THE INFLUENCE OF THE NUMBER OF ACTIVE ENTERPRISES IN SERVICES ON EXPORTS. THE CASE OF 25 EU COUNTRIES IN 2007*

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Services are the most important contributor to the GDP and also the most important job generator. Countries development, usually, is based on the services sector.
The present paper is aiming to highlight the influence of the number of active enterprises in services on exports. The paper is based on a model generated using data provided by Eurostat, for 25 EU countries and for 4 services categories. Generated in Eviews 4.1, the model is correctly specified, with a R-squared value of 0.65, and revealed a validated influence of the number of enterprises active in Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods and in Real estate, renting and business activities on exports.

Keywords: enterprise, services, exports, European Union.

JEL Classification: C30, C40, L81, L85, L91, M19

Introduction

The term of service is reflected in different forms, depending on the context: from intangible services associated to abstract elements, such as information or knowledge, to services that involve individual action, such as health or education[290.] Services are defined as a human activity, with a specialized content, resulting in useful, immaterial and intangible outcome allocated to satisfy a social need291. Services are characterized by: immateriality, intangibility, storage impossibility, simultaneous production and consumption of services, non-sustainability, inseparability from the provider and user, variability and heterogeneous. Moreover, Edvardsson, Gustafsson and Roos consider the characterization of services as inseparable, heterogeneous, intangible and perishable too simplistic and state that the difference between services and products is not always so well defined292. In economics, services met an evolutionary path, from infrastructure services to their approach as an experience, having as intermediate stages the support services, recreational and leisure services, educational services and services that allow

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290 Wild, P.W., 2010. Longing for service: Bringing the UCL Conception towards services research. *Interacting with computers*, 22(1), pp. 28-42.

291 Ioncică, M., Minciu, R. & Stănciulescu G., 1999. *Economia serviciilor.* Ediţia a II-a revizuită şi adăugită, Bucureşti: Editura Uranus.

292 Edvardsson, B., Gustafsson, A. & Roos, I., 2005. Service Portraits in Service Research: A Critical Review. *International Journal of Service Industry Management*, 16(1), pp. 107-121.

spare time saving293. These particularities are the one that confer a certain degree of uniqueness and they support the services improvement process294. Because, products from primary and secondary sectors are associated with services, it is very difficult to demarcate each spectrum, highlighting the fact that services exceed the tertiary sector area, containing also intangible activities of the other two sectors (primary and secondary sectors). Lindberg and Nordin argue that the difference between goods and services is no longer clearly defined, precisely because both are given together, resulting on the one hand, products servicing, and on the other one, the services materialization295. At European Community level, the free movement of services involve the removal of barriers that hinder the free movement of people who develop independent activities, of employees, or of their families.

Methodology

Based on data provided by Eurostat, the model consisted of a multiple regression and it was generated using Eviews 4.1 program. The main purpose of the model is to emphasize a potential relation between the number of active enterprises in services and the value of exports of goods and services, for 25 EU countries. From the range of existing services, only the "Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods", "Hotels and restaurants", "Transport, storage and communication" and "Real estate, renting and business activities" categories were chosen for the model, as data only for these were identified. The analysis consisted only of 25 EU countries, namely Belgium, Bulgaria, Czech Republic, Denmark, Germany, Estonia, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden and United Kingdom. Malta and Ireland, as European Union members, weren't taken into consideration, as no data were provided for them. The list of variables used for the model was composed of:

- dependent variable: exports of goods and services (expressed in current prices in millions of euros – notation Exporturi);
- independent variables: enterprises active in Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods (expressed in number of enterprises - notation COM), enterprises active in Hotels and restaurants (expressed in number of enterprises - notation HOT), enterprises active in Transport, storage and communication (expressed in number of enterprises - notation TRANSP) and enterprises active in Real estate, renting and business activities (expressed in number of enterprises - notation IMOB).

Descriptive analysis of series of data

The series of data were used exactly as they were provided by Eurostat; any processing did not occur on them. The paper is based on data from the 2007 year, with the authors' intention of expanding the research on other future years.

In what concerns the value of exports of the analyzed EU countries, its mean is 192374.6 and its median is 82318 corresponding to Finland. The series is relatively heterogeneous, taking into consideration the standard deviation that registers a quite high value (257050.2), in comparison with the mean's value of 192374.6. According to Jarque-Bera, residual values are normally distributed, because the probability registers a value lower than 0.05. The asymmetry coefficient

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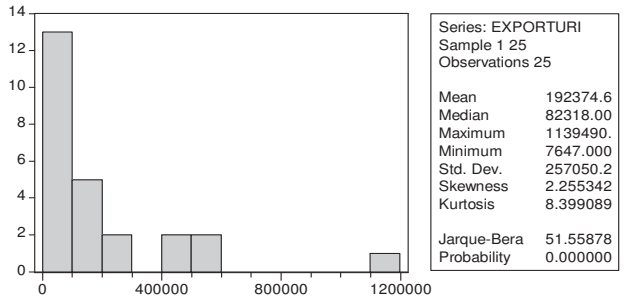
[293] Heineke, J. & Davis, M.M., 2007. The emergence of service operations management as an academic discipline. *Journal of Operations Management*, 25(2), p. 366.

[294] Nijssen, E. J., Hillebrand, B., Vermeulen, P.A.M. & Kemp, R.G.M., 2006. Exploring product and service innovation similarities and difference. *International Journal of Research in Marketing*, 23, pp. 241-251.

[295] Lindberg, N. & Nordin, F., 2008. From products to services and back again: Towards a new service procurement logic. *Industrial Marketing Management*, 37(3), pp. 292-300.

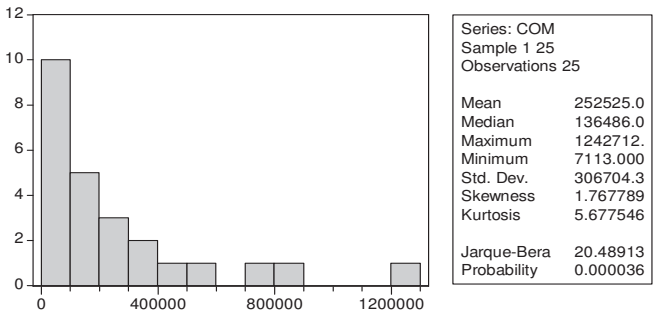
registers a value of 2.25 that suggests an asymmetric series oriented towards positive values. The flattening coefficient registers a value of 8.39 suggesting a leptokurtosis series oriented towards positive values. (Figure no. 1)

Figure no. 1: Description of Exports series of data



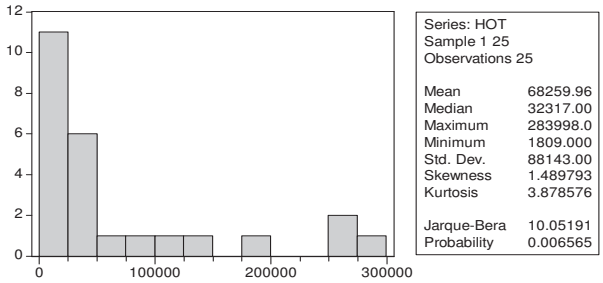
Taking into consideration the number of enterprises active in Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods from the analyzed EU countries, it can be appreciated that, its mean is 252525 and its median is 136486 corresponding to Belgium. The series is relatively heterogeneous, taking into consideration the standard deviation that registers o quite high value (306704.3), in comparison with the mean's value of 252525. According to Jarque-Bera, residual values are normally distributed for all the analyzed services categories, because the probability registers a value lower than 0.05. The asymmetry coefficient registers a value of 1.76 that suggests an asymmetric series oriented towards positive values. The flattening coefficient registers a value of 5.67 suggesting a leptokurtosis series oriented towards positive values. (Figure no. 2)

Figure no. 2: Description of Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods series of data



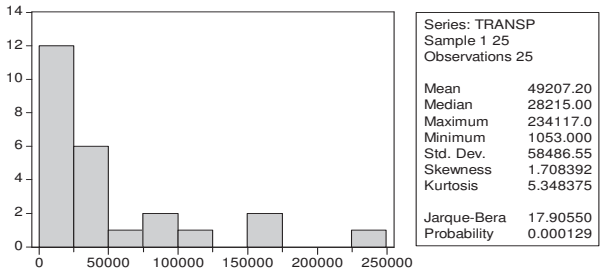
Considering the number of enterprises active in Hotels and restaurants from the analyzed EU countries, it can be appreciated that, its mean is 68259.96 and its median is 32317 corresponding to Hungary. The series is relatively heterogeneous, taking into consideration the standard deviation that registers o quite high value (88143), in comparison with the mean's value of 68259,96. The asymmetry coefficient registers a value of 1.48 that suggests an asymmetric series oriented towards positive values. The flattening coefficient registers a value of 3.87 suggesting a leptokurtosis series oriented towards positive values. (Figure no. 3)

Figure no. 3: Description of Hotels and restaurants series of data



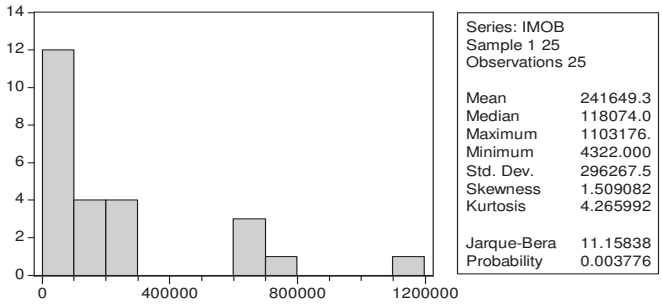
Referring to the number of enterprises active in Transport, storage and communication from the analyzed EU countries, it can be appreciated that, its mean is 49207.2 and its median is 28215 corresponding to Holland. The series is relatively heterogeneous, taking into consideration the standard deviation that registers a quite high value (58486.55), in comparison with the mean's value of 49207.2. The asymmetry coefficient registers a value of 1.70 that suggests an asymmetric series oriented towards positive values. The flattening coefficient registers a value of 5.34 suggesting a leptokurtosis series oriented towards positive values. (Figure no. 4)

Figure no. 4: Description of Transport, storage and communication series of data



Taking into consideration the number of enterprises active in Real estate, renting and business activities from the analyzed EU countries, it can be appreciated that, its mean is 241649.3 and its median is 118074 corresponding to Belgium. The series is relatively homogeneous, taking into consideration the standard deviation that registers a value (296267.5) quite close to the one of the mean (241649.3). The asymmetry coefficient registers a value of 1.50 that suggests an asymmetric series oriented towards positive values. The flattening coefficient registers a value of 4.26 suggesting a leptokurtosis series oriented towards positive values. (Figure no. 5)

Figure no. 5: Description of Real estate, renting and business activities series of data



Possible connections between active enterprises in services and exports

The model was generated using the OLS method and it was based on the following equation: *Exporturi=a+ b*COM+c*HOT+d*TRANSP+e*IMOB+ ε*; all the variables being explained in the methodology part of the paper. Considering the results generated by the model and by substituting the obtained coefficients, the model's equation can be rewrite as follows:

*Exporturi=58109.75-1.027686*COM+0.879749*HOT+0.450289*TRANSP+1.289356*IMOB*

The results generated by the model are illustrated in table no. 1.

Table no. 1: Model's results

Dependent Variable: EXPORTURI				
Method: Least Squares				
Sample: 1 25				
Included observations: 25				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	58109.75	44866.17	1.295180	0.2100
COM	-1.027686	0.400772	-2.564268	0.0185
TRANSP	0.450289	1.370242	0.328620	0.7459
HOT	0.879749	1.277558	0.688617	0.4990
IMOB	1.289356	0.391242	3.295548	0.0036
R-squared	0.650292	Mean dependent var		192374.6
Adjusted R-squared	0.580351	S.D. dependent var		257050.2
S.E. of regression	166518.0	Akaike info criterion		27.06045
Sum squared resid	5.55E+11	Schwarz criterion		27.30423
Log likelihood	-333.2556	F-statistic		9.297660
Durbin-Watson stat	2.004593	Prob(F-statistic)		0.000205

The model has been based on two hypotheses for each coefficient, namely the null hypothesis (H_0: the coefficient = 0) and the alternative one (H_1: the coefficient differs significantly from 0).

In order to verify the estimators' significance, the t Student test has been applied.

For the free coefficient, the estimated value is 58109.75, with a standard error of 44866.17 and a t Statistic value of 1.295180. The marginal level of significance (p-value) registers a value higher than 0.05, namely 0.21 suggesting a confirmation of the null hypothesis, implicit of the fact that the free coefficient is null.

For the coefficient associated to the COM variable, the estimated value is -1.027686, with a standard error of 0.400772 and a t Statistic value of -2.564268. The marginal level of significance (p-value) registers a value lower than 0.05, namely 0.0185 suggesting a rejection of the null hypothesis according to which the coefficient is null. Therefore, it can be considered that the

coefficient associated to the COM variable differs significantly from 0 and it has an influence of -1.027 on the dependent variable.
For the coefficient associated to the TRANSP variable, the estimated value is 0.450289, with a standard error of 1.370242 and a t Statistic value of 0.328620. The marginal level of significance (p-value) registers a value higher than 0.05, namely 0.7459 suggesting a confirmation of the null hypothesis, implicit of the fact that the coefficient is null.
For the coefficient associated to the HOT variable, the estimated value is 0.879749, with a standard error of 1.277558 and a t Statistic value of 0.688617. The marginal level of significance (p-value) registers a value higher than 0.05, namely 0.4990 suggesting a confirmation of the null hypothesis, implicit of the fact that the coefficient is null.
For the coefficient associated to the IMOB variable, the estimated value is 1.289356, with a standard error of 0.391242 and a t Statistic value of 3.295548. The marginal level of significance (p-value) registers a value lower than 0.05, namely 0.0036 suggesting a rejection of the null hypothesis according to which the coefficient is null. Therefore, it can be considered that the coefficient associated to the IMOB variable differs significantly from 0 and it has an influence of 1.289 on the dependent variable.
Therefore, as a short conclusion of the estimators' analysis, it can be stated that, from the entire model, only two independent variables have a noticeable influence on the dependent variable. In the presented model, the value of exports of goods and services is influenced only by the number of enterprises active in Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods and in Real estate, renting and business activities.
Also, table no. 1 illustrates the value of the Fisher test. It can be observed that the value of F Statistic is 9.297660, with a marginal level of significance of 0.000205, suggesting a correctly specified model.
A qualitative indicator of the regression model is the determined coefficient (R-squared). A value close to 1, for this coefficient, illustrates the fact that the variable Exporturi variations are mainly explained, in this model, by the variations of the variables COM and IMOB. For this model, the R-squared value is 0.650292 outlining the fact that the model adjusts correctly the data from the panel. Therefore, it can be considered that this model has been correctly specified. Durbin Watson registers a value of 2.004593 (very close to 2) highlighting an uncorrelated model's errors.

Conclusions

Services are one of the most important means of a country development because of their influence in every sector and activity of a country. Exports are not an exception to the mention situation. The model generated using data provided by Eurostat, for 25 EU countries and for 4 services categories, generated in Eviews 4.1, revealed a noticeable influence of the number of enterprises active in Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods and in Real estate, renting and business activities on exports, while the number of enterprises active in Hotels and restaurants and in Transport, storage and communication had no valid p-value in order to be accepted as having an influence on exports. In order to bring more arguments and improve the presented model further data and tests are necessary.

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