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MACROECONOMIC DETERMINANTS OF BUSINESS MEETINGS WORLDWIDE

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Abstract: The article focuses on trying to explain the cross-sectional variation in the number of business meetings relative to countries. The author subjects to empirical analysis a group of macroeconomic factors that can objectively determine the phenomenon under study. The basic research tool is an econometric model on the basis of which specific conclusions were formulated. The study uses source data from widely published reports, mainly by the ICCA, an association that conducts research on the structure and size of the business meetings market.

Keywords: MICE, business meeting tourism, business tourism, econometric modeling, number of business meetings, macroeconomic determinants of business tourism

JEL classification: Z3, Z32, F2, L83, C01, C5

INTRODUCTION

Tourism is an important and rapidly growing branch of many countries' economies. "The dynamics of both quantitative and qualitative structural changes testify to the rapid development of this sector and its flexible adaptation to global challenges, such as adapting to the needs of the global consumer, or creating innovative solutions in the provision of services and the creation of new tourism products" [Dabrowska 2014]. One of the new types and forms of tourism is the business meetings industry, or business tourism. In Poland, one can most often encounter the term MICE tourism, which is derived from the first letters of the words Meetings, Incentives, Conferences, and Events, however, due to the ambiguous meaning of the word, especially in English, the term is replaced by the aforementioned terms [Anas, Maddiah, Noor Eizamly, Sulaiman, Wee 2020]. The issue under discussion "Includes trips of a professional nature, during which travelers

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enjoy basic tourist services, and in their leisure time satisfy the needs for rest, cognition, entertainment, etc. Its development is associated with the economic flourishing of countries, international economic relations, cooperation between different nations" [Golembski 2009; cf. Bhatia 2006; Sidorkiewicz 2011]. At the same time, the development of the economy significantly promotes the growth of business travel and contributes to the development of the industry of business meetings of professionals, congresses and conferences, which leads to the occurrence of feedback and escalation of the process. Tourism depends very much on the globalization processes taking place [Zelenka 2009; Hall, Coles 2008]. Key changes in consumption patterns, great advances in the fields of communications technology and transportation, and changes in the global economy and politics are having an extremely significant impact on the volume and structure of business trips [Levitt 1983; Davidson 1994; Niezgoda, Zmyślony 2006; Stiakakis, Georgiadis 2011; Reshetnikova, Magomedov 2019]. There is no doubt that the most important role in business destination planning is played by macroeconomic indicators, which have a key impact on demand for MICE-related services and facilities. Business tourism in many countries has now become an important segment of the tourism market largely due to the high expenses accompanying trips of a professional nature. According to estimates conducted by the United Nations World Tourism Organization (UNWTO), over the last decade of the 20th century the meetings industry was the area of tourism showing the greatest degree of progression. It accounts for about 15% of the global tourism market, while the daily spending of business tourists exceeds that of leisure travellers by almost 50% [UNWTO 2015]. Similarly, data collected by international organizations such as the International Congress and Convention Association (ICCA) and the Union of International Associations (UIA) on the number of international conferences and congresses held by each country show the dynamic growth of the industry [ICCA 2013]. From an economic point of view, the area of business meeting tourism represents the most promising and interesting part of the tourism market (Zbyrowska, 2017). This is evidenced by both a significant number of arrivals and higher average spending relative to other segments of the tourism market. It is worth noting that despite the global crisis at the turn of 2007-2009, the turmoil caused by chaotic changes in currency exchange rates, the introduction of onerous airport security measures for travelers, sharp increases in fuel prices and the pressure to increase the efficiency of business meetings held, the global meetings market industry has prospered and recorded continuous growth. There has been no decline in supply on the part of cities and countries still interested in acting as business travel destinations. On the other hand, there has been growing interest from new countries wishing to actively engage in this form of tourism, while conducting effective promotion of their own country, its natural assets, rich cultural background, the quality of infrastructure and services offered, and the attractiveness of the prepared offer [Balakrishnan 2009]. The business meetings industry is an extremely complex system consisting of many interrelated organizations and activities that are subject to the processes of the global

market, and changes in the customer sector [Kulendran, Wilson 2000; Bradley, Hall, Harrison 2002; Hall, Coles 2008]. Understanding these phenomena, continuous monitoring of the processes taking place and the effectiveness of adaptive measures within a turbulent environment are prerequisites for a country's success internationally [Blanco, Rey-Maquieira, Lozano 2009].

The purpose of the study is to verify what factors influence the development of business meeting tourism including the number of meetings held in each country. Exogenous variables that can affect the explanatory variable are: country size, country GDP, GDP per capita, EU membership, exports of goods, exports of services, imports of goods, imports of services, foreign direct investment inbound, foreign direct investment outbound. The study formulated the following research hypothesis: The study posits the following research hypothesis: A set of macroeconomic determinants, including country size, country GDP, GDP per capita, EU membership, exports of goods, exports of services, imports of goods, imports of services, inbound foreign direct investment, and outbound foreign direct investment, plays a significant role in influencing the prevalence of business tourism meetings in each country worldwide.

SOURCE DATA AND ITS CHARACTERISTICS

There is a significant deficit of ongoing empirical research on business tourism and business travel worldwide. The most important international federations specializing exclusively in tourism market analysis and research, responsible for collecting data on global business tourism, conferences and business travel are the International Congress and Convention Association and the Union of International Associations, mentioned earlier. It is possible to point out differences between them in their research both in terms of methodological assumptions and subject matter. The scope of the subject matter is related, among other things, to the objectives of the organization's operation and its nature [Godlewski 2008].

Table 1. Criteria for estimating the number of business meetings by international organizations

International organizations	ICCA	UIA
Ranking realization criteria	– the meetings are held periodically, – minimum of fifty meeting participants, – minimum of three countries present at the meeting.	– meetings last at least three days, – bring together a minimum of three hundred participants, – participants come from a minimum of five countries, – a minimum of 40% are participants are foreigners.

Source: UIA Report (2015); ICCA Report (2014)

For the purposes of this study, a number of reports were used, including one of the most important published by ICCA - the world's largest association dedicated to conducting research on the structure and size of the business meetings market, with more than a thousand members (organizations and companies) from ninety countries around the world. ICCA publications are the most common and respected reports treating the size of the market in question.

The statistics are from 2014 and were gathered from reports published by the following organizations:

- ICCA Statistics Report 2014,
- The World Bank,
- United Nations Conference On Trade And Development UNCTAD,
- Central Intelligence Agency.

Based on the characterization of the business meetings industry, the main focus was on obtaining and analyzing macroeconomic data identified by many experts and the literature as key to the development of the tourism sector, especially business tourism. The data analyzed includes 90 countries and 11 variables (the research sample contains 90 observations). Due to the fact that the data is for 90 countries, but from a single time period, a sample of so-called cross-sectional data was obtained. For the purpose of the analysis, data covering countries classified in ICCA statistics was used. The explained variable was the number of business tourism meetings held per year (endogenous variable). Countries holding fewer than five meetings per year were omitted from the statistics. For some countries, not all the economic data included in the model was available. Hence, in creating a balanced sample, cross-sectional units for which there were data gaps were removed. The final convention adopted for the empirical study includes a set of variables to be characterized as follows:

Business meetings - the number of international conferences, congresses and seminars held in each country during the year, classified based on the assumptions in Table 1;

Country size - the total land area of each country excluding the area of inland waters (rivers, lakes) and continental shelves (expressed in square kilometers);

A country's GDP - the sum of the value added by all resident producers in the economy, plus any taxes imposed on products and minus any subsidies not included in the value of products (data expressed in U.S. dollars). The values have been converted to dollars from national currencies using the annual official exchange rate;

GDP per capita - a country's GDP divided by the intra-country population, data expressed in U.S. dollars;

EU membership - a binary variable indicating whether a country subsumes membership in the European Union;

Exports of goods and services - represents the value of all market goods and services transferred to the world by a country. These include the value of goods, freight,

insurance, transportation, travel, royalties, license fees and other services such as communications, construction, finance, information. Prices exclude employment-related costs and investment income and transfer payments (expressed in millions of dollars);

Imports of goods and services - the value of all market goods and services received by a country from the rest of the world. These include the value of goods, freight, insurance, transportation, travel, royalties, license fees and other services such as communications, construction, finance. Prices exclude employment-related costs and investment income and transfer payments (expressed in millions of dollars);

Inward and outward foreign direct investment - data on flows of Foreign Direct Investment, expressed in net amounts, understood as a category of international investment, made by a resident of one country with the intention of exercising long-term control in the enterprise of another country (expressed in millions of dollars).

MODELING INSIGHTS AND RESEARCH FINDINGS

Estimation of the correlation matrix for the quantitative variables under study was taken as a preliminary step in assessing the relationship. In fact, only one variable i.e. EU membership has a binary nature, hence it was excluded from the correlation analysis.

Table 2. Pearson linear correlation matrix for the variables under study

Variable	business meetings	country size	a country's GDP	GDP per capita	exports of goods	exports of services	imports of goods	imports of services	inward foreign direct investment	outward foreign direct investment
business meetings	1.00									
country size	0.31	1.00								
a country's GDP	0.71	0.55	1.00							
GDP per capita	0.35	0.01	0.16	1.00						
exports of goods	0.73	0.49	0.84	0.21	1.00					
exports of services	0.43	0.21	0.49	0.12	0.41	1.00				
imports of goods	0.79	0.48	0.94	0.21	0.96	0.49	1.00			

Variable	business meetings	country size	a country's GDP	GDP per capita	exports of goods	exports of services	imports of goods	imports of services	inward foreign direct investment	outward foreign direct investment
imports of services	0.42	0.23	0.48	0.12	0.49	0.24	0.51	1.00		
inward foreign direct investment	0.52	0.56	0.65	0.20	0.70	0.31	0.72	0.33	1.00	
outward foreign direct investment	0.60	0.43	0.85	0.22	0.75	0.44	0.85	0.43	0.57	1.00

Source: own elaboration

The correlation coefficients included in Table 2 have relatively high values given the sample size of n = 90. The minimum threshold for a significantly different from zero correlation that can be determined in GRETL or R is 0.2072 for n = 90 in this case (with a two-sided 5% critical area). Hence, virtually any of the variables analyzed can significantly affect the number of business meetings. Note that the estimates of correlation coefficients indicate the possibility of only a positive relationship. In addition, the quantitative variables are from the same year creating a cross-sectional sample relative to the 90 countries analyzed. For this reason, it seems possible to propose a linear regression model with a carefully performed assessment of the homoskedasticity of the residual component. The classical least squares MNK method was used to estimate the structural parameters of the model using Eviews and R. As an auxiliary, the GRETL program was also used. Construction of the regression model required meeting the applicability conditions of the MNK estimator and the basic assumptions of MNK [Gajda 2004], a broader discussion of which is necessary as part of the evaluation of the estimated model.

Table 3. A preliminary model describing the number of business meetings by country

Dependent Variable: business meetings				
Method: Least Squares				
Included observations: 90				
	Coefficient	Std. Error	t-Statistic	Prob.
country size	0.0000	0.0000	0.9284	0.36
a country's GDP	0.0000	0.0000	0.5331	0.60
GDP per capita	0.0009	0.0004	2.4473	0.02

Table 3. Continued

	Coefficient	Std. Error	t-Statistic	Prob.
EU membership	86.7313	21.8436	3.9706	0.00
exports of goods	-0.2956	0.1146	-2.5788	0.01
exports of services	0.0363	0.0694	0.5232	0.60
imports of goods	0.6572	0.1243	5.2890	0.00
imports of services	0.0397	0.0778	0.5102	0.61
inward foreign direct investment	-0.0006	0.0006	-0.9725	0.33
outward foreign direct investment	-0.0009	0.0005	-1.8227	0.07
C	10.1845	13.6549	0.7459	0.46
R-squared	0.760447	Mean dependent var		121.5222
Adjusted R-squared	0.730124	S.D. dependent var		158.6511
S.E. of regression	82.418650	Akaike info criterion		11.7756
Sum squared resid	536633.8	Schwarz criterion		12.0811
Log likelihood	-518.9012	F-statistic		25.0781

Source: own development in Eviews program / R

The model estimated on the basis of a cross-sectional sample that consists of relatively heterogeneous units understood as 90 countries proved susceptible to the presence of heteroskedasticity in the residual component (white heteroskedasticity test statistic 132.45). Hence, the formulas from which the variance of the estimators is calculated are loaded. In this situation, confidence intervals and hypothesis testing based on T and F tests may not be reliable leading to erroneous conclusions and, consequently, an incorrectly specified model [Borkowski 2007]. The model was brought to its final form using robust estimators of the variance-covariance matrix (White, Newey-West) implemented in Eviews or R packages. In addition, during modeling, the residual component was found to be inconsistent with the normal distribution and the so-called "fat tails" of the model's residual distribution. Especially the latter property (i.e., fat tails of residuals) could adversely affect the reliability of the statistical tests performed. In this situation, the conformity of the distribution of the residual component to the normal distribution was achieved by switching to nonlinear relationships, where the Ramsey RESET test F-statistic value was equal to 6.1559 for the linear model. Injecting natural logarithms for selected variables had the effect of limiting the sample to 77 countries for which the variable "outward foreign direct investment" (i.e., foreign direct investment flowing out of the country) takes only positive values. The final estimated model has a disturbance distribution with the desired properties without the so-called "fat tails". Moreover the Ramsey RESET test F-statistic value is 2.0628 for the nonlinear model. In the

final model some variables had been removed based on the t-Statistic value and robust estimators of the variance-covariance matrix (White, Newey-West). After removing variables that do not affect the number of business meetings from the model, the following estimation table was obtained:

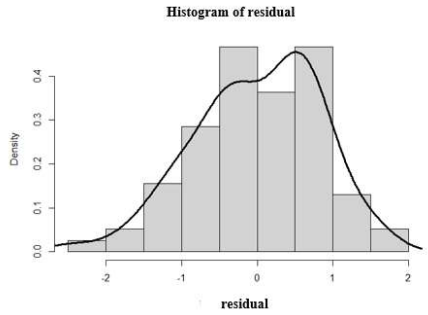
Table 4. The final model to explain the number of business meetings by country.

Dependent Variable: LN (business meetings)				
Method: Least Squares				
Sample(adjusted): 1 89				
Included observations: 77				
Excluded observations: 12 after adjusting endpoints				
Newey-West HAC Standard Errors & Covariance (lag truncation=3)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
EU membership	1.075440	0.191311	5.621433	0.0000
LN (outward foreign direct investment)	0.245519	0.050509	4.860928	0.0000
imports of goods	0.000947	0.000313	3.029897	0.0034
C	1.717967	0.290555	5.912708	0.0000
R-squared	0.671960	Mean dependent var	3.95651	
Adjusted R-squared	0.658479	S.D. dependent var	1.44689	
S.E. of regression	0.845564	Akaike info criterion	2.55292	
Sum squared resid	52.19341	Schwarz criterion	2.67468	
Log likelihood	-94.28757	F-statistic	49.8446	

Source: own development in Eviews program / R

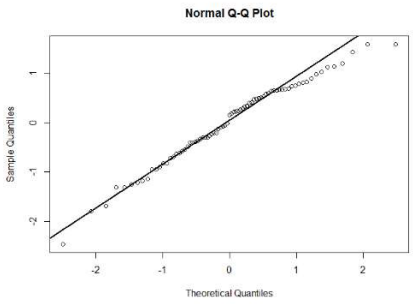
As mentioned earlier, an important issue for evaluating the model built is the distribution of the residual component. Figure 1 shows the histogram of the model's random perturbations and the probability density curve.

Figure 1. Distribution of the residual component of the model



Source: developed in R program

Figure 2. Empirical and theoretical quantiles for the residual component



Source: developed in R program

The study focused attention on the contours of the tails of the disturbance distribution and the associated probability of extreme values of the residuals. When the extreme values of a di stribution occur with similar frequency to that of a normal distribution, it can be assumed for the purposes of statistical testing that the residual component has a distribution close to normal [Mycielski 2009]. Figure 2 shows the discussed issue.

Table 5. Summary of tests of the consistency of the model's residuals with the normal distribution

Shapiro-Wilk normality test	Jarque Bera Test	Anderson-Darling normality test
W = 0.97973 p-value = 0.2565	X-squared = 2.4612 p-value = 0.2921	A = 0.49313 p-value = 0.2109

Source: own development in R software

Notation of the analytical form of the model equation:

$\ln(\text{business meetings}_i) = 1.7197 + 1.0754\ \text{EU membership}_i + 0.2455 \ln(\text{outward foreign direct investment}_i) + 0.0009\ \text{imports of goods}_i$

Intercept term is generally not subject to interpretation, but in the case of the model presented here, a certain number of business meetings can be expected to occur in the countries studied even when the values of the explanatory variables are close to zero. The evaluation of the parameter with the variable EU membershipi was 1.0754, and means that if a country is characterized by its membership in the European Union, the number of business meetings held by this country will be almost three times higher on average (de-logarithmic value of 2.9313) compared to a non-member country, while keeping the influence of other variables unchanged. This is in line with existing trends in business tourism, as globally most business travel is to Europe [Davidson 1993].

Foreign investment "flowing out" of the country also has a positive effect on the number of meetings discussed. In this case, a 1 percent increase in the value of the variable outward foreign direct investment$_i$ results in an increase in the expected number of business meetings by an average of 24.55 percent under the ceteris paribus assumption.
In addition, the parameter next to the imports of goods$_i$ variable (value 0.0009) indicates that if the value of a country's imports of goods increases by a unit (10 million USD) then the number of business meetings held by that country should be expected to increase by an average of 0.0947 percent, based on a ceteris paribus assumption. Thus, a country that imports more goods is becoming a more willing destination for business meetings.

The adjusted R-square of the estimated model took a value of about 0.66, so the equation was able to explain almost 66% of the variation in the number of business meetings held in the countries studied. This is not a particularly high result, but it is important to note the properties of the model, which has parameter estimates that are significantly different from zero based on a check of the Student's t-test. In addition, the correct distribution of the residual component, together with the use of a robust matrix of Newey-West parameter error estimates, leads the researcher to trust the results obtained for a research sample that is diverse and cross-sectional with respect to many countries.

CONCLUDING REMARKS

An empirical study based on an econometric model confirmed the influence of selected objective macroeconomic factors on the number of business meetings held around the world. The set of factors finally distinguished includes: membership in the European Union, outward foreign investment from each country and the volume of imports of goods. It should be noted that the research hypothesis formulated at the beginning of the study has been confirmed. However, not all the variables initially defined, proved adequate to describe the variability of the phenomenon under study. All parameters accompanying the variables in the final presented model have a positive sign, and their estimates are consistent with the economic conditions and dependencies present in the studied sphere of the tourism sector. Possible directions for future research include the possibility of extending the model to a larger sample size and a new set of explanatory variables. In addition, in terms of the number of business meetings discussed, it is planned to conduct fair comparisons of the data collected by the two organizations, i.e. ICCA and UIA, along with the formulation of conclusions of a general and cross-sectional nature. The main limitations of this study related to the data used. The potential for further research is to estimate an econometric model based on the latest dataset with a special concern to the COVID-19 global crisis. Moreover the research lays the groundwork for continued exploration and remains a pertinent reference point for understanding the complexities of global business tourism.

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