS input. FS input2 calculated by summing the contribution of each type of FS input. EU(27) – the EU(27) weighted average, with weights assigned based on each country's share in the EU's gross output.

Source: own calculations based on the sources as in table 1.

Table 2.

Gross output volume growth in 2007–2008 and 2008–2009, and intermediate inputs contribution – including financial services input contribution – to this growth, in the EU countries

Country	GO	II	**FS input**	FIS input	I&PFS input	SAtFI input	GO	II	**FS input**	FIS input	I&PFS input	SAtFI input
	2007–2008						2008–2009					
AUT	2.67	1.99	**0.09**	0.06	0.02	0.01	-4.66	-2.68	**0.11**	0.06	0.01	0.04
BEL	1.13	0.60	**0.14**	0.03	0.02	0.08	-3.54	-2.35	**-0.13**	-0.04	-0.03	-0.07
DNK	-0.02	0.04	**0.08**	0.06	0.01	0.01	-6.91	-4.65	**-0.23**	-0.17	-0.03	-0.02
FIN	2.11	1.78	**0.01**	0.00	0.00	0.00	-9.24	-5.57	**0.05**	0.04	0.01	0.00
FRA	0.64	0.39	**-0.01**	-0.01	0.00	0.00	-4.99	-3.69	**-0.44**	-0.26	-0.06	-0.12
DEU	0.73	0.21	**0.07**	0.03	0.02	0.02	-7.37	-4.74	**-0.09**	-0.04	-0.03	-0.01
GBR	-0.50	-0.45	**0.15**	0.60	-0.21	-0.12	-5.25	-2.85	**-0.28**	-0.18	-0.06	-0.03
GRC	0.54	-0.36	**0.28**	0.27	0.03	-0.02	-3.61	-2.73	**0.22**	0.26	-0.02	-0.02
IRL	-3.37	-2.44	**-0.53**	-0.26	-0.18	-0.09	-5.06	-3.04	**-0.46**	-0.26	-0.15	-0.05
ITA	-1.87	-1.34	**0.04**	0.01	0.00	0.02	-8.19	-5.62	**-0.17**	-0.12	-0.02	-0.04
LUX	0.22	-0.27	**-2.75**	-1.59	-0.10	-1.04	-6.47	-5.30	**-4.05**	-1.62	-0.11	-2.32

Country	GO	II	**FS input**	FIS input	I&PFS input	SAtFI input	GO	II	**FS input**	FIS input	I&PFS input	SAtFI input
	2007–2008						2008–2009					
NLD	2.10	1.13	**0.25**	0.16	0.03	0.06	-4.18	-2.73	**-0.07**	-0.04	-0.02	-0.02
PRT	0.12	-0.20	**0.03**	0.03	0.00	0.01	-4.21	-2.88	**0.06**	0.05	0.01	0.01
ESP	0.45	-0.05	**0.02**	0.01	0.00	0.00	-5.72	-4.07	**-0.13**	-0.09	-0.03	0.00
SWE	0.06	0.25	**0.03**	0.02	0.01	0.00	-8.16	-5.60	**-0.02**	-0.01	0.00	0.00
BGR	2.41	0.84	**0.70**	0.47	0.20	0.03	-5.03	0.68	**0.42**	0.31	0.09	0.02
CYP	6.42	4.42	**0.42**	0.33	0.04	0.05	-2.88	-1.93	**-0.11**	-0.10	-0.01	-0.01
CZE	3.25	2.10	**0.07**	0.05	0.01	0.02	-7.92	-6.23	**0.00**	0.00	0.00	0.00
EST	-5.53	-3.68	**-0.27**	-0.15	-0.03	-0.09	-17.23	-10.71	**-0.46**	-0.29	-0.05	-0.11
HUN	2.13	1.68	**0.05**	0.03	0.01	0.01	-11.74	-8.78	**-0.01**	-0.01	0.00	-0.01
LAT	-2.99	-1.78	**-0.27**	-0.14	-0.12	-0.01	-17.22	-10.08	**-0.34**	-0.16	-0.17	-0.01
LTU	7.72	6.38	**0.23**	0.17	0.04	0.02	-20.36	-12.79	**0.07**	0.06	0.00	0.01
MLT	3.61	0.61	**-0.29**	-0.23	-0.04	-0.02	-4.45	-2.76	**0.74**	0.61	0.07	0.06
POL	5.10	2.93	**0.25**	0.15	0.03	0.07	-3.39	-4.07	**-0.27**	-0.17	-0.04	-0.06
ROU	8.72	5.20	**0.34**	0.16	0.06	0.11	-6.04	-3.05	**-0.16**	-0.07	-0.04	-0.05
SVK	7.18	4.66	**0.08**	0.04	0.02	0.02	-9.68	-7.78	**-0.10**	-0.03	-0.04	-0.02
SVN	3.06	1.60	**0.04**	0.03	0.01	0.00	-10.96	-7.34	**-0.05**	-0.04	-0.01	0.00
EU[a]	0.42	0.13	**0.06**	0.10	-0.02	-0.01	-6.23	-4.17	**-0.20**	-0.11	-0.04	-0.05

[a] The EU(27) weighted average, with weights assigned based on each country's share in the EU's gross output.
Source: own calculations based on the sources as in table 1.

It should be noted, that generally FS input only marginally contributed to the decline in GO volume in the EU countries. In 2007–2008, the EU(27) average value of FS input contribution decreased less than the EU(27) average GO volume, and in a result 14% of GO volume growth could be assigned to FS input contribution. The following year, when the EU (27) GO volume declined, the EU(27) average FS input contribution to this decline accounted only for 3%. The analysis at a country level also shows that in countries recording the highest decline in their output negative values of FS input contribution were relatively low, and interestingly in Lithuania, where GO declined the most (-20.4%), the contribution of FS input was positive (a similar situation took place in several other countries, i.e. in Austria, Bulgaria, Finland, Greece, Malta and Portugal, and a particularly high positive value of FS input contribution with very high output decline took place in Malta). On the contrary, Luxembourg, Ireland, France, Poland and the United Kingdom recorded relatively high negative values of FS input contribution in relation to the decline in GO volume.

In countries with negative values of FS input contribution all its components were negative. In both periods the most important contribution to both GO volume growth and decline can usually be assigned to FIS input, then to I&PFS input, and finally to SAtFI input.

In table 3 the results of more standard economic growth accounting methods are presented to compare them with the results of the decomposition of GO volume growth (table 1). In 1995–2007, all the EU countries recorded a growth of total value added (VA) and value added in Financial intermediation (VAFI)[11]. In most countries the growth rates of VAFI were higher than that of VA. Only in Finland, Germany, Hungary, Latvia, Lithuania, Romania and Slovakia was the situation reversed, and Hungary was the only country where VAFI declined. The highest growth rates of VAFI took place in Estonia, Poland and Cyprus, and in the case of these countries one can note the highest differences in growth rates of both values. As far as the shares of VAFI in VA are concerned, the highest values were reached by Luxembourg (23%), followed by Portugal (9%), Cyprus and Belgium, Great Britain, Ireland (8%) and Austria (7%), whereas the lowest shares of VAFI in VA were recorded by Slovakia and Hungary (2%). Finally, the ratio of intermediate consumption of FI services (ICFI) to the global output of this sector (GOFI) shows the extent to which FI services constituted intermediate input, and the extent to which they constituted final output, in each country. The ratio was the highest in Luxembourg (77%), followed by Germany, but with Germany's index being lower by 20 percentage points. In other countries the ratio ranged between 50% (Great Britain, France) and 27% (Romania, Cyprus).

Table 3.

The importance of value added and intermediate consumption of Financial intermediation services, in 1995–2007 and 2007–2009 in the EU countries

Country	VA(G)[a]	VAFI(G)[b]	VAFI(S)[c]	ICFI(R)[d]	VA(G)[a]	VAFI(G)[b]	VAFI(S)[c]	ICFI(R)[d]
	1995–2007				2007–2009			
AUT	2.60	5.98	7.16	35.02	-1.33	9.28	9.56	30.99
BEL	2.21	4.45	7.62	41.21	-0.75	-2.07	8.06	43.71
DNK	1.99	7.67	6.63	35.34	-2.38	-1.32	10.12	30.62
FIN	3.89	2.03	3.58	39.61	-3.81	3.20	3.61	45.52
FRA	2.21	3.22	4.85	50.72	-1.02	1.39	5.33	52.65
DEU	1.68	0.57	4.34	57.27	-2.11	1.94	4.11	65.05
GBR	2.91	5.38	7.54	50.98	-2.45	-1.44	8.68	52.30
GRC	3.75	5.41	4.35	30.89	0.09	7.76	5.17	30.19
IRL	6.90	8.17	7.56	47.05	-3.52	-4.54	8.77	53.88

[11] "Financial intermediation" is the name of section J comprising all financial divisions (65–67). The terms "Financial intermediation services" and "FI services" refer to all services delivered by this section.

Country	VA(G)[a]	VAFI(G)[b]	VAFI(S)[c]	ICFI(R)[d]	VA(G)[a]	VAFI(G)[b]	VAFI(S)[c]	ICFI(R)[d]
	1995–2007				2007–2009			
ITA	1.42	3.15	4.98	38.89	-3.32	-0.83	5.92	38.96
LUX	4.92	6.08	22.68	77.41	-0.97	-5.06	23.49	81.97
NLD	2.83	3.94	6.67	47.07	-0.44	2.70	7.55	47.64
PRT	2.63	8.54	9.22	32.27	-1.06	1.74	12.67	31.45
ESP	3.59	6.48	4.97	37.01	-1.22	-2.09	6.54	36.15
SWE	3.30	4.42	4.95	31.72	-2.95	0.51	5.31	30.37
BGR	2.33	8.06	3.47	36.53	-0.24	17.34	8.11	39.67
CYP	3.69	10.00	8.31	26.59	0.98	3.78	11.10	24.94
CZE	3.25	7.23	4.13	51.60	-0.77	14.09	5.59	42.68
EST	7.39	23.26	5.78	45.18	-9.51	-16.90	10.23	43.92
HUN	3.51	-3.41	2.41	46.01	-3.34	1.84	1.79	49.49
LAT	7.35	6.62	4.34	35.15	-9.21	-10.92	4.30	32.91
LTU	6.61	4.78	1.91	39.11	-5.91	-2.13	1.75	43.89
MLT	2.95	3.77	4.69	43.90	1.60	17.63	4.30	63.36
POL	4.38	13.80	4.75	40.63	3.47	-6.55	6.50	45.90
ROU	3.09	2.75	6.59	27.32	0.57	1.76	6.78	36.55
SVK	5.09	-3.67	2.22	42.79	0.97	4.50	1.39	46.58
SVN	4.47	8.92	6.91	31.53	-2.37	6.67	10.25	23.21
EU[e]	2.44	3.74	5.54	47.18	-1.82	0.72	6.25	49.41

[a] The average growth rates of gross value added (VA). [b] The average growth rates of VA in Financial intermediation. [c] The average shares of VA in Financial intermediation in total VA (in %). [d] The average ratios of intermediate consumption of Financial intermediation services and gross output of Financial intermediation sector (in %). [e] The EU(27) weighted average, with weights assigned based on each country's share in the EU's gross output.

Source: own calculations based on the sources as in table 1.

In 2007–2009, most countries recorded a decline in VA, but only 11 experienced a decline in VAFI. The highest decline in VAFI took place in Estonia (-17%) and Latvia (-11%), whereas some countries maintained high growth rates of VAFI (Malta and Bulgaria +17% and Czech Republic +14%). In 2007–2009, the share of VAFI in VA generally increased in comparison with the period 1995–2007 (it declined only in Germany, Hungary, Latvia, Lithuania). The same can be said about the ratio of ICFI and GOFI, but in this case more countries (eleven) experienced decline, with the greatest decline taking place in the Czech Republic and Slovenia.

One can note that most countries with the highest shares of VAFI in VA (Austria, Belgium, Denmark, Great Britain, the Netherlands, Portugal, Romania and Slovenia) recorded relatively low values of FS input contribution to GO volume growth, as well as of the ratio of ICFI to GOFI (except Great Britain, where it was above the EU(27) average). Based on this it can be concluded that FI services were to a greater extent final output, not intermediate input, in these countries. The same can be said

about Cyprus, where FS input contribution was relatively high, but the ratio of ICFI to GOFI reached the lowest value. The opposite situation took place in Luxembourg, where FI services were mainly intermediate input, as well as in Ireland and Estonia, although to a lesser extent than in Luxembourg. In Poland, FS input contribution to GO volume growth, as well as the share of VAFI in VA were both above the EU(27) average, whereas the ratio of ICFI to GOFI was below the EU(27) average.

In 1995–2007, in the EU countries GO volume growth and FS input contribution to this growth were positively correlated with each other, as the correlation coefficient for both variables achieved a value of 0.43. In 2007–2008, the correlation between the analysed variables decreased to 0.31, and in the following year it vanished (0.006). For the entire analysed period there was no correlation between FS input contribution to GO volume growth and TFP. The estimation of the regression equation shows that the relationship between FS input contribution to GO volume growth and GO volume growth in the period 1995–2007 was bi-directional. It should be noted, however, that FS input is a part of GO (it is a part of total production costs), therefore its growth automatically leads to an increase in GO. The share of FS input in total costs, however, is small, so the direct impact of FS input volume growth on GO volume growth is also low. If, therefore, there is a correlation between GO volume growth and FS input contribution to this growth, it can be assumed that the role of FS input in driving GO volume growth is greater than is apparent from its small share in GO.

6. CONCLUSIONS

1. Previous research examined the relationship between financial development and economic growth, but there are no studies on the impact of financial services input on output and productivity growth. The literature review shows that services input should be treated as a contribution to output growth in the same way as raw materials and manufacturing inputs.

2. The methodology of decomposition of GO volume growth, implemented by Jorgenson et al., and the availability of data in the WIOD database (as well as in the EU KLEMS database) has made it possible to calculate the contributions of different components of intermediate inputs to GO volume growth. This indicator captures both the size and the dynamics of intermediate expenditures and it can be used in further research studying the impact of FS input on output and productivity growth.

3. In 1995–2007, all the EU countries recorded GO volume growth and almost all (except for Slovakia and Hungary) had positive values for FS input contribution. In most countries the growth rates of VA in Financial intermediation were higher than of total VA, with Hungary being the only one country where VA in Financial intermediation declined. In 2008–2009, all the EU countries recorded a decline in GO volume (some already in 2007–2008) and usually negative values of FS input contribution, but only a few countries experienced a decrease in VA in Financial intermediation. As a result, the share of VA in Financial intermediation in total VA, as well as the ratio

of intermediate consumption of financial services to GO in Financial intermediation, both increased in most countries.

4. In 1995–2007, the EU weighted average FS input contribution to GO volume growth reached a medium value (0.13), which accounted for 4.2% of the EU weighted average GO volume growth. When the crisis started the values of FS input contribution decreased less than GO volume.

5. FS input was by far the main source of GO volume growth, and later decline in Luxembourg. Among the other EU countries, the importance of FS input to GO volume growth was much lower, although Malta, Estonia and Cyprus stood out. The EU policy to remove favourable tax regulations among its members may decrease the GO growth and the FS input contribution to this growth in European offshore financial centres, but some differences between countries will probably remain, although of a lower scale.

6. In Luxembourg, as well as in Ireland and Estonia, Financial intermediation services were mainly intermediate input, whereas in other countries where they recorded their highest contribution to value added they were final output to a larger extent.

7. In the entire group of EU countries a positive correlation between GO volume growth and FS input contribution to this growth was found, and this relation have appeared to be bi-directional. It should be noted, however, that while FS input contributed positively to GO volume growth, it had no significant impact on GO volume decline. In both periods covered by the study, FS input had no impact on productivity growth.

8. In general, the most important contribution to GO volume growth can be assigned to FIS input, then to SAtFI input and finally to I&PFS input. When the world financial crisis began FIS input contributed most to GO volume decline, but I&PFS input had higher contribution to this decline than SAtFI input.

REFERENCES

Antonelli C., (1998), Localized Technological Change, New Information Technology and the Knowledge-based Economy: the European Evidence, *Journal of Evolutionary Economics*, 8 (2), 177–198.

Antonelli C., (2000), New Information Technology and Localized Technological Change in the Knowledge Based Economy, in: Boden M., Miles I., (eds.), *Services and the Knowledge-based Economy*, Continuum, London, 170–191.

Baker D., (2007), The Impact of Business-services Use on Client Industries: Evidence from Input Output Data, in: Rubalcaba L., Kox H., (eds.), *Business Services in European Economic Growth*, Palgrave MacMillan, New York, 97–115.

Baláž V., (2003), Knowledge Intensive Business Services in a Transition Economy, *Ekonomický časopis*, 51 (4), 475–488.

Baláž V., (2004), Patterns of Intermediate Consumption and Productivity in the Knowledge Intensive Services in Transition Economies, *Ekonomický časopis*, 52 (3), 298–314.

Baumol W. J., (1967), Macroeconomics of Unbalanced Growth: the Anatomy of Urban Crisis, *The American Economic Review*, 57 (3), 415–426.

Baumol W. J., Blackman S. A. B., Wolff E. N., (1989), *Productivity and American Leadership: The Long View*, MIT Press, Cambridge.

Bayar Y., (2014), Financial Development and Economic Growth in Emerging Asian Countries, *Asian Social Science*, 10 (9), 8–17.

Blomeyer & Sanz, (2013), *European Initiatives on Eliminating Tax Havens and Offshore Financial Transactions and the Impact of these Constructions on the Union's own Resources and Budget*, European Union, Brussels, http://www.europarl.europa.eu/RegData/etudes/etudes/join/2013/490673/IPOL-JOIN_ET(2013)490673_EN.pdf, (31.05.2016).

Browning H., Singelmann J., (1978), The Transformation of the U. S. Labor Force: The Interaction of Industry and Occupation*, Politics and Society*, 8 (3–4), 481–509.

Cagno di D., Meliciani V., (2005), Do Inter-sectoral Flows of Services Matter for Productivity Growth? An Input/Output Analysis of OECD Countries, *Economics of Innovation and New Technology*, 14 (3), 149–171.

Camacho J. A., Rodriguez M., (2007), Integration and Diffusion of KIS for Industry Performance, in: Rubalcaba L., Kox H., (eds.), *Business Services in European Economic Growth*, Palgrave MacMillan, New York, 128–143.

Caporale G. M., Rault C., Sova A. D., Sova R., (2014) Financial Development and its Effects on Economic Growth: A Dynamic Analysis, in: Arouri M., Boubaker S., Nguyen D. K., *Emerging Markets and the Global Economy: A Handbook*, Academic Press, Oxford (UK), Walthman (USA), San Diego (USA), 811–824, Science Direct, (15.05.2016).

Caporale G. M., Rault C., Sova A. D., Sova R., (2015), Financial Development and Economic Growth: Evidence from 10 New European Union Members, *International Journal of Finance and Economics*, 20 (1), 48–60.

Desai M. A., Foley C. F., Hines J. R., (2004), Economic Effects of Regional Tax Havens, *NBER Working Paper Series*, 10806, http://www.nber.org/papers/w10806, (31.05.2016).

Desmarchelier B., Djellal F., Gallouj F., (2013), Knowledge Intensive Business Services and Long Term Growth, *Structural Change and Economic Dynamics*, 25 (C), 188–205.

Drejer I., (2002), *Business Services as a Production Factor*, Paper presented at the DRUID Conference on "Industrial Dynamics of the New and Old Economy – Who is Embracing Whom?", Copenhagen-Elsinore, http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.197.2243&rep=rep1&type=pdf, (10.11.2013).

Erumban A. A., Gouma R., de Vries G., de Vries K., Timmer M., (2012), *WIOD Socio-Economic Accounts (SEA): Sources and Methods*, http://www.wiod.org/publications/source_docs/SEA_Sources.pdf, (13.07.2016).

Fisher I., (1933), The Debt-Deflation Theory of Great Depressions, *Econometrica*, 1(4), 337–357.

Greenfield H. I., (1966), *Manpower and the Growth of Produces Services*, Columbia University Press, New York.

Jorgenson D. W., Griliches Z., (1967), The Explanation of Productivity Change, *The Review of Economic Studies*, 34 (3), 249–283.

Jorgenson D., Gollop F. M., Fraumeni B., (1987), *Productivity and U.S. Economic Growth*, Harvard University Press, Cambridge, MA.

Kasprzak-Czelej A., (2010), Wpływ rozwoju system finansowego na wzrost gospodarczy, *Annales Universitatis Mariae Curie-Skłodowska*, Lublin, XLIV(2), 17–30, http://docplayer.pl/12102395-Wplyw-rozwoju-systemu-finansowego-na-wzrost-gospodarczy.html, (10.05.2016).

Katsoulacos Y., Tsounis N., (2000), Knowledge-intensive Business Services and Productivity Growth: the Greek Evidence, in: Boden M., Miles I., *Services and the Knowledge-based Economy*, Continuum, London-New York, 192–208.

Kouki I., (2013), Financial Development and Economic Growth in the North African Region, *African Development Review*, 25 (4), 551–562.

Krishnan K. P., (2011), Financial Development in Emerging Markets: The Indian Experience, in: Kawai M., Prasad E. S., (eds.), *Financial Market Regulation and Reforms in Emerging Markets*, Asian Development Banks, Tokyo and Brookings Institution Press, Washington, 226–262.

Levin M., (2002), *The Prospects for Offshore Financial Centres in Europe*, Centre for European Policy Studies, https://www.ceps.eu/publications/prospects-offshore-financial-centres-europe, (10.05.2016).

Levine R., (2005), *Finance and Growth: Theory and Evidence*, in: Aghion P., Durlauf S. N., (eds.), *Handbook of Economic Growth*, ELSEVIER, Amsterdam, 865–934, http://faculty.haas.berkeley.edu/ross_levine/papers/Forth_Book_Durlauf_FinNGrowth.pdf, (10.05.2016).

Lucas R. E., (1988), On the Mechanics of Economic Development, *Journal of Monetary Economics*, 22 (1), 3–42.

Mainelli M., Yeandle M., (2007, 2009), *The Global Financial Centres Index*, Z/Yen Group for the City of London, http://www.zyen.com/PDF/GFCI_1_March_2007.pdf, (15.05.2016).

Masoud N., Hardaker D., (2012), The Impact of Financial Development on Economic Growth: Empirical Analysis of Emerging Market Countries, *Studies in Economics and Finance*, 29 (3), 148–173.

Miller M. H., (1998), Financial Markets and Economic Growth, *Journal of Applied Corporate Finance*, 11 (3), 8–15.

Minsky H. P., (1982), Can "It" Happen Again? Essays on Instability and Finance, *Hyman P. Minsky Archive*, Paper 314, http://digitalcommons.bard.edu/hm_archive/314, (2.08.2016).

Minsky H. P., (1990), Schumpeter: Finance and Evolution, in: Heertje A., Perlman M., (eds.), *Evolving Technology and Market Structure: Studies in Schumpeterian Economics*, the University of Michigan Press, Ann Arbor, MI, 51–76.

Ncube M., (2007), Financial Services and Economic Development in Africa, *Journal of African Economies*, 16 (1), 13–57.

O'Mahony M., Timmer M. P., (2009), Output, Input and Productivity Measures at the Industry Level: the EU KLEMS Database, *Economic Journal*, 119 (538), 374–403.

Oulton N., (2001), Must the Growth Rate Decline?, *Oxford Economic Papers*, 53 (4), 605–627.

Parietti M., (2016), *The Top 10 European Tax Havens*, 4.04.2016, Investopedia, http://www.investopedia.com/articles/wealth-management/121515/top-10-european-tax-havens.asp, (1.06.2016).

Robinson J., (1952), The Generalization of the General Theory, in: *The Rate of Interest and Other Essays*, MacMillan, London.

Schumpeter J. A., (1912, 1934), *The Theory of Economic Development* (translated by R. Opie), Harvard University Press, Cambridge, MA.

Sunde T., (2012), Financial Sector Development and Economic Growth Nexus in South Africa, *International Journal of Monetary Economics and Finance*, 5 (1), 64–75.

Tax Justice Network, (2007), *Identifying Tax Havens and Offshore Financial Centres*, http://www.taxjustice.net/cms/upload/pdf/Identifying_Tax_Havens_Jul_07.pdf, (31.05.2016).

Timmer M., Moergastel van T., Stuivenwold E., Ypma G., O'Mahony M., Kangasniemi M., (2007), *EU KLEMS Growth and Productivity Accounts*, *Part I Methodology*, European Commission, Luxembourg.

Tomlinson M., (2000), Information and Technology Flows from the Service Sector: a UK–Japan Comparison, in: Boden M., Miles I., (eds.), *Services and the Knowledge-based Economy*, Continuum, London, 209–221.

Windrum P., Tomlinson M., (1998), *The Impact of KIBS on International Competitiveness: a UK-Netherlands Comparison*, SI4S Topical Paper, 10, http://survey.nifu.no/step/old/Projectarea/si4s/papers/topical/si4s10.pdf, (3.02.2012).

Windrum P., Tomlinson M., (1999), Knowledge-intensive Services and International Competitiveness: a Four Country Comparison, *Technology Analysis and Strategic Management*, 11 (3), 391–408.

WIOD, (2013), National Input-Output Tables: *Time Series Supply and Use Tables, Use Tables at Purchasers' Prices*, WIOD database, www.wiod.org, (5.11.2013).

WIOD, (2014), Socio-Economic Accounts: *Basic Data on Output and Employment*, WIOD Database, www.wiod.org, (1.12.2014).

Wyszkowska-Kuna J., (2016), *Usługi biznesowe oparte na wiedzy. Wpływ na konkurencyjność gospodarki na przykładzie wybranych krajów Unii Europejskiej*, Wydawnictwo Uniwersytetu Łódzkiego, Łódź.

WYDATKI PRZEDSIĘBIORSTW NA USŁUGI FINANSOWE JAKO ŹRÓDŁO WZROSTU GOSPODARCZEGO W KRAJACH UNII EUROPEJSKIEJ

Streszczenie

Celem pracy jest zbadanie i porównanie znaczenia wydatków przedsiębiorstw na usługi finansowe dla wzrostu produkcji w krajach Unii Europejskiej. W badaniu wykorzystano metodę dekompozycji wzrostu produkcji według Jorgensona et al. (1987), która zakłada, iż zmiany produkcji wynikają ze zmian wielkości wydatków przedsiębiorstw na zakup surowców, materiałów, usług i czynników produkcji (pracy i kapitału) oraz łącznej produktywności czynników produkcji. Zaletą tej metody jest możliwość obliczenia wkładów wydatków na zakup materiałów lub usług (ogółem lub dla poszczególnych kategorii) we wzrosty produkcji w całej gospodarce oraz w poszczególnych działach. Badanie przeprowadzono w odniesieniu do usług finansowych, jednakże znaczenie usług finansowych dla wzrostu gospodarczego porównano ze znaczeniem usług biznesowych opartych na wiedzy, które postrzegane są jako mające wpływ na wzrost produkcji i produktywności. Dane wykorzystane w badaniu pochodzą z WIOD (World Input-Output Database). Okres badawczy to lata 1995–2009, z uwagi na dostępność danych.

Słowa kluczowe: usługi finansowe, wzrost gospodarczy, dekompozycja wzrostu produkcji, Unia Europejska

FINANCIAL SERVICES INPUT AS A SOURCE OF ECONOMIC GROWTH IN THE EUROPEAN UNION COUNTRIES

Abstract

The aim of this paper is to study and compare the importance of intermediate demand for financial services for the growth of production in the European Union countries. In the study the methodology introduced by Jorgenson et al. (1987) is used. This assumes that changes in the production (in real terms) result from changes in intermediate inputs of raw and manufacturing materials and services, as well as in factor inputs (labour and capital) and in total factor productivity. The advantage of this method is the ability to calculate the contributions of different components of intermediate inputs (including service inputs – total or with respect to particular service categories) to production growth in the whole economy and in individual industries. The study is carried out with respect to financial services, but their contribution to economic growth is compared with the contribution of knowledge--intensive business services that have been already recognized as affecting economic and productivity growth. The data used in the study come from the World Input-Output Database. The analysed period covers the years 1995–2009, owing to the availability of relevant data.

Keywords: financial services, economic growth, the decomposition of economic growth, European Union