



PRODUCTIVITY ANALYSIS

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TOURISM PRODUCTIVITY IN CYPRUS AND OTHER EU COUNTRIES

Summary and Policy Conclusions

The importance of the tourism industry for economic, social and cultural development in Europe, and the role of tourism as a driver of development are well known. In Cyprus tourism is one of the five biggest industries with a 7% share in the GDP of the economy. Thus, a flourishing tourism sector is very important for the economic growth of the Cypriot economy. For the tourism sector to continue to grow, however, it needs to improve its competitiveness, especially since it is facing competition not only from the south Mediterranean countries but also from new tourism performers in Central and Eastern Europe. One way to improve competitiveness is via increasing its productivity.

The major objective of this bulletin is to compare the output and productivity differences of the tourism industry between Cyprus and twenty other European countries over the period 2000–2012. In this context, we examine how factors – such as the quality of service, quality of the environment, public infrastructure, culture and safety – can explain observed output and productivity differences. In addition, the output differences between the tourism industries in the countries under investigation are decomposed so as to understand the extent to which these differences can be attributed to capital and labour inputs, as opposed to productivity.

The main findings of our empirical analysis are summarized as follows.

- In most cases the major contributor to output differences is traditional inputs, i.e. the size of the labour force and the level of investment.
- The quality of services and the government expenditures on safety, culture and infrastructure make a positive contribution to output.
- As expected, quality of the environment, as captured by the generated waste, has a negative contribution to output.
- Productivity differences have a varying and significant contribution to output.

In terms of productivity Cyprus ranks about average, in the sense that it does not compare favourably or unfavourably with other European countries. Increase in output comes appears to be mostly explained by changes in inputs (labour and capital) rather than improvements in productivity. It also seems that government expenditures and quality of services are not sufficient to place Cyprus in a better position vis-à-vis other European countries. The quality of the environment, however, appears to contribute to help in this direction.

In conclusion, the Cyprus tourism sector needs to increase its productivity in order to become more competitive. This can be achieved through offering better quality services and targetting government expenditures on improving safety, culture and infrastructure.



1. Introduction

The importance of the tourist industry for economic, social and cultural development in Europe and the role of tourism as a driver of development are well known. EU countries are the leading tourism destination, with 42% of total tourism arrivals in the world. As tourism demand grows over time, the industry is generating additional employment, turnover and added value.

In Cyprus, tourism is one of the five biggest sectors with a 7% share in the GDP of the economy. Furthermore, it appears to be resilient to the economic crisis that has been hammering the country since 2011. Indicatively, the tourism sector experienced an output growth of 3.6% in 2014, while in the same year the Cyprus economy as a whole contracted by 2.5%.¹ The share of the sector in total employment was 8.9% in 2008 reaching 10.2% in 2014. Thus, the tourist industry has been and, most probably, will be one of the main stable pillars of growth of the Cypriot economy.

Competition is intensive with respect to tourism between Cyprus and other European countries, especially south Mediterranean countries – including Spain, Italy, Greece, Malta and Portugal. New star performers in Central and Eastern Europe such as Slovakia, Bulgaria, Latvia and Lithuania pose a threat to the share of tourism of the Cypriot economy. The Cypriot tourism sector needs to be more competitive in order to grow further, and one way to improve competitiveness is via increasing productivity.

2. Productivity comparisons

2.1 Data and methods

The major objective here is to compare the output and productivity differences of tourism among Cyprus and European countries. Productivity is the major contributor to competitiveness and therefore the former needs constant improvements to sustain the country's ability to keep the tourism sector competitive. We examine how factors such as the quality of service, quality of the environment, public

infrastructure, culture and safety can explain the observed output and productivity differences among Cyprus and 20 European countries. In addition, the cross country difference in the tourism output is decomposed to (i) capital and labor input differences and (ii) productivity differences. For this analysis recent data on the tourism sectors of 21 European countries have been collected covering the period 2000–2012. Our sample consists of the following countries: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Italy, Lithuania, Luxembourg, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain and the UK. The data are from several publications of Eurostat and the European Commission.

In order to be able to compare countries, one needs measures of inputs and output that are expressed in the same monetary denominator. To achieve this comparability, we employ purchasing power parities (PPP) of output, capital and labor for all the countries under consideration. More specifically, all price and quantity data used in the analysis are expressed in constant PPP (euro is 2000).

In order to analyse the output and productivity differences among European tourism sectors we employ a production function that depends on traditional inputs (capital and labor), productivity and the following variables:

- (i) quality of services warranted by nights spent at tourism accommodations;
- (ii) quality of environment captured by waste generated in each country; and
- (iii) government expenditures on
 - a. infrastructure (transport/communications), and
 - b. safety, recreation and culture.

The methodology for productivity comparisons used in the analysis is based on the theory of consistent multilateral comparisons by measuring differences from the 'average' hypothetical country². In the context of this analysis, first we construct the observed productivity that depends only on capital and labor; and then we proceed on estimating the effects of the variables listed above in order to obtain

¹ The Central Bank of Cyprus reports that in the first four months of 2014 there was a 1.4% increase in tourist arrivals and a 4.7% increase in revenues from tourism during the first two months of 2014.

² Caves D. W., L. R Christensen and W. E. Diewert (1982), Multilateral Comparisons of Output, Input and Productivity using Superlative Index Numbers, *The Economic Journal*, vol. 92 (365), p. 73–86.

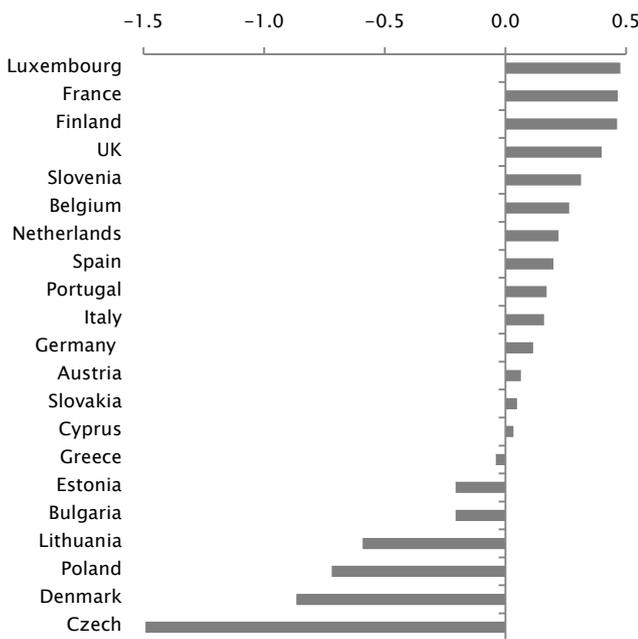
their contributions to productivity differences among the countries in our sample.³

2.2 Results

Figure 1, presents the productivity ranking of countries for the years 2000–2012, based on their difference from the average. From Figure 1 one can categorize countries in those with productivity

- above average: Luxembourg, France, Finland, UK, Slovenia, Belgium, Netherland, Spain, Portugal and Italy;
- near average: Germany, Austria, Slovakia, Cyprus and Greece.
- Below average: Estonia, Bulgaria, Lithuania, Poland, Denmark and Czech.

Figure 1: Productivity differences from the average



Cyprus needs to improve its competitiveness, otherwise the share of tourism arrivals and nights stays will decrease because of other more competitive tourism destinations. The major drivers of higher productivity and therefore competitiveness come from human capital (education, skills, training on and off the job and quality of management), technology and innovation.

³ For more details about the estimation methods used see Ketteni Elena and Theofanis Mamuneas, 'Comparisons of Productivity among European Sectors and Cyprus: The Case of Tourism Sector', *Economic Analysis Papers*, 09–15, December 2015.

3. Decomposition of output differences

Next, we proceed to investigate the extent to which different factors (capital and labour inputs, the quality of services and of the environment, safety/culture, and infrastructure) and productivity explain differences in tourism output across countries. The parameter estimates showing the contribution of these factors on output differences are given in the Appendix. Here, Table 1, reports these contributions for each country in our sample. More precisely, the second column in the table (headed 'Output differences') shows how much the output of the tourism sector in each country differs from the average; whereas the subsequent columns show the contribution of different factors to these differences.

Notably, most differences in output (around 75%) simply reflect differences in traditional inputs (capital and labour). This, is not surprising, given that the size of labour force and the stock of capital (investment in equipment, machinery and building) inputs, are the major drivers of growth in tourism, as are in all sectors of the economy.⁴ After controlling for differences in these traditional inputs, we observe the following.

- The quality of services and the level of government expenditures on safety/culture has a positive contribution to the output the of tourism sector, especially in countries which have overnight stays and expenditure above average.
- Government expenditure on infrastructure also makes a positive contribution to output; however, this variable has a smaller effect compared to the effects of the quality of services and expenditures on safety/culture other variables.
- As one would expect environmental pollution (as approximated by the generated waste in a country) makes a negative contribution to the output of the tourism sector.

⁴ Low investment result in the accumulation of old capital stock having a negative effect on production efficiency. This is particularly the case for small businesses that often face problems in raising funds for investment [see Blake, A and Sinclair, M.T. (2006), *Tourism Productivity: Evidence from the United Kingdom*, *Annals of Tourism research*, vol. 33 (4), p.1099-1120.

- Finally, the extent to which productivity contributes to differences in tourism output varies between countries, with the highest contribution made in Luxembourg, Slovenia and Finland; whereas its contribution is lowest in Poland, Denmark and the Czech Republic.

Table 1: Contributions to output differences

Country	Output difference	Contribution to output differences from:					
		traditional inputs	quality of services	environmental pollution	safety & culture	infrastructure	Productivity
Spain	3.09	2.89	0.27	-0.28	0.28	0.07	-0.13
Italy	2.77	2.61	0.26	-0.31	0.35	0.07	-0.21
UK	2.64	2.25	0.22	-0.33	0.42	0.07	0.02
France	2.41	1.94	0.24	-0.33	0.36	0.08	0.13
Germany	2.37	2.25	0.24	-0.39	0.39	0.09	-0.22
Greece	1.26	1.30	0.10	-0.02	0.00	0.00	-0.13
Austria	1.22	1.15	0.13	-0.01	0.04	0.02	-0.11
Netherlands	0.98	0.76	0.03	-0.12	0.19	0.05	0.08
Portugal	0.93	0.76	0.04	-0.02	0.00	0.00	0.15
Belgium	0.47	0.21	-0.05	-0.02	0.09	0.03	0.21
Finland	-0.32	-0.79	-0.06	0.09	-0.05	0.00	0.47
Poland	-0.83	-0.11	-0.02	-0.15	0.07	0.02	-0.64
Slovakia	-0.99	-1.04	-0.15	0.18	-0.17	-0.05	0.24
Cyprus	-1.07	-1.10	-0.06	0.35	-0.36	-0.09	0.19
Slovenia	-1.28	-1.59	-0.17	0.26	-0.27	-0.06	0.56
Bulgaria	-1.30	-1.09	-0.06	0.01	-0.23	-0.06	0.14
Luxembourg	-1.75	-2.23	-0.33	0.43	-0.35	-0.06	0.79
Estonia	-2.38	-2.17	-0.23	0.36	-0.38	-0.09	0.14
Denmark	-2.48	-1.61	-0.10	0.03	-0.05	0.00	-0.75
Lithuania	-2.85	-2.26	-0.29	0.20	-0.31	-0.07	-0.12
Czech	-2.92	-1.42	0.01	0.06	-0.04	0.00	-1.52

In the case of Cyprus, the lower than average quality of services, as well as the low government expenditures on safety, culture and infrastructure contribute to the low position of the Cypriot economy in the ranking. Cyprus appears to be doing better (has smaller pollution) with respect to the environment. As regards productivity Cyprus is slightly above average. Thus, measures are needed so that the Cypriot tourism sector can improve its competitiveness and become an even bigger contributor to the economic growth of the country.

4. Conclusion

The results obtained from our analysis and from the analysis of similar studies reported in the literature⁵, suggest that the major factors which determine the competitiveness of the tourism sector go beyond the level of the labour force and the stock of capital used in production. Government support through regulation and formation of a tourism strategy placing emphasis on maintaining high levels of safety and security can contribute substantially to the competitiveness of the tourism sector. The same can also be said about the protection of the physical environment, improvements in the quality of tourism services and the development of supportive infrastructure (better transportation and telecommunications).

In conclusion, the attractive physical environment should not be a source of government complacency about the tourism sector. It appears that there is room for the Cypriot tourism sector to enhance its competitiveness primarily through improvements in safety, culture and, to a smaller extent, in infrastructure and quality of services vis-à-vis other European countries.

APPENDIX

Regression results		
Variable	Estimated Coefficient	Standard Error
Quality of Services	0.114	0.069
Quality of Environment	-0.163	0.096
Safety and Culture	0.157	0.100
Infrastructure	0.035	0.053

R-squared = .964650

Adjusted R-squared = .960739

F (zero slopes)=246.7 [.000]

Dummy variables are included in the analysis to capture exogenous productivity differences

⁵ Dupeyras, A. and MacCallum, N. (2013), Indicators for measuring competitiveness in tourism, OECD Tourism Papers, 2013/02, OECD Publishing.



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