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## **ONLINE SHOPPING –MACRO-TRENDS AT THE LEVEL OF THE EU COUNTRIES**

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### **Abstract**

The main goal of the current manuscript is primarily to provide an overview of the online shopping phenomenon and of its main trends at the level of the economies of the European Union and secondly to identify some macro level characteristics of the EU member states that can be used as predictors of the development level of the studied phenomenon.

The study is conducted on macro level data downloaded from the online database of the Eurostat and from the online database of the World Bank and they cover the period 2004 – 2014 (annual data).

As important findings we can report that even though the development of the online activities is significant, during the analyzed period for all included economies, important disparities are constantly recorded.

The GDP/capita, the percentage of households with Internet access, and the frequency of the Internet access were identified as good predictors of the percentage of individuals purchasing online during the last 12 months.

### **Keywords**

Online purchase, European Union, GIS representation.

**JEL Classification:** L81, L83, L86, L17, L22

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### **Introduction**

Worldwide, online shopping is no longer a simple activity, or form of commerce, but it became a very complex field where companies compete for winning new markets and meeting their required standards. Nowadays, e-commerce became an essential component of economic development policies promoted mostly by developed-industrialized countries. Notable is the fact that governments of the most important industrialized countries have promoted several measures with the clear purpose of establishing a regulated unique (in terms of conducting commercial transactions electronically) electronic global market, which becomes one of the most important components of the global market. However, in the same time, the availability of information technologies related to the

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Internet, their low cost and their relative independence, compared to traditional technologies, has fueled a rapid growth in the emerging economies as well.

The electronic commerce has two main effects, which will change forever the way commerce is perceived by the general public. The first effect is represented by the impact on "middle-men" and also by the changes that will occur in the entire production chain, starting with product design and ending with the final purchase action. The second effect concerns directly the structure of the markets. As it is often said, the Internet is perceived as the "great equalizer of values" in the sense that it allows small companies to compete on similar grounds with large firms, enhancing therefore the competition. This new e-commerce even allows developing countries to compete with the more powerful developed countries by mitigating the development gap.

### **General background and brief literature review**

In the literature, the concept of online shopping has received important attention resulting in several definitions and interpretations which differ in principle, depending on the components taken in consideration by different authors and specialists. Online shopping drew attention through a large number of concepts, theoretical and practical phrases used in different forms and contexts. Noteworthy is the fact that important steps have been taken, by most authors interested in the topic, to develop appropriate definitions and terminology to describe the entire activity of online commerce. Most frequently the online shopping concepts are used by the great majority of users as adjacent concepts related to the entire world of the Internet.

A general approach of the online shopping concept includes all activities related to strategic and tactical online environment that transform business relationships, whether business-to-consumer, business-to-business, intra-business or consumer-to-consumer (David C. Parkes and David M. Pennock, 2009). However, it is important to note that online shopping activities are not confined to specific activities conducted online but also include activities conducted outside the Internet, which are considered as being support activities for those implemented online. Therefore, the online shopping should be considered an online business initiative focused on business transactions using the Internet as a medium of exchange, both in the business-to-business relations, and in the business-to-consumer ones. (Kariyawasam, Kanchana, 2008).

One of the most important attempts of describing the conceptual framework specific to the activity of these service providers (Saseanu et al. 2016) stresses the importance of the professional knowledge in the development of the entire e-commerce phenomenon.

### **Research goal and methodology**

The main goal of the present manuscript is to present the main trend in what the online shopping is regarded, at the level of the European Union motivated by the fact that nowadays, this commerce method is growing rapidly becoming the preferred alternative both by companies and by costumers due to its important advantages compared to the classic commerce methods.

The data used in this analysis were downloaded from the online database of the Eurostat and from the online database of the World Bank and they cover the period 2004 – 2014 (annual data).

Table no. 1

Name of the indicator	Source	Missing Data	Time period	Variable
Last online purchase in 12 months (% individuals who used internet in the last year)	Eurostat	Yes	2004-2014	op_iu
GDP per capita, PPP (constant 2011 international \$)	World Bank	No	2004-2014	gdp_c
Gini coefficient of equalized disposable income	Eurostat	Yes	2004-2014	gini
Households with Internet access (% households)	Eurostat	Yes	2004-2014	hia
Last Internet use: in the last 12 months (% all individuals)	Eurostat	Yes	2004-2014	
Frequency of Internet access: once a week (including every day) (% all individuals)	Eurostat	Yes	2004-2014	fia
Last online purchase: in the 12 months (% all Individuals)	Eurostat	Yes	2004-2014	op_ti

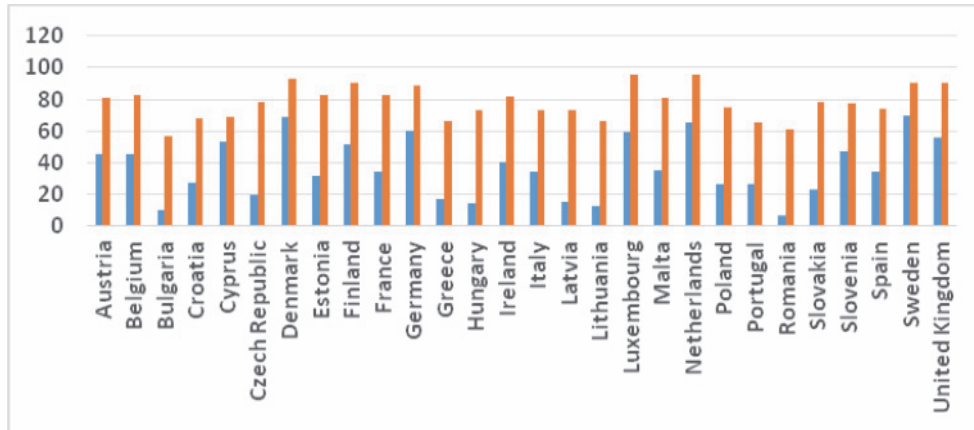
Source: Authors' work

The analysis includes trend assessment using indices and rates and GIS graphical representations which are used in order to assess the evolution of the online shopping at the level of the member states of the European Union. Finally, an econometrical model is estimated in order to provide a quantitative explanation for the online shopping phenomenon using some Internet related characteristics of the EU member states and also the economic development level (proxied by the gross domestic product per capita). The general structure of the model is the following:

$$OP_{-}TI_{it} = \beta_0 + \beta_1 \cdot GDP_{-}C_{it} + \beta_2 \cdot HIA_{it} + \beta_3 \cdot FIA_{it} + \varepsilon_{it} \quad (1)$$

### Empirical results

Purchasing online becomes more and more frequent nowadays when almost all products are available online. Moreover the customers have access to shops which might not be easily accessible due to their location (other cities, countries and even continents).

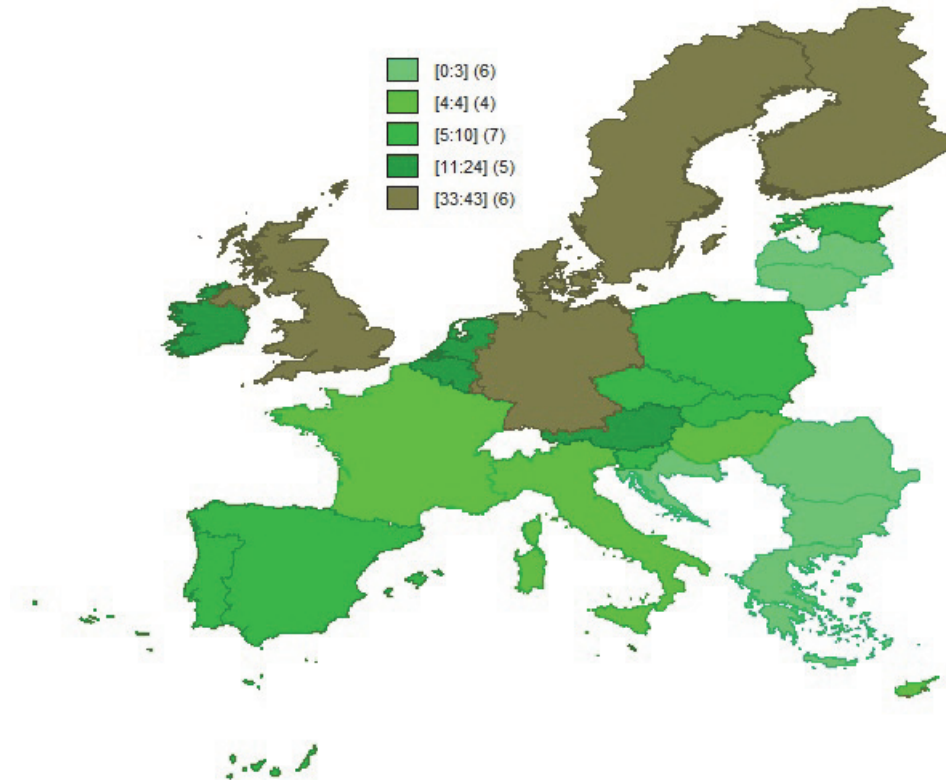


**Fig. 1 Percentage of households with Internet access 2004/2014**

*Source: Authors' work*

A very important precondition of buying online is being able to go online and as it is visible in the figure 1 the accessibility of the European households has increased significantly over the analyzed period. At the level of the year 2004 Bulgaria and Romania were with 10% and 6% the European countries (they were not EU members by then) with the lowest percentage of households connected to the Internet. They are still closing the rankings in 2014, but they have switched places with significantly higher percentages: Bulgaria 57% and Romania 61%. Netherlands with 65% and Denmark with 69% of the households connected to the Internet were in 2004 the countries with the highest percentage of *online* households. They have maintained their top positions reaching a 96% (Netherlands) and respectively a 93% (Denmark) in 2014.

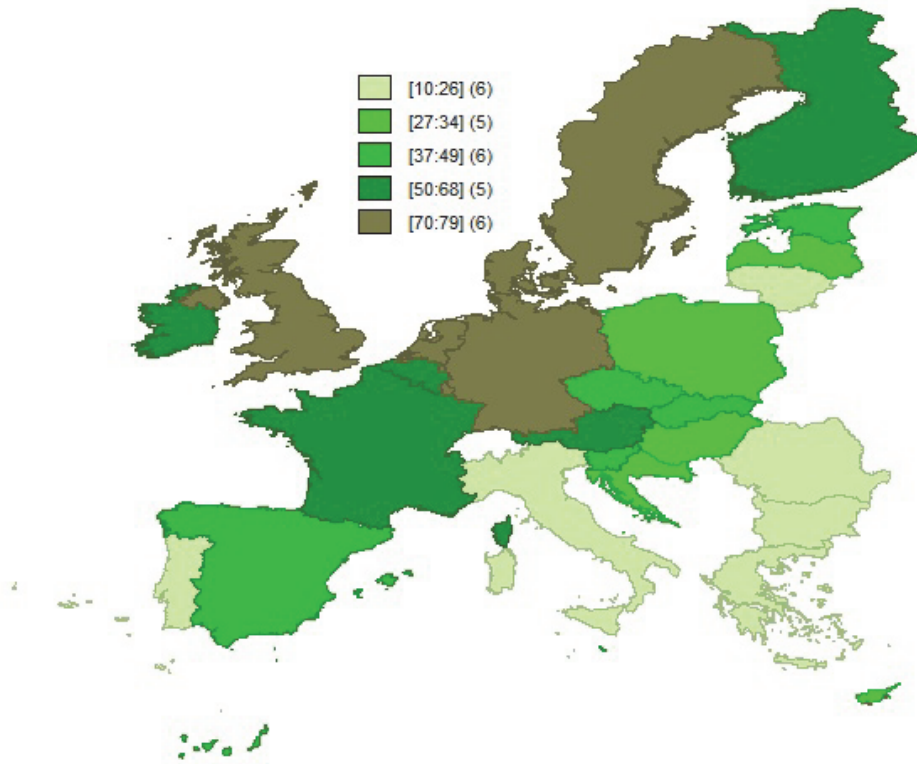
Another important aspect that can be considered as having a direct impact on the online purchases done by individuals is represented by the percentage of population which uses the Internet frequently. At the level of the year 2004, the countries located on the northern flank of the European Union were among the ones with rates higher than 70%: Sweden 85%, Netherlands 79%, Denmark 81% and Finland 72%. In the same time, Romania was at 15%, Bulgaria at 18% and Greece at 21%. The evolution is significant for all 28 countries, Romania and Bulgaria with a 59% rate being on the last position in 2014. In the same time Luxembourg, Netherlands and Denmark are displaying rates around 95%.



**Fig 2 - Last online purchase: in the 12 months (% all Individuals) 2004**

*Source: Authors' work*

The map of the last online purchase done in the last 12 months, at the level of the year 2004, clearly shows that we can identify a two speed Europe. The northern countries display rates of over 20% showing that online shopping was considered an alternative even though in 2004 the entire online shopping experience was significantly less developed than it is today. On the other hand the eastern and southern EU members display rates under 10% showing therefore that online shopping was not considered as a viable alternative to the classic shopping experience.



**Fig. 3 - Last online purchase: in the 12 months (% all Individuals) 2014**

*Source: Authors' work*

The figures have modified significantly during the analyzed period and the rates have reached values of over 50% for most developed markets from the northern and central part of the Union (those countries colored in darker shades). On the same time period the new member states and also the older members located on the southern flank still record significantly lower rates. Romania, Bulgaria, Greece, Portugal, Italy and Lithuania record rates lower than 30% being somewhere close to the rates recorded by the developed markets at the level of the year 2004.

**Table no.2. Output estimation**

Dependent variable: Last online purchase: in the 12 months (op <sub>ti</sub> )	
Time period: 2004 - 2014	
Cross – sections: 28	
	<b>Model</b>
Independent Variable	No effects (Period SUR)
GDP_C	0.000378*
HIA	0.180162*
FIA	0.589119*
C	-27.02424
R square	0.81
Adj R square	0.80
Durbin - Watson	1.94

Note:\* represents statistical significance at 1% level, \*\* at 5% level and \*\*\* at 10% level.

Source: Authors' work

The estimate model clearly displays positive correlations between the percentage of individuals purchasing online, the GDP per capita, the percentage of households with an Internet access and the percentage of persons using the Internet at least once a week. As it was expected all these factors are a good predictor for the online shopping behavior of the population, taking in consideration their positive and statistically significant coefficient.

**Conclusions**

Even though in the current manuscript we have a brief analysis of the e-commerce activity at the level of the European Union, involving macro-economic variables, it is clear that the phenomenon is becoming part of the daily life of most EU members. Although, the development is significant in all EU member states we can still speak about important disparities between the European economies. As it is expected, the inhabitants of the northern and the western part of the European Union are more inclined to purchase online.

The estimated models link clearly the activity of online shopping with the socio-economic development level of the EU members. The coefficients of all three independent variables included in the model are positive and statistically significant for a 1% significance level. Therefore we can conclude that the brief research presented in this paper is a useful attempt in providing an overview of the e-commerce phenomenon and of its main trends, at the level of the European Union. Notable is also the fact that the paper identifies some macro-characteristics (related to the development level of an economy) of the EU economies which can be used as important indicators of the development level of the e-commerce activity at national level.

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