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March 2009

Online at <https://mpra.ub.uni-muenchen.de/16080/>  
MPRA Paper No. 16080, posted 07 Jul 2009 18:10 UTC

## **Electronic Payment Instruments use, as perceived by consumers in Macedonia**

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March, 2009

### **Abstract**

Electronic Payment Instruments in Macedonia are very used and spread evenly among the population, although compare to EU member countries their use is lagging behind. This paper represents findings about the customer behaviors toward e-commerce activities, use of electronic cards in Internet, at point of sales, and ATMs.

The objective of this survey was to test the availability of Internet services to customers, the way they access Internet, the way they use EPI and EPS, and at the end to draw conclusions if they trust on e-businesses. The question to be answered is, what should be done to enhance the customer convenience: a) to increase the number of acceptance points, b) to increase the number of EPI in circulation, c) to have cheaper access in Internet, or d) to invest more in e-commerce applications.

**JEL Code:** D12, G20, M15, E42

**Key Words:** Electronic Payment Instruments, customer survey, e-commerce, Internet services

## I. Introduction

Electronic payment instruments as mean of payment play a crucial role in the payment system of a given economy. E-commerce activities in general are supported from electronic support systems, such as the electronic payment system. In order to study the performances of the electronic payment system, we can start from the approach that considers firstly the welfare of the IT infrastructure, and the second side, the use of electronic payment instruments at these access points. To complete this view, the behavior of customers should be studied additionally.

Electronic payments are one of the main factors mentioned in the literature, as determinants of the type of e-commerce. Turban et al.(2008) mention that the business process it is a determinant (besides the product nature and the type of delivery) which defines the type of e-commerce. Therefore, it is important to look more closely into the values driven from the welfare of this determinant, in order to draw conclusions about the welfare of e-commerce at a given economy. For more, safe and efficient payment systems are precondition for financial stability and economic prosperity in a country.

The main reason of my focus to this kind of approach is the remark that many academics lately are very interested in choice behavior of consumers regarding EPI use, this partly because of the fact, that electronic payments are cheaper and more cost effective than paper based payments.(7)

## II. Overview of the Macedonian EPI use

Electronic payment system without electronic payment instruments would be unpremeditated. EPI as modern mean of payment are enabled from the state of the art Information and Communication Technology (ICT). Worldwide the following electronic payment instruments are mostly accepted as means of payment: electronic checks, electronic credit cards, purchasing cards, electronic cash, stored-value smart cards, p2p payments, electronic fund transfer (EFT), wireless payments, e-wallets, etc.

Available domestic Card Brands in Macedonia actually are: CASYS, MAKKARD, Private, Pro Credit, SILEKS card, STBB card, TKK card, and the following international payment Cards: VISA, Master Card, American Express, NPK, and Diners, issued and managed from local banks. Cards based on electronic cash do not exist in EPS of Macedonia, whereas credit cards are widely used to pay on-line

Looking at the structure of the electronic cards in use in Macedonia, there are more debit cards in circulation than credit cards, but the cards with combined functions are replacing both of them. In the period 2005-2008, cards with combined function over passed the number of credit cards and were very close to the number of debit cards.

The total number of cards in Macedonia is growing with 5.5% on monthly basis, whereas, the number of transactions with 7.7%. Which means that, with the same number of cards are realized more and more transactions, i.e. the use of cards for everyday payments among people, is growing faster than the number of cards. This is a very encouraging fact, and it means that the use of electronic payment instruments among people in Macedonia is growing qualitatively and not just quantitatively.(8)

Macedonia <sup>1</sup>						
<b>Population</b>	2,026,000	2,030,000	2,037,000	2,043,000	2,049,000	2,055,000
<b>Nr. Cards in circulation</b>	120,000 <sup>2</sup>	130,000 <sup>3</sup>	147,453	419,168	716,611	1,047,498
<b>Cards per capita</b>	<i>0.059</i>	<i>0.064</i>	<i>0.072</i>	<i>0.205</i>	<i>0.349</i>	<i>0.509</i>
<b>Nr. of bank accounts</b>	-	-	2,075,230	2,527,279	3,477,522	2,959,270
<b>Accounts per capita</b>	-	-	1.019	1.237	1.697	1.440
<b>Cards per account</b>	-	-	0.071	0.165	0.206	0.354

**Table 1 Payment instrument structure in Macedonia**

<sup>1</sup> Source: nbrm.gov.mk

<sup>2</sup> Approximate value

<sup>3</sup> Approximate value

Despite the fact that the population in Macedonia from day to day, uses more and more cards in everyday payments and other transactions, there are many other factors that influence the use of EPI. The available ATM machines, can contribute to bigger use of Debit cards from citizens to withdraw money. Withdrawing money from ATM machines can lead to extra savings from banks, because, they use less paper to document transactions. Considering a study from Humphrey D. (2005) and group of researchers, related spending could be 2% up to 3% of the GDP at country level. For more, the use of imprinters and EFT POS terminals at shops (from merchants), in addition can be considered as an influencing factor toward EPI use increase. From the previous reasoning, one can conclude that merchants' cost of accepting electronic payments at POS is also lower. In Macedonia there are three type of machines used for electronic transactions i.e. ATMs, imprinters and POS terminals, whereas for the last few months of y.2008 there are records on few payments realized through PCs.

PCs as a mean of payment in Macedonia were from January 2008 officially used, i.e. last 9 months, and their use remain in low levels, incomparable with other countries. Growth rate of the number of transactions on monthly basis is 3.4%. Encouraging is the fact that average value per transactions is growing, but, still the overall use of PCs as mean of payment is in low levels. Despite the fact that banks in Macedonia are offering Internet banking or PC banking services, the appropriate legislation was missing and people were afraid on using PCs and in general EPI online. Banks were saying to their clients that buying online with their cards is only their responsibility and the bank does not guaranty for such transactions. The law on e-commerce was voted just few months ago in the Macedonian Parliament, and should offer better legislative support for Macedonian citizens as potential buyers online, at one side, and potential businesses that would like to sell their products and services in Internet.

Reforms undertaken by the Government mentioned from Abdullai B.(2009) lead to changes in the way of doing business. In Macedonia, there were cards in circulation since 1993, but, the system was not very well developed and very few firms accepted cards as mean of payments. After year 2001, and after the implementation of the new project of the National Bank of Macedonia, the electronic payment system of Macedonia was reformed and modernized. Thanks to these reforms, banks were able to offer more services and products to businesses and citizens. Number of cards issued in circulation was growing rapidly, which attracted firms to sign contracts with banks for cooperation in the payment infrastructure and different credit lines. Firms and different agents took this step in order to be in trend with bigger companies. They wanted to attract their (existing and new) clients by offering them new modern ways of payments. Soon, many machines as mean of payments at point of sales of these companies happen to be installed, such as: EFT POS terminals, imprinters and other means. At the end of y.2007 and beginning of y.2008, there is the highest growth in the number of firms and agents that accepted cards as a mean of payments. The growth rate in January 2008, arrived at 19.9% or 17079 firms, compare to the previous month i.e. December 2007 (14243 firms). In December 2008 there were 22152 firms that were accepting electronic cards as mean of payment.

The growth rate from 6.6% in the number of EFT POS terminals (21465 in number as for Dec. 2008), and 4.5% in the number of ATM terminals (761 in number as for Dec. 2008), brought Macedonia very close to European countries, as concerning the supporting infrastructure and access points for card owners.

### III. The Survey on electronic payment instruments use and e-behavior

The survey based on simple questionnaire, was designed to address the main issues of Internet use, EPI use, customer satisfaction, and e-commerce activities in Macedonia. Besides personal information, respondents were asked the following: Are you Employed?, If yes, is your Employer a Private or Public institution?, Do you have access in Internet?, Who is your ISP?, Do you think that access to Internet is expensive?, Do you own a bank account?, Which of the following cards do you own?, Have you ever paid something with your card at local shops and malls?, Have you ever bought something in Internet with your card?, If you haven't bought in Internet, is this because you are afraid of buying online?, Other reasons why you haven't purchased online?, and Do you use your cards to withdraw money from ATM?.

#### III.1. Sample Characteristics

This section discusses the main characteristics of the respondents. Table 2 shows some descriptive statistics of these characteristics for the survey data, as well as for the Macedonian population as a whole. The questionnaire which was designed to collect data on electronic payment instruments, had the aim to draw interest to the population and at the same time to be interesting for the students, who were in charge of taking the survey. The survey was of the type trend or repeated cross-sectional study (when the same questionnaire is administered to different samples during the chosen period), and was taken in two half year periods during the year 2008 i.e. first survey period started from January 2008 until end of June 2008, and the second survey period started from July 2008 until end of December 2008. The data collected contain information about the age, city, employment, type of employer, name and address of the interviewee, age, gender, Internet access location, ISP, bank accounts, credit cards, Internet purchase information, ATM use, POS use, type of cards owned, online purchase history and EC trust. The total number of participants to the survey was 532 people, from different cities in Macedonia and all of them answered the questionnaire in full.

Survey data			Official statistics <sup>4</sup>	
-24 years	299	56.2%	753647	37%
25-34 years	142	26.7%	301742	14.9%
35-44 years	53	10.0%	296739	14.7%
45-54 years	30	5.6%	270448	13.4%
55-64 years	8	1.5%	185056	9.1%
65 years and older	0	0.0%	213712	10.6%
Man	352	66%	1015377	50.2%
Women	180	34%	1007170	49.8%
Total	532	100%	2022547	100%

**Table 2 Descriptive statistics of the survey respondents**

Taking that the population in Macedonia is very young, where the older people are mostly analphabets with no school education. Thus our survey was focused more on young people rather than on older people, and the educational level of the respondents consequently was somewhat higher than for the whole population. The average age of respondents was 27 years old, which is lower compare to the average age of the Macedonian population. Important is to be mentioned that most of the responders were coming from cities of the western part of Macedonia and the capital Skopje, and just few of them were from cities in the East.

<sup>4</sup> Source: [http://www.stat.gov.mk/pxweb2007bazi/Database/popis na naselenie 2002/naselenie/naselenie.asp](http://www.stat.gov.mk/pxweb2007bazi/Database/popis%20na%20naselenie%202002/naselenie/naselenie.asp), visited at 09.04.2009, 11.00

### III.2. Customer behavior

From the survey data collected we draw very interesting figures and conclusions. The reason why respondents were asked to declare their employment status and type of employer, was to prove the general presumption that people working in the public sector have and use EPI more than citizens working in Private firms. Usually workers in the public sector are equipped with Debit and Credit cards at the moment of employment, whereas workers in the private sectors mostly take their wages through banks and partly have been equipped with cards. Since 2009 in Macedonia the level of employment is very low, many workers in the private sector received their wages in cash, contributing to the informal economy, but after few law enforcements this picture was changed. Still the unemployment of the Macedonian citizens remain high, thus contributing to the lowering of the EPI distribution among the population.

Our assumption previously said, was approved from the results of our survey, where 61% of the respondents were employed, and 39% were not employed, which is the fact for the Macedonian economy as well. From which, 38% were employed in the Public sector, and 62% in the private sector. Further, respondents employed in the Public sector that have bank account are 96%<sup>5</sup>, all of which have an electronic card. Employed in the Private sector with bank accounts are 86%, whereas 14% don't have bank accounts, from which 85% have electronic cards, and 15% don't. As we can see in the Private sector few people i.e. 1% do not have electronic cards although they have bank accounts, which means this category receives financial services at the counter personally. Although this phenomenon does not occur, it is encountered at the economies in transition or developing countries. From our respondents which were not employed, 55% have a bank account which is a very high percent, 45% don't have an account, and almost all of the not employed respondents with a bank account have an electronic card. More details are given in the Table 3. In general 404 people or 76% have a bank account, and 128 or 24% do not have a bank account.

Employer type	Employed (61%)				Not employed (39%)	
	Public (38%)		Private (62%)		-	
Value compared to:	/Total <sup>6</sup>	/Publ.	/Total	/Priv.	/Total	/N.E.
Have bank account	22%	96%	32%	86%	22%	55%
Don't have bank account	1%	4%	5%	14%	18%	45%
Have electronic card(s)	22%	96%	35%	85%	21%	54%
Don't have electronic card(s)	1%	4%	6%	15%	18%	46%

**Table 3 Employment vs. payment instruments ownership interconnection**

From the respondents with a bank account 7 or 1.3% do not have any payment card, whereas from the group of respondents owning a bank account 125 or 31.5% have more than one electronic card.

People more often own the following card types: Maestro Debit card: 146 (27.6%), Visa Electron: 92 (17.4%), Master Card 144 (27.2%), Visa Classic: 129 (24.4%), Dinners Club: 4 (0.8%), other: 7 (1.3%).

Figures drawn from the survey are compatible with figures drawn from the system, or official statistics of the National Bank. The number of accounts comparing to the population is 1.4 accounts per person, which is reflected in the figures of the survey where almost all employed respondents (around 90%) declared to have an account, and more than a half of unemployed respondents (55%) also declared that they have an account.

<sup>5</sup> This figure should be 100%, respondents that declared about this may have made mistakes during the survey process

<sup>6</sup> /Total - Compared to the Total number of respondents (R)

/Publ. - Compared to the number of R. employed in the Public sector

/Privat - Compared to the number of R. employed in the Private sector

/N.E. - Compared to the number of not employed respondents

Before we go and ask our respondents how they use their cards and how they generally pay bills and purchase products, we need to look if the infrastructure allowing them a comfortable environment to use electronic means of payment, it is well developed. In the paper focused on EPS (8), one can learn that at the end of y.2007 and beginning of y.2008, there was the highest growth in the number of firms and agents that accepted cards as a mean of payments. The growth rate in January 2008, arrived at 19.9% or 17079 firms, compare to the previous month i.e. December 2007 (14243 firms), whereas the number of firms accepting EPI in December 2008, was 22152, with a growth rate from 2.4% compare to January 2008. Thus, we can conclude that the number of firms that accept EPI and supports e-payments is relatively low.

Although the infrastructure at this point of view is not promising, the use of Internet among people in Macedonia is very high. From the general number of 532 respondents, 506 or 95% have access in Internet, and 26 or 5% do not have access to Internet. The structure is shown in the next table.

<b>Description</b>	<b>Number</b>	<b>Percentage</b>
Have access to Internet	506	95%
Don't have access to Internet	26	5%
<b>Internet use based on location</b>		
At work	187	26%
At home	355	49%
At school	54	7%
Internet café	121	17%
Other location	10	1%

**Table 4 Internet access and access by location**

From the overall number of respondents (532), 195 persons have access to Internet in more than one location, i.e. home and school, work and home, or school and Internet café or public place, which represents 37% of the respondents with access to Internet.

Most famous Internet providers among the respondents are the following: Macedonian Telecommunication ADSL, 290 (53.9%), Onnet, used from 201 persons or 37.4%, Cable Tel, 24 (4.5%), Sonnet, 7 (1.3%), Hydranet, 3 (0.6%), other providers, 13 (2.4%). From the overall number of respondents, 32 or 6% enjoy services of more than one Internet provider.

In the question, do you think that access to Internet is expensive?, 342 or 64%, declared that they do not think that Internet access is at all expensive, whereas 190 or 36%, think that access to Internet is expensive.

Knowing that the use of Internet in Macedonia is satisfying, one should focus and look for other reasons why e-commerce is stagnating. A critical success factor for e-commerce is to find what consumers want, so the vendor can make them happy. In addition to price, customers want convenience, service, and quality, and they often want to enjoy the experience of online shopping. This can be done through market research organized from the merchants online.(1) But, is this true for the online businesses organized in Macedonia, is hardly to be confirmed. Firms that operate in Macedonia and are offering products online to Macedonian customers are few in number, and not very well developed. Few of the online businesses offered in Macedonia are: flowershop.com.mk, which is very modern e-shop for flowers and gifts, with an attractive interface, low level of personalization but with very secure payment system, amc.com.mk, a local store of computer components and configurations, with very poor interface and very slow response time, gomacedonia.org, which is a company offering tourist tours and online booking system for different activities, very well organized and structured, with low level of personalization, etc. The overall number of businesses selling online products and services does not overpass the number 100, but the use of Internet in marketing, information, and B2B communication is in good shape.

In the question have you ever bought something with your card, 252 or 47.6% said yes, whereas 277 or 52.4% said no. From the overall number of respondents owning an electronic card, 141 or 26.7% have bought something in Internet, whereas 391 people or 73.3% never bought anything in Internet.

At first sight these figures lead to conclusions that people in Macedonia very poorly use Internet as a shopping place, although very often use it for information purposes. These results were not too surprising, starting from the fact that it was very hard to find a serious e-business under the domain .mk, similar to businesses like Amazon.com, eBay.com, dell.com, Alibris.com, etc., for more, many international e-commerce possibilities are not accessible for Macedonian citizens, affected from the fact that Macedonia is not listed in the country list of many of these online businesses, for example, a Macedonian citizen can't open an account in PayPal.com.

Another issue to be discussed based on the e-commerce literature, is the issue of security. Security of online shops, security of the data and the information transmitted online, issues which were directly affecting the use of electronic cards in business processes.

Initially there was relatively little adaptation of credit cards to online payments apart from additional security codes. But new, more secure features have been added to protect transactions (online). A major difference between online and offline payments is that in online purchases a physical copy of the card is not provided and the merchant does not obtain a signed, or similar, confirmation from the customer. Also, whereas all offline transactions are authorized this is not the case for all online purchases (especially with small businesses), although, authentication and verification technologies have increased the ability of accurately authorizing transactions.<sup>(10)</sup>

To prevent information interception during the transmission of credit card information, secure socket layer (SSL) service, which is widely used for a variety of security applications, is commonly used. SSL also allows verification of merchant identity via the SSL server certificate. All of the mentioned technologies to secure Internet transactions are implemented from most of the online businesses in Macedonia, offering their clients secure transactions online.

Trust is the psychological status of depending on another person or organization to achieve a planned goal. When people trust each other, they have confidence that as transaction partners they will keep their promises. However, both parties in a transaction assume some risk. In the e-commerce, sellers and buyers do not meet face to face. The buyer can see a picture of the product but not the product itself. Promises of quality and delivery can be easily made-but will they be kept? To deal with these issues, EC vendors need to establish high levels of trust with current and potential customers. Trust is particularly important in global EC transactions due to the difficulty of taking legal action in cases of a dispute or fraud, and the potential for conflicts caused by differences in culture and business environments.<sup>7</sup>

In addition to sellers and buyers trusting each other, both must have trust in the e-commerce computing environment and in the e-commerce infrastructure. If people do not trust the security of the e-commerce infrastructure, they will not feel comfortable about using cards to make e-purchases.

But, people in Macedonia seem not to be very afraid of purchasing online, they do use Internet, they do trust the technology and the infrastructure, this looking at the answers of the question: Do you are afraid of purchasing online?, after they were declared that they haven't ever purchase or buy anything in Internet, 218 or 41% said that they haven't buy in Internet because they are afraid of fraud and misuse of their card information, whereas 311 or 59% never bought anything in Internet but they are not afraid of anything, they provided different reasons why they were not attracted to buy online. Respondents mentioned few reasons why they haven't buy anything with their cards online, among which: they do not like or enjoy it, they never had a reason to buy online, they do not trust to online shops, many of them even do not trust that buying in Internet is a reality. In one word, the Macedonian population is not prepared to go online living; there is a lack of understanding of the concept of e-commerce. But, relatively the Macedonian population is friendly to technology; there is no place for very emphasized digital divide phenomenon.

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<sup>7</sup> E. Turban, "E-commerce 2008", Pearson I.E., 2008, pp.169



Continuing our survey, intention was to test the respondents if they like using their cards somewhere else if not in Internet. From 532 respondents, 395 or 74.7% use their cards to withdraw money from ATM machines, whereas just 134 or 25.3% of the respondents do not use their cards at ATM terminals. Our presumption that the Macedonian population is friendly to technology and uses EPI, is supported from the following finding. From the respondents which haven't used their cards online, 66.6% declared that they use them at ATM terminals to withdraw money, whereas, 34.3% of them seem not to use their cards at all.

#### **IV. Summary and conclusions**

The public perception survey had the intention to collect general information over the use of Internet as the main medium allowing e-commerce activities to take place, studying the infrastructure of machines and other networks that enable e-commerce activities in general, studying the behavior of our citizens and literacy toward information and communication technologies used in the everyday life processes, studying the EPI used and at the end the trust of our citizens toward ICT.

Thanks to this survey we can draw conclusions that the use of EPI in Macedonia is satisfactory, most of the people use their cards to pay or purchase goods and services, although a lot of them like to pay in cash. As we saw, people are not afraid of buying products online, but, simple they are not still prepared to accept this new trend. Businesses that were offering online purchase possibilities were very few, whereas foreign portals or online shops like Amazon.com, and other famous service providers like PayPal.com, they even do not have registered the name of Macedonia in the list, so the Macedonian citizens can use their services. Restriction to use all the capabilities of purchasing online, it is leading toward stagnation in the online purchasing behavior of the Macedonian citizens. Adding to this that the Macedonian population is not prepared to go online living, because of the lack of understanding of the concept of e-commerce, we can conclude that e-commerce activities in Macedonia are in deep crisis, or well behind neighboring countries. Thus, there is a need for immediate changes in the e-commerce climate, our firms should do more efforts to do e-marketing, to go e-shopping, to attract clients and offer security and confidence. Our Government should do more efforts internationally, to create new partnerships with global players and bring their online services locally, i.e to attract foreign investments in Macedonia.

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