

cea Journal of economics.....



ISSN 1857-5250
UDK 33

Price: 300 MKD (5 EUR)

Volume 13

Issue 1
1-76 pages

Skopje, Macedonia
June 2018



CEA Journal of Economics

ISSN 1857-5269

UDK 33

Volume 13, Issue 1

Skopje, June 2018

International Journal

Published since 2006

International editorial Board and Reviewers:

Marjan Nikolov, PhD, President of CEA (Editor-in-Chief)

Bryan Roberts, Ph.D.

Senior economist at Econometrica Inc USA

King Banaian, Ph.D.

Professor in the Department of Economics at St. Cloud State University USA

Giorgio Brosio, Ph.D.

Professor of Public Economics, University of Turin, Italy.

Nevenka Hrovatin Ph.D.

Professor of Public Economics, University of Ljubljana, Slovenia

Dubravka Jurlina Alibegovic, Ph.D.

Senior research fellow and Head of Department for Regional Development, Institute of Economics, Zagreb, Croatia

William Bartlet, Ph.D.

Visiting Senior Fellow, European Institute, London School of Economics and Political Science

Borko Handziski,

Senior Economist at the World Bank, USA

Borce Trenovski, Ph.D.

Professor at the Faculty of Economics- Skopje, UKIM, Macedonia

Anto Bajo, Ph.D.

Professor at Institute of Public finance and Faculty of Economics and Business Zagreb.

DISCLAMER:

The opinions put forth in this publication
represent the views of their authors.

Contents

Call for Papers	3
THE NEXUS BETWEEN INCOME INEQUALITY, INTERNATIONAL REMITTANCES AND ECONOMIC GROWTH IN TURKEY	5
Buhari Doğan - Muhlis Can – Osman Değer	
MACEDONIAN PUBLIC PROCUREMENT SYSTEM: EXPERIENCES	17
Marjan Nikolov	
THE IMPACT OF E-BANKING SERVICES ON PROFITABILITY: JORDANIAN COMMERCIAL BANKS AS A CASE	31
Nawaf Salim Alghusain - Ayman Abdalmajeed Alsmadi - Raed Al - Qireh	
INVESTMENT IN RESEARCH AND DEVELOPMENT IN THE PROCESS OF ACCESSION OF MACEDONIA IN THE EUROPEAN UNION	41
Marko Tomljanović - Zoran Grubišić - Ivona Huđek	
THE IMPACT OF EXPATRIATE WORKERS' REMITTANCES ON THE CURRENT ACCOUNT OF BALANCE OF PAYMENTS IN JORDAN	65
Tawfiq Ahmad Mousa - Nawaf Alghusain - Ayman Al-Smadi	

CEA Journal of Economics
Volume 13, Issue 1
1 - 76 pages
Skopje, Macedonia
June, 2018

Dear Authors,

The CEA team is proud to present the CEA Journal of Economics, one of the first international journals in the Republic of Macedonia that covers topics related to the economics. It has been published in English language twice a year, every June and December, since 2006, and has an international editorial board which includes members from six countries (USA, Italy, Slovenia, Croatia, UK and Macedonia).

The CEA Journal of Economics includes research papers in various areas of economics that deal with relevant international and domestic issues, and is open to all interested economists from all over the world. Authors of the papers are researchers/academicians from the country, region and beyond. All papers that are published in the journal are subject to an independent peer-review process.

The CEA team believes that the long tradition, quantitative based research, wide scope, and authors from various professions make the CEA Journal of Economics unique of its kind in the country. As such, it has a significant influence on improving economic analysis, expert debates and discussions on economic issues on a national, regional and global level.

*Marjan Nikolov
Editor-in-Chief*

.....

UDK 364.662-787.9(497.7)"2005/2015"

THE NEXUS BETWEEN INCOME INEQUALITY, INTERNATIONAL REMITTANCES AND ECONOMIC GROWTH IN TURKEYⁱ

Buhari Doğan,¹

Suleyman Demirel University SDU Economics Isparta, Turkey, TR

Muhlis Can

Hakkari University Hakkari University, Economics and Finance, Hakkari, Turkey, TR.

Osman Değer

Suleyman Demirel University SDU Economics Isparta, Turkey, TR.

Abstract

In this study, the relationship between income inequality, remittances and economic growth in Turkey are analyzed using the annual data for 1977-2014 period. The ARDL method and Granger causality tests are used for this analysis. The empirical findings of the research suggest that the series are cointegrated and they move together in long-term. Also, income inequality and international remittances contribute to economic growth both in the long and short-term. The results of the Granger causality test show that there is a unidirectional causality running from economic growth to remittances and from remittances to income inequality.

JEL Code: O11, O15, D13.

Keywords: Income Inequality, Remittances, Economic Growth, ARDL Bounds Testing.

INTRODUCTION

In recent years, migratory movements are taking place all over the world. People leave their countries in the hope of better job opportunities and quality of life (Koechlin and Leon, 2007). The phenomenon of migration and remittances that migrants send to their families and friends living in their country of origin attract more and more attention from researchers and policy makers every day. Remittances are one of the major sources of foreign exchange in less developed and developing countries, which generally have insufficient financial

1) doganbuhari@gmail.com

resources for investment. In this globalizing era, the relationship between income inequality, international remittances and economic growth, along with the increasing of the labor mobility, has become a major debate for policy makers and development economists. Despite the economic growth, poverty and the gap between the rich and the poor (Easterly, 2001) still exist not only in less developed countries, but also in the developed world (Gaston and Rajaguru, 2009). Although there are many other factors, with globalization, labor force, the stage of economic development (of international labor market) and international mobilization are the most important factors influencing income inequality (Dreher et. al., 2008).

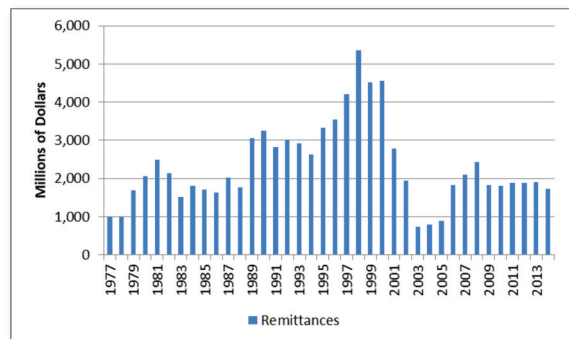
Remittance flows have proven to be a stable source of capital for developing countries because they are a reliable source since they do not depend on the same external factors as other private capital flows. In the literature, it is difficult to find consistent sources on the relationship between remittances and income inequality. Some empirical evidence show that international remittances have positive impact on income inequality (Stark et al., 1988; Taylor and Wyatt, 1996; Adams, 1989; Rodriguez, 1998; Lerman and Feldman, 1998; Adger, 1999), while others suggest that international remittances indeed reduce the income inequality (Barham and Boucher, 1998; Ahlburg, 1996; Handa and King, 1997; McKenzie and Rapoport 2004).

There are also important studies examining the effects of economic growth on income inequality (Bahmani-Oskooee et al., 2008; Meschi and Vivarelli, 2009; Roine et al., 2009; Shahbaz, 2010). Theoretically, more economic growth helps to reduce income inequality. Moreover, globalization is considered as an accelerating channel to promote economic growth that will ultimately balance income inequality. At the same time, this situation has led many researchers to investigate the Kuznets hypothesis, that is, the inverted U-shaped hypothesis. Kuznets (1955) stated that income per capita may increase income inequality at first, but later on, with the increase in incomes, the level of income inequality would eventually decrease. However, the number of studies examining this hypothesis at macro level is limited.

The trend of international remittances in Turkish economy is presented below. Remittances increased from \$ 1.8 million in the 1980s to \$ 2.8 million in 1990 and to \$ 5.3 million in 1998. The amount in 2003 is about \$ 700 thousand, and in 2014, the amount is \$ 1,7 million.

Figure 1:

Flow of International Remittance, Turkey, 1977-2014.



Source: World Bank, 2016.

The purpose of this study is to examine the dynamic relationship between international remittances, economic growth and income inequality by using time series data. This relationship is based on the view that immigration process is costly in the early stages, as the possibility of migration is limited by networks and information. For this reason, remittances will primarily benefit high-income migrant families, thus increasing income inequality. As the networks expand over time and as information moves toward social strata, low-income households will also have the opportunity to migrate, which will eventually contribute to a reduction in income inequality (Peterson, 2012). Our contribution with this paper is that our analysis is country specific. The availability of limited time series data at the macro level (Koechlin and León, 2007; Meschi and Vivarelli, 2009) has led researchers to use only panel and cross sectional estimation methods. However, the

results of cross country studies have failed to address issues of how changes in income inequality affect the economic growth of that country (Forbes, 2000). Adams (2004) strongly advocated that due to the limitations of cross country studies, income inequality in a country and the effect of international remittances on economic growth should be examined using time series data. In this context, the number of studies examining the relationship between income inequality, remittances and economic growth is limited, except for the evidence provided by cross country analyzes (Qureshi and Wan, 2008).

In the literature, there is no empirical study on this subject in the country and period examined. In this context, the study is expected to contribute to the literature. In the second chapter of this study, which examines a current issue, a literature review is given. Thereafter, empirical analysis is presented. Finally, policy suggestions are made considering the findings.

Literature Review

In the literature, the relationship between remittances and income inequality, as well as the relationship of economic growth and income inequality, is generally examined within three groups of studies. The first group of studies focus on the relationship between economic growth and income inequality. These studies suggest that the effect of income inequality on economic growth may be positive or negative. However, a large number of studies support the view that the effect of income inequality on economic growth is negative (Hsing, 2005; Jong, 2010; Castelló-Climent, 2010; Herzer and Vollmer 2012; Binatli, 2012; Zouheir and Imen, 2012). On the other hand, some other studies suggest that income inequality has a positive effect on economic growth (Li and Zou 1998, Galor and Moav 2004, Frank 2008, Pede et al., 2012).

The second group of studies research the relationship between remittances and income inequality. The study of Adams (1991) in Egypt and Rodriquez (1998) in the Philippines shows that the international remittances have a positive effect on income inequality. Similarly, Lerman and Feldman (1998) find that international remittances tend to increase income inequality. Nguyen (2008) applied a fixed effects regression model to examine the effect of international remittances on income inequality. According to the results of the empirical study, in Vietnam, international remittances have improved the income and consumption of households receiving the remittances, but in general, income inequality has increased. In addition, Acosta et al. (2006), show that international remittances, even on a smaller scale, actually reduces income inequality as in the case of Latin America and Caribbean. Waheed and Shittu (2012) used the data of the Nigerian economy to examine the effects of (local) international remittances on income distribution. They have reached the conclusion that international remittances reduce income inequality, and that local remittances improve income distribution due to the enriching effect of education. Acharya and Leon-Gonzalez (2012) conducted a Living Standards Measurement Survey (LSMS) panel in Nepal to investigate the relationship between international remittances and income inequality. Their conclusions reveal that international remittances reduce poverty but worsen the income distribution.

The third group is based on the researches that explores the dynamic relationship between international remittances, economic growth and income inequality, and it is the combination of the previous two groups. The only research conducted in this group is done by Shahbaz et al. (2014) in Pakistan sample. The dynamic link between international remittances, income inequality and economic growth has been examined in the study. The findings suggest that income inequality and international remittances increase economic growth. Also, a bidirectional causality exists between income inequality and economic growth. The same is valid for the relationship between remittances and income inequality.

Data and Method

In this study, the relationship between income inequality, remittances and economic growth in Turkey are analyzed using the annual data for 1977-2014 period. Income inequality data is obtained from the Standardized World Income Inequality database, while remittances and economic growth data are obtained

from the World Bank database. In this respect, the stationarity of the series is initially tested by the Augmented Dickey Fuller (ADF) method. The existence of cointegration between the series is examined via Pesaran et al. (2001) bound testing approach for long and short-term relationships. Furthermore, the existence of a causal relationship between the series is examined via Granger causality test.

In determining the relationship between the variables, an econometric method developed by Pesaran et al. (2001) is applied. This method, called the bound test (ARDL), is considered to be more flexible and practical when compared with Engle-Granger (1987), Johansen (1988) and Johansen and Juselius (1990) methods. One of the constraints of the mentioned methods include that the series in the model are not stationary, and they have to be made stationary by taking their difference. However, there is no such constraint in ARDL approach. That is, series included in the model can be stationary at different levels (Tang, 2003: 421). Besides, ARDL gives better results in small samples (Pesaran and Shin, 1997: 1-23). In addition, while endogeneity is an important problem in other approaches, in the ARDL approach, it is less important (Jalil, 2012: 311).

In the model used in the study, the work of Shahbaz et al. (2014) is followed. In this direction, the related model can be expressed as follows:

$$GDP_t = \beta_0 + \beta_1 GINI_t + \beta_2 REM_t + \varepsilon_t \quad (1)$$

In the equation, GDP, GINI, REM and ε_t represent economic growth, income inequality, remittances and error term, respectively.

Prior to the bound testing approach, applying the unrestricted error correction model (UECM) is required. After that, the bound test can be carried out. Pesaran et al. (2001) stressed that in order for bound test to be valid, there should be no problems such as variance or autocorrelation in the unrestricted error correction model. The model created in this direction is formulated below.

$$\Delta GDP_t = \alpha_0 + \sum_{i=1}^m \alpha_{1i} \Delta GDP_{t-i} + \sum_{i=0}^m \alpha_{2i} \Delta GINI_{t-i} + \sum_{i=0}^m \alpha_{3i} \Delta REM_{t-i} + \alpha_4 GDP_{t-1} + \alpha_5 GINI_{t-1} + \alpha_6 REM_{t-1} + \varepsilon_{1t} \quad (2)$$

The expressions of the independent variables shown in the equation are the same as those of the equation 1. In addition, m represents optimal lag length, and Δ represents the differential operator.

The lag length to be used in the ARDL model is important for both long-term and short-term analysis. In the study, the optimal lag length is tried to be determined according to the Akaike Information Criterion (AIC). Considering that the series are annual, the lag limit is set to a maximum of four.

In the bounds testing approach, $H_0: \alpha_4 = \alpha_5 = \alpha_6$ hypothesis is tested. The acceptance or rejection of this hypothesis is determined via F-test, and it is compared to the table showing lower and upper critical values by Pesaran et al. (2001). If the sample is small, the critical values in the Narayan's (2005) study can be taken into account. If the value calculated is above the critical value, it is determined that there is cointegration relationship between the series. If the calculated value is between two critical values, the cointegration relationship cannot be interpreted. If the value is below the lowest limit, then the series are not cointegrated (Morley, 2006: 73).

Cointegration analysis examine the series that move together in long-term. If the series are moving together in long-term, whether a deviation is eliminated or not is determined via error correction model (Tari, 2011: 435). In other words, the error correction model shows how long does it take for the series to converge after

a deviation emerges (Jalil, 2012: 312). However, the error correction model may not function all the time (Tari, 2011: 435).

Short-term analysis between variables is studied with ARDL error correction model. The model is adapted to the study as follows.

$$\Delta GDP_t = \alpha_0 + \sum_{i=1}^m \alpha_{1i} \Delta GDP_{t-i} + \sum_{i=0}^m \alpha_{2i} \Delta GINI_{t-i} + \sum_{i=0}^m \alpha_{3i} \Delta REM_{t-i} + \alpha_4 ECT_{t-1} + \varepsilon_{1t} \quad (3)$$

In the equation, ECT represents the error correction term. The error correction term (ECT_{t-1}) expresses the lagged values of the error terms obtained in long-term. The error correction term gives information about how much of the deviation between the series will improve after a period. In addition, it is also possible to calculate the number of periods after which the deviation will be eliminated by taking into account the relevant coefficient.

The existence and direction of the interaction between economic variables can be demonstrated by the Granger (1969) test. The variables subjected to this test are not separated as dependent or independent. The Granger causality test is performed through the following models.

$$X_t = \sum_{i=1}^m \alpha_i X_{t-i} + \sum_{i=1}^m \beta_i Y_{t-i} + u_t \quad (4)$$

$$Y_t = \sum_{i=1}^m \theta_i Y_{t-i} + \sum_{i=1}^m \gamma_i X_{t-i} + u_t \quad (5)$$

At this point, it would be useful to explain the equations discussed above. In the equation 4, when the past values of Y are added to estimation of X, and if this contributes the performance of prediction of X, then it means that Y affects X. The same condition is also valid for equation 5.

The hypothesis for Granger causality test are as below:

H₀: There is no causal relationship from Y to X.

H₁: There is causal relationship from Y to X.

Empirical Analysis and Findings

Before applying ARDL approach and Granger causality test, some preliminary tests related to the variables are performed and the stationarity of the series is checked.

Unit Root Testing

After the Augmented Dickey Fuller test, it is determined that the series are not stationary in their levels, but they become stationary after taking their first differences. Therefore, the ARDL model is justified. The findings are reported in Table 1.

Table 1: Results of Dickey Fuller (ADF) Unit Root Test

Variables	ADF	Significance Level		
	Test Statistics	%1	%5	%10
GDP	-2.85(0)	-4.27	-3.55	-3.21
GINI	-2.54(0)	-4.28	-3.56	-3.21
REM	-1.75(0)	-4.27	-3.55	-3.21
Δ GDP	-5.17*(2)	-3.66	-2.96	-2.61
Δ GINI	-3.44*(1)	-3.66	-2.96	-2.61
Δ REM	-4.45*(3)	-3.66	-2.96	-2.61

Note: Fixed model is preferred in determining the unit root. Below the ADF test part, the values in parenthesis denote optimal lag length of the variables determined according to Schwarz Information Criterion; and * denotes the stationarity at 1% level of significance.

Cointegration Analysis

In order to carry out the cointegration test, initially, UECM (Unrestricted Error Correction Model) in the equation 2 is estimated. In this context, the F statistic of the model estimated is compared with the critical values of Pesaran et al. (2001) and Narayan (2005). The findings are reported in Table 2.

Table 2: Results of the Bound Testing

k	F-statistic	Critical	Pesaran et al. (2001)		Narayan (2005)		Decision
		Values	Lower Limit	Upper Limit	Lower Limit	Upper Limit	
		%10	2.63	3.35	4.13	4.89	
2	5.08*	%5	3.01	3.87	5.06	5.93	There is cointegration.
		%1	4.13	5	7.09	8.26	

Note: * denotes 1% level of significance. The critical values represent the critical values calculated for Case III, $k=2$ that takes place in the studies of Pesaran et al. (2001;300) and Narayan (2005;1988). Since the study is carried out with UECM annual data, the maximum is "3". Also, the results of the estimation are obtained according to Schwarz Information Criterion (SIC).

Long-Term Analysis

After the findings obtained, the long-term relationship is estimated via ARDL (Autoregressive Distributed Lag) model. As a result, it is found that the optimal lagged long-term ARDL model is (1,0,0) model, and the findings are presented in Table 3.

Table 3: Estimation of ARDL (1,0,0) Model and Long-Term Coefficients

Variables	Coefficient	t-statistic	Probability
LNGDP t-1	0.393	3.044	0.000
LNGINI	-1.064	2.714	0.034
LNREMI	-0.433	2.184	0.431
C	-4.223	-2.671	0.257
Long-Term Coefficients			
LNGINI	4.490	-3.619	0.000
LNREMI	0.714	2.755	0.000
C	-6.960	-3.551	0.000
Diagnostic Tests			
R ² = 0.97	F stat = 289.49 (0.00)	χ^2_{BG} = [1.38] (0.40)	FRR = [0.11] (0.60)
$\bar{R}^2$ = 0.97	DW = 2.005	χ^2_{JB} = [17.91] (0.00)	χ^2_{BPG} = [3.22] (0.04)

Note: In the diagnostic tests, DW, BG, RR, JB and BPG denote Durbin-Watson statistics, Breusch-Godfrey autocorrelation test, Ramsey model specification error, Jaque-Bera normality test and Breusch-Pagan-Godfrey heteroskedasticity statistics, respectively. Values in parenthesis show the probability values.

The diagnostic tests applied to the findings are presented at the bottom of Table 3. It is shown that the model is quite acceptable. In long term, the effect of income inequality and remittances on economic growth is positive and statistically significant. CUSUM tests of the model also show that the regression coefficients are consistent (Figure 1-2).

Figure 1:
CUSUM Test

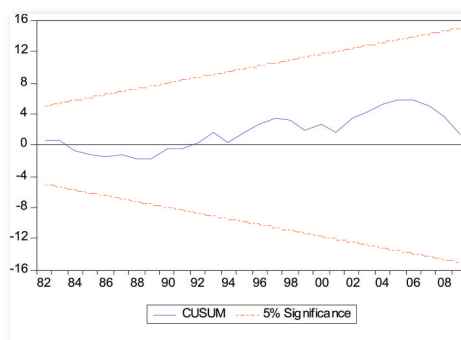
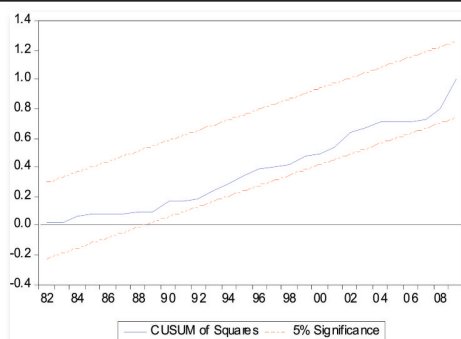


Figure 2:
CUSUM Q Test



Short-Term Analysis (Error Correction Model)

After determining the series are cointegrated in the long-term, short term analysis is carried out. The results of the error correction model estimation revealed that the most convenient model is (1,0,0) model. The results are reported in Table 4.

Table 4: Estimation of ARDL (1,0,0) Model and Short-Term Coefficients

Variable	Coefficient	t-statistics	Probability
ΔLNGINI	1.012	1.815	0.043
ΔLNREM	0.430	1.635	0.885
C	0.000	0.017	0.986
ECT t - 1	-0.637	-6.196	0.003

Diagnostic Tests

$R^2 = 0.65$	F stat = 3.34 (0.00)	$\chi^2_{BG} = 1.29$ [3] (0.25)	$FRR = 2.03$ [1] (0.03)
$\bar{R}^2 = 0.59$	DW = 1.23	$\chi^2_{JB} = 3.43$ (0.05)	$\chi^2_{BPG} = 3.04$ (0.87)

Note: In the diagnostic tests, DW, BG, RR, JB and BPG denote Durbin-Watson statistics, Breusch-Godfrey autocorrelation test, Ramsey model specification error, Jaque-Bera normality test and Breusch-Pagan-Godfrey heteroskedasticity statistics, respectively. Values in parenthesis show the probability values.

The coefficient of the error correction term is negative and statistically significant. In this context, it is seen that the deviation between the series would be eliminated after approximately 2 periods (1/0.63). Also, the diagnostic tests show that the model is acceptable.

Granger Causality Test

The findings obtained through Granger causality analysis are reported in Table 5. The findings suggest that there is a unidirectional causal relationship running from economic growth to remittances, and from remittances to income inequality.

Table 5: Results of Granger Causality Test

Direction of Causality	F Statistics	Probability Value	Decision
$\text{DLNGINI} \Rightarrow \text{DLNGDP}$	0.120	0.883	There is no causality.
$\text{DLNGDP} \Rightarrow \text{DLNGINI}$	0.235	0.798	There is no causality.
$\text{DLNREM} \Rightarrow \text{DLNGDP}$	2.170	0.132	There is no causality.
$\text{DLNGDP} \Rightarrow \text{DLNREM}$	5.023	0.011**	There is causality.
$\text{DLNREM} \Rightarrow \text{DLNGINI}$	2.680	0.082***	There is causality.
$\text{DLNGINI} \Rightarrow \text{DLNREM}$	1.013	0.372	There is no causality.

Note: Optimal lag length is determined as 1 considering FPE, AIC, SC and HQ criterion. *, ** and *** denote level of significance of 1%, 5% and 10 %, respectively.

Conclusion

Recently, the phenomenon of remittances has started to catch the attention of researchers and authorities. This paper analyzes the dynamic relationship between income inequality, international remittances and economic growth in Turkey for the 1977-2014 period. According to our results, in short and long-term, income inequality and international remittances stimulate economic growth. The results of the Granger causality test suggest that there is a unidirectional causality running from economic growth to remittances, and from remittances to income inequality. Our findings are consistent with the study of Shahbaz et al. (2014).

This study presents several suggestions for policy makers. Despite the gradual increase in per capita income, widening gaps in income inequality is present in Turkey. However, the role of economic growth in reducing the inequality is less convincing in the sample of Turkey. Since wealth is not well-distributed in the country, a policy reform that modifies the tax structure and ensures the poor can utilize the benefits of the economic growth equally is required. Remittances may affect economic growth directly or indirectly through different channels and different directions. The findings of this research present that remittances affect the growth positively. Therefore, the remittance recipient households contribute growth process by creating human capital through education and health expenses, by forming multiplier effect through consuming more or by making investments through savings.

References:

- Acharya, C. P., and Leon-Gonzalez, R., (2012) *The Impact of Remittance on Poverty and Inequality: A Micro-Simulation Study for Nepal*. National Graduate Institute for Policy Studies, 7-22-1 Roppongi, Minato-ku, Tokyo, Japan, pp.106-8677.
- Acosta, P., Calderón, C., Fajnzylber, P., and López, H., (2006) 'Remittances and development in Latin America', *The World Economy*, 29, pp.957-987.
- Adams, R., (1989) 'Workers remittances and inequality in rural Egypt', *Economic Development and Cultural Change* 38(1), pp.45-71.
- Adams, R.H. Jr., (2004) 'Economic growth, inequality and poverty: Estimating the growth elasticity of poverty', *World Development* 32, pp.1989-2014.
- Adams, R.H., Jr. (1991) *The effects of international remittance on poverty, inequality and development in rural Egypt*. Research Report 86, Washington DC, IFPRI.
- Adger, W. N., (1999) 'Exploring income inequality in rural coastal Viet Nam' *Journal of Development Studies* 35(5), pp.96-119.
- Ahlburg, D. A., (1996) 'Remittances and the income distribution in Tonga', *Population Research and Policy Review* 15(4), pp.391-400.
- Bahmani-Oskooee, M., Hegerty S. W., Wilmeth, H., (2008) 'Short-run and long-run determinants of income inequality: Evidence from 16 countries', *Journal of Post Keynesian Economics* 30, pp.463-484.
- Barham, B., Boucher, S., (1998) 'Migration, remittances and inequality: Estimating the net effects of migration on income distribution', *Journal of Development Economics* 55(2), pp.307-331.
- Binatli, A. O., (2012) 'Growth and Income Inequality: A Comparative Analysis' *Economics Research International*. doi:10.1155/2012/569890.
- Dreher, A., Gaston, N., and Martens, P. (2008) *Measuring globalisation: Gauging its consequences*. Springer Verlag, New York.
- Castelló-Climent, A., (2010) 'Inequality and growth in advanced economies: an empirical investigation', *Journal of Economic Inequality*, 8, pp.293-321.
- Easterly, W., (2001) 'The lost decade: Developing countries stagnation in spite of policy Reform 1980-1990', *Journal of Economic Growth* 6, pp.135-157.
- Engle, Robert F. and W.J. Clive Granger, (1987) 'Co-integration and error correction: representation, estimation and testing', *Econometrica*, 55(2), pp.251-276.
- Forbes, J. K., (2000) 'A Reassessment of the Relationship Between Inequality and Growth', *American Economic Review*, 90 (4), pp.869-887.
- Frank, M. W., (2011) 'Inequality and Growth in the United States: Evidence from a new state level panel of Income Inequality Measures' *Economic Inquiry*, 47 (1), pp.55-68.
- Galor, O., and Moav, O., (2004) 'From physical to human capital accumulation: inequality and the process of development', *Review of Economic Studies*, 71(4), pp.1001-1026.
- Gaston, N., Rajaguru, G., (2009) 'The long-run determinants of Australian income inequality', *Economic Record* 85(270), pp.260-275.
- Granger, C.W.J. (1969) 'Investigating Causal Relations by Econometric Models and Cross-spectral Methods', *Econometrica*, 37(3), pp.424-438.
- Handa, S., and King, D., (1997) 'Structural adjustment policies, income distribution and poverty: A review of the Jamaican experience', *World Development* 25(6), pp.915-930.

- Herzer, D., Vollmer, S., (2012) 'Inequality and growth: evidence from panel cointegration', *Journal of Economic Inequality*, 10, pp.489-503.
- Hsing, Y., (2005) 'Economic growth and income inequality: the case of the US. International', *Journal of Social Economics*, 32, pp.639-647.
- Jalil, A., (2012) 'Modeling income inequality and openness in the framework of Kuznets curve: New evidence from china', *Economic Modelling*, 29, pp.309-315.
- Johansen, S. and K. Juselius, (1990) 'Maximum likelihood estimation and inferences on cointegration-with applications to the demand for money', *Oxford Bulletin of Economics and Statistics*, 52, pp.169-210.
- Johansen, S. (1988) 'Statistical analysis of cointegration vectors', *Journal of Economic Dynamics and Control*, 12, pp.231-254.
- Jong, C. S., (2010) A Reassessment the Relationship between Growth and Inequality: Evidence from New Data. Institute for Monetary and Economic Research, The Bank of Korea, 110, Namdaemunro 3-Ga, Jung-Gu, Seoul, 100-794, Republic of Korea.
- Koechlin, V., and Leon, G., (2007) 'International remittances and income inequality: An empirical investigation', *Journal of Economic Policy Reform* 10(2), pp.123-141.
- Kuznets, S. (1955) 'Economic growth and income inequality', *American Economic Review*, 45(1), pp.1-28.
- Lerman, J. P., and Feldman, S., (1998) 'Non-farm activity and rural household income: Evidence from Philippine micro-data', *Economic Development and Cultural Change* 46(4), pp.789-806.
- Li, H. (1998) 'Explaining international and intertemporal variations in income inequality', *Economic Journal*, 108(446), pp.26-43.
- McKenzie, D and Rapoport, H., (2007) 'Network effects and the dynamics of migration and inequality: theory and evidence from Mexico' *Journal of Development Economics*, 84, pp.1-24.
- Meschi, E., and Vivarelli, M., (2009) 'Trade and income inequality in developing countries' *World Development* 37, pp.287-302.
- Morley, B. (2006) 'Causality between economic growth and immigration: An ARDL bound testing approach', *Economic Letters*, 90, pp.72-76.
- Narayan, P.K. (2005) 'The saving and investment nexus for china: Evidence from cointegration tests', *Applied Economics*, 37(17), pp.1979-1990.
- Nguyen, V. C., (2008) 'Do Foreign Remittances Matter to Poverty and Inequality? Evidence from Vietnam', *Economics Bulletin*, 15(1), pp.1-11.
- Pesaran, M., Shin Y. and R.J. Smith, (2001) 'Bounds testing approaches to the analysis of level relationships' *Journal of Applied Econometrics*, 16, pp.289-326.
- Pede, V. O., Sparks, A. H., McKinley, J. D., (2012). Regional Income Inequality and Economic Growth: A Spatial Econometrics Analysis for Provinces in the Philippines. Social Sciences Division, International Rice Research Institute, DAPO Box 7777, Metro Manila, Philippines.
- Petersen L.(2012) Remittances and Inequality a Case Study of Albania. Bachelor Thesis, Department of Economics, Lund University. 912.
- Qureshi, M. S., Wan, G. (2008) 'Distributional consequences of globalisation: Empirical evidence from panel data' *Journal of Development Studies* 44(10), pp.1424-1449.
- Rodriguez, E. R., (1998) 'International migration and income distribution in the Philippines', *Economic Development and Cultural Change* 46(2), pp.329-350.

Roine, J., Vlachos, J., and Waldenström, D., (2009) 'The long-run determinants of inequality: What can we learn from top income data?' *Journal of Public Economics* 93, pp.974-988.

Shahbaz, M. Rehman, I.U. and Mahdzan, N.S.A. (2014) 'Linkages between income inequality, international remittances and economic growth in Pakistan', *Qual Quant.* Vol. 48(3), pp.1511-1535.

Shahbaz, M., (2010) 'Income inequality-economic growth and non-linearity: a case of Pakistan', *International Journal of Social Sciences*, 37 (8), pp.613-636.

Stark, O., Taylor, J. E., and Yitzhaki, S., (1988) 'Migration, remittances and inequality: A sensitivity analysis using the extended Gini index', *Journal of Development Economics* 28(3), pp.309-322.

Tang, T. C., (2003) 'Japanese aggregate import demand function: Reassessment from the Bounds' testing approach', *Japan and World Economy*, 15, pp.419-436.

Tarı, R. (2011) *Ekonometri*, Umuttepe Yayınları, 11. Baskı, Kocaeli.

Taylor, J. E., (1992) 'Remittances and inequality reconsidered: Direct, indirect and intertemporal effects', *Journal of Policy Modeling* 4(2), pp.187-208.

Taylor J.E., and Wyatt, T.J., (1996) 'The shadow value of migrant remittances, income and inequality in a household-farm economy', *Journal of Development Studies* 32(6), pp.899-912.

Waheed, O. O., Shittu, A. M., (2012) 'Remittances and income inequality in rural Nigeria', *E3 Journal of Business Management and Economics*, 3, pp.210-221.

Zouheir, A., Imen, M. S., (2012) 'Economic Growth and Income Inequality: Empirical Evidence from North African Countries', *Asian Economic and Financial Review*, 2 (1), pp.142-154.

UDK 336.71:005.332.8]:519.234(497.7)

MACEDONIAN PUBLIC PROCUREMENT SYSTEM: EXPERIENCES

Marjan Nikolov

President of Center for economic analyses
info@cea.org.mk

Abstract

This paper gives an overview of the public procurement system in Macedonia as well as the experience of its operation since 2007 until 2017. The paper is based on the documents from the relevant Macedonian state bodies, SIGMA, EU progress reports and Civil Society Organizations (CSO) that are operating in the field of the public procurement. We present the institutional and legal aspects as well as the experience with the operation of the public procurement management and the proper remedy bodies. We also touch the aspects of corruption and the public procurement experience in Macedonia.²

Key words: Public procurement system, corruption, remedy bodies in public procurement, 'Skopje 2014' project.

Introduction

The public procurement (PP) in Macedonia has been developing since 2007 and it was confirmed by SIGMA 2016 report and EU progress report from 2015 that the Law on Public Procurement (PPL) is broadly aligned with the *acquis*³. Namely, the Law on Public Procurement was adopted at the end of 2007, and entered into force on 1 January 2008. The PPL also regulates the legal protection in the procedures for awarding public procurement contracts, as well as for concessions and public private partnership.³

Further, the EU progress reports from 2015 and 2016 and the SIGMA 2016 report also noted that the level of alignment has been reduced through frequent amendments of the PPL since 2013. The country has not yet achieved alignment with the EU Directive on Defence and Sensitive Security Procurement or the 2014 EU rules on public procurement. The generalised use of the 'lowest price' criterion and the obligation for con-

2) Some Information in this paper were collected for the purpose of the action called "Strengthening National Integrity Systems in the Western Balkans and Turkey, and tracking developments of anti-corruption efforts" (EC Reference: CN 2014/339-583) implemented by the PSD: <http://psd.hr/>.

3) For the concessions and public private partnerships there is a separate Law on concessions and public private partnerships.

tracting authorities to obtain approval from the Public Procurement Council (PPC) in case they wish to use non-price criteria when awarding contracts is not in line with the *acquis* and has detrimental effects on the quality of the offers. Keeping records on professional misconduct by businesses and excluding them from future tenders is equivalent to 'black-listing' and not in line with European Court of Justice case-law (EU progress report 2015). In 2017 the Government made a decision to cancel the PPC.

In 2015 EU report, it was emphasized also that Macedonia is moderately prepared for *"EU rules ensure public sector procurement of goods and services in any Member State is open to all EU companies on the basis of non-discrimination"* and that it is particularly vulnerable to corruption. Further, it was noted in 2015 EU Progress report that: *"Some progress was achieved, especially through the mandatory use of e-procurement, but recent amendments to the procurement law reduced the level of alignment with the acquis. More efforts are needed to prevent corruption during the procurement cycle. Significant efforts are needed to ensure an efficient and effective public procurement regime. Allegations of serious conflicts of interest and abuse of public office have not yet been investigated. In the coming year the country should in particular:*

- *increase the transparency of public spending by publishing real-time information on all public procurement contracts;*
- *remove inconsistencies with the acquis including on blacklisting companies, conditions for using awarding criteria; ensuring harmonisation with EU procurement rules on defence and security as well as the 2014 EU procurement Directives, especially on concessions;*
- *ensure that reports of irregularities are properly investigated."*

Institutional and legislative set up of Macedonian public procurement system

The PPL in Article 1 regulates the manner and procedure for awarding public procurement contracts and the competences of the:

- Public Procurement Bureau (PPB),
- Public Procurement Council (PPC). Cancelled in 2018,
- State Appeals Commission upon Public Procurements (SACPP).

Related to the e-procurement, the Electronic System for PP (ESPP) was set up and running in 2006 in Macedonia (part of a pilot project of the USAID e-government project) as an application for electronic submission of tenders. At the beginning it was used only by several contracting authorities as a pilot project, but in the course of time its scope was extended to all contracting authorities. In 2008 the web information system was prepared by the PPB for publication of contract notices and contract award notices and ESPP was upgraded at same time with e-auction module. Finally, in 2012 the two systems integrated into one ESPP system. Nowadays, ESPP is unique centralized system for public procurement that is being used by all contracting authorities in Macedonia, through which it is possible to fill and to publish the contract notices for awarding public procurement contracts, calls for bids, notifications for concluded contracts, records for a bid-seeking request, annulment of procedures, implementation of procedures for awarding public procurement contracts using electronic means (use of electronic equipment for processing and storing data) as well as conducting auctions. In accordance with the new provisions of the PPL, the contracting authority is obliged to conduct the open procedure, the restricted procedure and the procedure with a request for collection of offers for use of electronic means through the electronic system for public procurement: at least 30% from the announced notices from January 1st 2016, at least 50% of the announced notices from January 1st 2017 and in 100% of the announced notices from January 1st 2018.

However, the EU progress report from 2015 stated that the obligation for contracting authorities to obtain consent from the PPC before publishing a contract notice gives them access to specialised expertise when drafting terms of reference but makes the procurement process more complex, expensive and time-consuming. The challenges are two dimensional. First, the PPC as an institution lacks specialized professional at a level to perform as expert pool for the contracting authority and second, the contracting authorities in order to avoid the complex nature of the institutional set up of the PP with the PPC are choosing not the value for money principle i.e. the economically most favourable offer in PP but simply go for the lowest price criteria for selection of the operator in order to avoid the procedure with the PPC. As an illustration of the lack of human capacity at PPC and possible lack of specialized expertise, as the PPC staff needs to decide upon complex and diverse subjects, we illustrate the fact that the average number of cases per day per member of the PPC was 13 in 2015 and 11 in 2016 (or monthly this is 270 cases per month per member of PPC to decide in 2015 or 223 cases per month per member of PPC to decide in 2016).

As for the lowest price it is a mandatory criteria and the economically most preferred offer criteria should be used as an exception (as of May 1st, 2014 amendments to the PPL). Since then the economically most preferred offer criteria announcements dropped dramatically from 584 in 2014 (first half of 2014) to only 17 announcements in 2015 (compared to 18,404 with the lowest price as single criteria in 2015) and only 16 announcements in 2016 (compared to 18,404 with the lowest price as single criteria in 2016) which makes less than 0.1% of economically most favourable offer criteria announcements in 2015 and 2016 (PBB 2015 Annual report). For comparison, in 2011 the economically most favourable offer criteria were used in 36% of the cases and 56% in 2010. In 2008 the economically most favourable offer was used in 84% of the cases.

The EU progress report also noted in 2015 that there is insufficient cooperation between the PPC and the PPB. It seems that the very purpose for establishing the PPC which is increased efficiency in the PP in Macedonia was undermined with the very PPC. This statement was also supported with the latest State Audit Office of Macedonia (SAO) performance report from 2017 on the PP in Macedonia where literally it was stated (p.2 and p.3): *“...the mandatory use of the lowest price as the only criteria for selecting the best offer combining with the obligation to ask for permission from the PPC, diminishes the real competition of quality offers and have impact on the quality of the goods and services procured by the contracting authorities as well as upon the quality of the services provided by the public sector”*.

The Civil Society Organization (CSO) Center for Civil Communication monitoring the PP in Macedonia has also highlighted the additional burdens, both administrative and financial, on the operation of the PP system and has also reported on problems arising from the decision – making of the PPC. For example, in their report from number 28 from May 2017 they report on page 4 that in 2016 the contracting authorities paid 1.8 million Euros to the PPC for more than 16 thousand requests for consent (or 3.3 million euros in 2015 which was 0.29% of the total value of procurement in 2015). Further, the SIGMA report through the questionnaire concluded that: *“...The average time the contracting authorities spend on the preparation of the approval process takes more than 20 days (not including the preparation of tender documents). This time equals or is longer than the average duration of the simplified procurement procedure, counting from the publication of the contract notice up to the conclusion of a contract.”*

Also, the efficiency that was expected for the PPC to bring did not happen because the total number of appeals submitted to SACPP did not decrease. However, in 2015 the total number of appeals against decisions of contracting authorities has increased while the proportion of appeals accepted by the SACPP has increased significantly (39.02 % of appeals were grounded in 2015 while in 2014 it was 29.78 % and 31.06% in 2013) thus, indicating possible discrimination and favouritism on the market. The SACPP developed the latest Strategic plan for 2016 where it recognizes the need for quality and transparency by enhancing the capacity of the human resources, improving the website and other. Here again, there is no overall supervision of implementation, reporting mechanisms, budget and detailed timeline for implementation of the Strategy.

Related to the strategic development of the PP system a Strategy for developing the public procurement system from 2013 has been developed but includes only the strategic priorities of the Public Procurement Bureau. However, there is no overall supervision of implementation, reporting mechanisms, budget and detailed timeline for implementation of the Strategy.

Public procurement management

Not much has been done to control for corruption in Macedonia in general and there is no centralized inspection system to monitor the contract award process in the PP system in Macedonia more specifically. The system of corruption control relies on the State Commission for Protection of Competition and the SAO but the SAO carries annual audits as per their annual program and internal criteria and as per the resources they have, thus, there is no central competent body to supervise the implementation of legal provisions on publishing and completing public procurement plans in Macedonia on regular basis.

In this regards, even though the possibility for e-auction for economically most favourable was made available in 2011 providing for increased transparency in the PP and even though the contracting authorities are obliged to prepare annual plans for PP⁴ still, the contracting authorities are not obliged to publish the procurement plans publically and not to mention that the annexes are not drafted until after contracts have been awarded and are not included in the ESPP.⁵ Even though the ESPP is in place and it provides for transparency, still the upgrade to include changes in contracted amounts and linking annexes to contracts is not completed. On the other hand, the mandatory use of e-auctions is not only not in line with the acquis, but also seems to hinder the procurement system (EU progress report 2016). Also, detailed requirements prevent competition in tenders and tender requirements remain too complex for small and medium-sized enterprises to participate (EU progress report 2016).

The existence of adequate management of public procurement plans provide opportunities for market protection mechanisms to react on detected anomalies. It is not enough for the contracting authorities to only prepare the procurement plans but to publish them transparently because timely published public procurement plans allow the economic operators predictability in the market and to conduct preparation for participation, higher probability for participation in the tender and in long run it can provide for more competition and more efficient market economy.

Related to the integrity of the system, existing of effective mechanisms to monitor the government agents in charge of the process and constraining particularistic manner and favouritism in allocating the public resources the EU progress report 2015 also reports insufficient cooperation between PPB and State Commission for Protection of Competition and the State Commission for Prevention of Corruption undermining the way that procurement principles are implemented and the fight against corruption. Namely, it is stated in the Annual PPB report for 2015 that the State Commission for Protection of Competition years in a row are sending information to the PPB that there are no serious allegations or irregularities related to the PP in Macedonia. The PPB is literary stating on p. 35 that: *“...the information we get are not fully corresponding with the facts and the conditions and the information that we receive from the economic operators illustrate that they appeal to unrealistic low prices or hindering competition...”*

Even in the Strategy with priorities for further development the public procurement system from 2013 from the PPB, it is only declaratively stated on page 19 that: *“PPB can contribute with exchange of information*

4) Article 26 of the PPL where it is stated: On the basis of determined sources of financing, the contracting body shall adopt a procurement plan covering its total procurement needs for the current year by types of goods, services and works. The contracting body shall adopt the plan by the end of January of the current year but it can make modify it during the year in accordance with the planned and provided funds for public procurement, as per the PPL.

5) Note however, that the PPB sent recommendation to contracting authorities to publish their annual public procurement plans on their web sites with aim to increase the transparency in the procedures for public procurement on 17th of December 2015.

and techniques on how to detect cartels in public procurement cases in cooperation with the Commission for Protection of Competition” also that “... the PPB should analyse the annual reports of the State Appeals Commission and make necessary amendments to the Law on Public Procurement to strengthen the competition aspect”. Finally it recognizes that “...a guideline should be issued for economic operators on how to complain against illegal behaviour of contracting authorities in such cases”. Such a Guideline was prepared in 2016. In the Guideline it is emphasised that the corruption was recognized with the Law on fighting corruption and that the main institution to fight corruption in Macedonia is the State Commission for Prevention of Corruption established in 2002. The Guideline is very shallow and doesn't have any practical value though.

Further, in the same Strategy it is said that there is a need for strengthening the material and staff conditions for more efficient operation of the State Appeals Commission (number of staff, training, and budget).

For the Commission for protection of competition it is stated that it should together with PPB develop a guideline on detecting cases of collusion in public procurement. Such a Guideline was prepared in December 2014 following the principles of Organization for Economic Cooperation and Development (OECD) (as stated in the Guideline p.2). In the Guideline it is emphasised the roles of the Commission for Protection of Competition: finding and sanctioning illicit contracts, finding and sanctioning dominant positions and assessing concentration in the market. Again, this Guideline is very shallow and doesn't have any practical value though.

Legal protection of bidders in public procurement procedures and remedies body

Legal remedy mechanisms are established to protect participants in public procurement procedures (bidders/competitors), therefore, their performance depends on the overall competitiveness of the system. In Macedonia the competent body for legal protection of participants in public procurement procedures is the SACPP.

Related to the SACPP in 2014, it upheld complaints in 66 of the 575 cases it reviewed (11%) and the court delivered 66 judgments on cases brought against decisions of the commission, ruling against it in 13 instances (27% as per SACPP Annual report for 2014 and increased compared to 2013). In 2015 the SACPP upheld complaints in 91 of the 610 cases (15%) it reviewed and the court delivered 66 judgments on cases brought against decisions of the commission, ruling against it in 24 instances (26% as per SACPP Annual report for 2015). This high rejection rate remains an issue of concern as per the EU progress report 2015. On implementation capacity, the capacity of the SACPP and the court to deal with an increasing number of appeals needs to be strengthened. Even though the President of the State appeal commission on public procurement is elected by a Decision of the Assembly of Republic of Macedonia still appointments to SACPP need to be freed from political interference and improving access to the commission's decisions would increase transparency (EU progress report 2015).

Related to the PPC, in 2014 (it started operation in May 2014) until end of calendar 2014 the PPC received 5,963 requests for consent and it turns down 2,989 (50%). Contracting authorities complaining to the SACPP upon PPC decision were 110 in 2014 and the SACPP ruled against the PPC in 24 of the cases (22%). In 2015 and 2016 there were 19,407 and 16,068 requests consequently submitted by the contracting authorities. The average time for issuing consent decreased from 13 days in 2014 to 8 days in 2016. In the period May 2014-April 2017 there were total of 256 complaints against the PPC and in 54 cases (21%) the ruling was against the PPC. Still in 2016 again, the EU states that the implementation capacity of the SACPP and the courts needs to be strengthened and appointments freed from political interference (EU progress report 2016).

The supervising body of PP in Macedonia

The competent body to supervise the implementation of regulations linked to public procurement in Macedonia is PPB. PPB in Macedonia enforce procurement legislation and the standards set by law, and conducts the administrative checks/investigations in contracting authorities. PPB on their website emphasises that the main functions are to: regulate, advice, train, monitor and develop the PP in Macedonia. The Director is appointed by the Government on proposal of the Minister of finance for 4 years and it is responsible in front of the Minister and the Government for her/his work.

PPB have developed Risk Management Strategy as of March 2017. Further, the risk of the conflict of interests of the Director of the PPB is regulated with the Law on prevention of conflict of interests. In cases when there are suspicions for existence of conflict of interest, the responsible person of the contracting authority, persons in charge of the public procurement, including the members of the commission for public procurement, should be exempted from the decision making on the specific public procurement. In the procedure for granting a public procurement, the president, the vice president, members and vice members of the commission for public procurement are obliged to sign a statement for absence of conflict of interest. These statements represent a mandatory document of the tender procedure.

The system of PP in Macedonia is such that each tender documentation has to be published on the electronic system for public procurement and this is obligatory for each contracting authority. The system itself doesn't allow publication of a call for public procurement without publishing the complete tender documentation. On the other side there is no obligations to publish the public procurement contract in an appropriate register under the PPL. The PPL in Macedonia doesn't prescribe sanctions if there are:

- Departure in the technical specifications in the tender for competition from those described in the contract
- Concluding a contract which deviates from the technical specifications described in the tender competition
- Violation of prescribed deadlines by the contracting authority.

In that regard it is indicative to emphasize that for example in 2015 as per the PPB Annual report for 2015 it is stated that most frequent reasons for cancelation of the PP procedure are:

- Not one offer is submitted
- Not one acceptable offer is submitted
- Not one proper offer is submitted
- Contracting authority finds out that the tender document contains shortcomings and irregularities
- Economic operators offered prices and conditions not proper and in accordance with the market prices and conditions at the time

The cancelled procedures goes up to 34% in the Ministry of interior, 31% in the government owned JSC Macedonian railway, 28% for the PC Macedonian roads, 28% for the government owned JSC Macedonian Posts, 24% for the AD ELEM (government owned electricity generation company) etc. and this should be of concern for the PPB.

Information management of public procurement

The new EU Directive on public procurement from 2014 prescribes more than 30 standardised forms for reporting on public procurement established to assist procurement management and monitoring systems in the country. These contribute to the prevention and detection of capture/corruption. In Macedonia there are 6 kinds of notices prescribed: publication of contract notices and notifications, prior indicative notifications, notice for awarding procurement contract, notification related to a concluded contract, notification regarding design content notice and notification regarding annulment of a public procurement procedure.

As per the PPL (Article 51) in Macedonia a Rulebook on the form and content of notices and notifications on the award of public procurement contracts has been prepared back in 2008. The notices are published on the ESPP and are available to the public. Further, if the estimated value of the public procurement contract, excluding VAT, exceeds euros 50,000 for goods and services, i.e. euros 200,000 for works, the notice for awarding a public procurement contract is also mandatorily published in the "Official Journal of the European Union" (Article 54 of the PPL). Finally, as per the PPL, the Official Gazette of the Republic of Macedonia and the PPB are obliged to publish the notice for awarding a contract within a time period of 5 working days as of the day of receipt of the contract notice. Thus, from this point of view we can say that the PPL of Macedonia is effective.

The forms are prescribed in by-laws, they are applied in national systems, are published (in pdf) but could be improved with standardised e-forms so that the information is available for further digital use, are obligatory and available to the general public, media and civil society but it can be further improved by making them in a user friendly form (pro-active publishing, not freedom of access to information requests). Each individual in Macedonia can, without prior registration, access the electronic system for public procurement and review each public procurement procedures. Moreover, they can apply advanced filters and research the available content by contracting authority, economic operator, number of notice, subject of public procurement, type of contract, type of procedure etc.

The integrity in the pre-bidding stage

If the persons in charge of developing tender documentation and technical specifications are appointed by a politically appointed official (mayor, minister etc.), then the risk of political influence (giving orders to such staff) is high. If the person is simply employed and appointed by a committee that is not governed by political appointees, then the risk is lower. Therefore, the risk of influence can be assessed with the opportunities and barriers to abuse of political power for the purpose of gaining political control over the pre-bidding stage of the public procurement. In Macedonia the following persons are involved for the production of competition documentation for the contracting authority: the person responsible for the public procurement, members of the commission for public procurement and experts from the body for which the public procurement has been implemented. Namely, this is a responsibility of the organizational unit and the persons in charge with the preparation and implementation of procedures of public procurement contracts.

There is a high risk of influence in Macedonia because the decision for appointment of a person or persons for producing competition documentation for the contracting authority is made by the management (for example the director of the public company, the Minister or the Mayor). On the other hand regulation and acts are regulating the prevention of conflicts of interest for persons authorised to implement public procurement procedures in Macedonia (Article 62 from PPL and Article 63 from Law on prevention of conflict of interest). The tenders and storing documentation until the selection decision is made by the public procurement commission (Article 28 of the PPL) and there is a clear procedure for receiving and storing documents (Article 170 of the PPL) and thus, there is a clear procedure and a clear point of responsibility for the PP documentation in Macedonia.

Deciding and contracting phase of the public procurement

Persons in charge of developing the tender or those in charge of receiving and storing documentation should not be the same as those in the evaluation committees (although they may share one or two persons). Evaluation committees are usually consisted of internal staff but external experts as well, depending on the complexity of the procurement. Although they may decide on substantial resources, conflict of interest legislation usually does not cover members of the evaluation committees, especially in the countries that are exposed to capture/corruption as Macedonia is. It is stated in Article 28 of the PPL that the contracting body shall appoint the chairman and members of the public procurement commission, their number and their deputies so, it is the PP commission that makes decision on the selection of the most favourable tender in the public procurement procedure. Also, there is the Law on prevention of conflict of interest that regulates the matter.

Public procurement and corruption

Related to the fight and control of corruption it is only declaratively stated in the Strategy on page 23 that the State Commission for Prevention of Corruption, the State Commission for Protection of Competition, the Police, the Public Prosecutor's Office and PPB staff should work together in using this database of the ESPP. There are also two other recommendations in that Strategy related to the control of corruption:

- to oblige the contracting authority to have an anti-corruption clause in every contract signed after the public procurement procedure is conducted and
- The State Commission for Prevention of Corruption in cooperation with PPB to issue a Guideline on prevention of corruption and conflict of interest for contracting authorities and how to award public contracts in a transparent, non-discriminatory way, avoiding conflict of interest (this Guideline is not yet prepared).

As per the 2015 Annual Report of the PPB the number of corruption allegations related to the PP submitted to the State Commission for Prevention of Corruption for the period 2011-2015 are as illustrated in the next table.

2011	2012	2013	2014	2015
45	29	14	25	10

The State Commission for Prevention of Corruption submitted 2 out of 10 allegations in 2015 submission for possible criminal activities to the Public prosecutor. The PPB states in its Annual Report that the decreasing number of possible corruption in PP can be explained with the continuing training of the contracting authorities and this might be true for the small profile corruption while on the other hand the reality is different.

Namely, the State Commission for Protection of Competition has lost its credibility over the high profile corruption by not detecting and reacting upon the alleged irregularities reported by the municipality of Centar about the 'Skopje 2014' project, of allegations of serious irregularities in the award of some large infrastructure and health contracts, or of other allegations of serious conflict of interest and abuse of public office noted also in the EU progress report 2015. These allegations doesn't come to surprise after the wire tapped scandal, opposition's protests, CSO protests as the EU Commission confirmed that the protests were against the lack of transparency and the level of state capture in Macedonia (EU progress report 2015 p. 8). In 2015 the European Commission recruited a group of independent senior rule of law experts to carry out a rapid analy-

sis of the situation and provide recommendations to address the issues of the large number of illegally intercepted communications in Macedonia, which have been published at regular intervals since 9 February 2015. The group of experts came out with the so-called Priebe report from 2015. In that report it is stated on p.6: *“...Apparent direct involvement of senior government and party officials in illegal activities including electoral fraud, corruption, abuse of power and authority, conflict of interest, blackmail, extortion (pressure on public employees to vote for a certain party with the threat to be fired), criminal damage, **severe procurement procedure infringements aimed at gaining an illicit profit, nepotism and cronyism...**”*

Even though unit of the Special Prosecutor Office was established as a direct result of the Priebe report and consequently the agreement signed among the four largest Parliamentary political parties to implement the recommendations from that Priebe report, there was no investigation on the alleged irregularities in the ‘Skopje 2014’ project, on the award of certain large infrastructure and health contracts, or on serious conflicts of interest and abuse of public office. The rule of law and the criminal justice system as the final measure against capture/corruption in public procurement and the ultimate measure of horizontal accountability failed in Macedonia and that is why the Special Prosecutor Office was established.

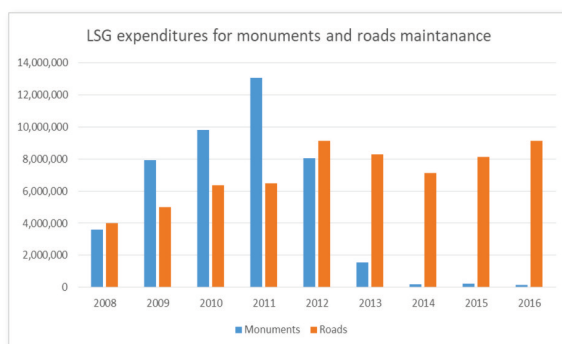
The mechanism in Macedonia proves not to be working because many other parts of the system were not working well. Important areas, such as the judiciary, security or media, in Macedonia require systemic reforms based on an inclusive, transparent and cross-party process and more: *“...The control and misuse of the judicial system by a small number of judges in powerful positions to serve and promote political interests has not diminished in any significant respect. These judges have continued to bring pressure on their more junior colleagues through their control over the systems of appointment, evaluation, promotion, discipline, and dismissal which have been used to reward the compliant and punish those who do not conform. This has been described as a type of “state capture” but is perhaps more precisely characterised as the capture of the judiciary and prosecution by the executive power...”* (Priebe report 2017 p.4 and p.5). Thus, we can clearly state that the criminal justice system was not effective and efficient in preventing corruption and capture in public procurement as well.

As an illustration we present the Local Self Government (LSG) expenditures in Euros for monuments and local roads maintenance in Macedonia for the period 2008-2015. The monuments are part of the Skopje 2014 project. One can easily see that the expenditures for monuments in 2011 were more than double than the expenditures for local roads maintenance. Further, more than 90% of these expenditures for monuments happened in the LSG Centar which is the LSG with the 3rd smallest area of all LSGs in Macedonia.

Graph.

LSG expenditures for monuments (part of the so-called ‘Skopje 2014’ project) and local roads maintenance in Macedonia for the period 2008-2015

Source: Author’s calculations on the Ministry of finance Treasury data on LSGs



That is why the EU 2016 progress report (p.36 and p. 37) classifies Macedonia as a country that is moderately prepared in this PP area and that is particularly vulnerable to corruption. The EU 2016 progress report further states that there is no progress in the reporting period and that none of the recommendations in the PP were implemented. It urges for significant efforts to ensure a transparent, efficient and effective PP regime. Even, that more needs to be done to prevent irregularities and corruption during the procurement

cycle. It urges for investigations into allegations of serious conflicts of interest and abuse of public office that need to be followed up. It recommends in the coming year that Macedonia should in particular:

- reconsider the mandatory use of e-auction and the role of the Public Procurement Council;
- ensure the equal treatment of EU procedures and align fully to the *acquis* especially in the area of concessions;
- ensure that reports of irregularities are properly investigated.

Even though the legislation and the bodies are on place still, there is insufficient cooperation between the PPC, the PPB, and the State Commission for Protection of Competition and the State Commission for Prevention of Corruption and this undermines the fight against corruption and the proper implementation of the PP principles. That is why a monitoring the conclusion of contracts on public procurement could prove efficient in reducing the risk of corruption and capture in Macedonia.

In Macedonia there is a Law on prevention of conflict of interest (Official Gazette No. 6p.128/09 from 22.10.2009) and there is no special body that is competent to render decisions on conflicts of interest in public procurement procedures. State audit office (SAO) carries regularity and performance audits as per their annual program and internal criteria and as per the resources they have and they regularly publish their annual program and the audit reports. SAO produced performance report on the PP in Macedonia in 2017. The assessment of legislative and regulatory provisions related to the work of SAO in Macedonia illustrates that the Head of the SAO is the Auditor General, who has a deputy (see more at Center for economic analyses 2016). The Auditor General and his deputy are elected by the Assembly. Even though the cooperation between SAO and the authorities: the State Commission for Prevention of Corruption, the Public Prosecutor and the Ministry of Interior is enabled and prescribed in the State Audit Law (Article 35) still, according to the Law, there is no further prescription for activities that SAO should undertake, or if any information or reports should be provided to the SAO as a feedback, after informing the authorities.

Despite the efforts of the SAO to have its independence and autonomy embedded in the Constitution of the Republic of Macedonia, in compliance with international standards and good practice in EU countries, and the recommendations of the Lima Declaration on the leading principles of audit, this matter has not been resolved yet, although it is one of the major preconditions for further accession to the EU. Further, although the legal framework regulates the SAO independence and autonomy, and gives appropriate operational independence as the power necessary for conducting audits, given the fact that the SAO abides by the same regulations as any other budget user, in practice the independence and the autonomy of the institution are limited from legal and financial aspects. This delays the process of

SAO's dynamic development and the harmonization of its operation with the best European practices regarding enhanced security and accountability of public funds financial management. The existing legal framework does not clearly define the obligation of the authorized organs to act upon notification of the authorized state auditor on their reasonable suspicion for a misdemeanour or a crime, and to inform the SAO on regular basis about the measures taken until a final decision is reached by the Public Prosecution Office or the authorized judicial organs on a previous SAO notification (Center for economic analyses 2016 report).

Finally, the last PEFA Report from 2015 notes that SAO does not have the resources needed to carry out a full financial and compliance audit of all its auditees every year, and therefore aims to cover most of them in detail over a period of several years. A consolidated annual report of all SAO's activities during the previous year is sent to the National Assembly in June each year. In addition to this, SAO is required to make an annual audit of the execution of the central government Core Budget, which excludes the social insurance funds, as well as operations financed from own revenues or external sources. The last audit is limited to revenue and expenditure statements, and does not cover assets and liabilities. It includes some sample testing of rev-

enues, but expenditures are covered only at the level of the Treasury, without any substantive testing of transactions at the level of the budget users" (PEFA 2015). The EU Progress report 2015 requires increased audit coverage of total public spending in order to improve accountability and transparency of the public finances.

Related to the soft mechanisms that prevent corruption/capture of the PP system in Macedonia, there is a full professionalization of the public procurement with certified and educated procurement officers that are only authorised to conduct public procurement and there is e-procurement as we already said. Namely, the contracting authority assigns a person that will work in the field of PP and the person should have certificates for passed exam for public procurement. Also, if there is a Unit for PP at the contracting authority all these persons should also be certified. Note that in Macedonia, persons that are certified may also be members of procurement commissions, but compulsory are members of commission for public procurement in cases when the estimated value of the public procurement agreement is above 130,000 euros for goods and services and 4,000,000 euros for works. The certification is done by the PPB after a successful written exam has been conducted and the certificates are valid for 3 years. Prior to the expiration of the certificate, the person should apply for one day re-certification training. After attending the training, the person takes a written exam again, after which she/he acquires a certificate for passed exam for person for public procurement, with a validity period of another three years.

Since the 2010 when the certification started in Macedonia there were around 3,000 persons attending the certification process. As per the Annual reports prepared by the Training department of the PPB, in 2014, 324 persons attended the regular certification training and 67 persons attended the recertification training. In 2015, 254 persons attended the regular certification training, while 144 persons attended the recertification training. During 2016, 338 persons attended the regular training, while 283 persons attended the re-certification.

Monitoring the conclusion of contracts on public procurement

Usually, it is considered that public procurement ends with the signing of the contract. However, it was found by researchers that most of the deviations in public procurement in terms of corruption/capture happen before and after the contracting procedure. Therefore, monitoring of the execution of the contracts is one of the key instruments that need to be established in countries that want to seriously prevent corruption in this sense. The non-existence of regulation on monitoring the execution of the contracts which is the case in Macedonia, represents higher risks to corruption/capture. Monitoring of the execution of the contracts is novella even in the EU legislation.

However, even though the PPL doesn't foresees any measures for monitoring the implementation of the contracts for public procurement still, the contracting authority in its internal policy can assign a person responsible for monitoring the implementation of the public procurement contracts.

Unfortunately, to the best of our knowledge we are not aware of such a person being assigned for monitoring the implementation of the public procurement contracts in Macedonia yet. The relevance of why it is important to assign a person responsible for monitoring the implementation of the public procurement contracts is tested these days in Macedonia with the information provided through the journalist investigation from NOVA TV of the drugs import in Macedonia. Namely, in 2013 the Minister of health started a new policy of *"parallel importation of drugs"* in order to influence a decline of the average prices on the drug market. The pharmaceutical companies were complaining that this policy introduced a practice on the Macedonian market for importation of fake drugs and further, as stated in the Article by the journalist, informer pharmaceutical company states that *"...40% of the imported drugs with the parallel importation regime are fake..."*

Petty procurement by type of procurement and type of contracting authority

The PPL in Macedonia applies when the value of the contract is above 500 euros and then the contracting authority is obliged to implement one of the procedures for awarding a public procurement and in cases when the contract is directly financed or subsidized by a contracting body with more than 50%. Further, the PPL in Macedonia doesn't foresee any sanctions in cases when a public procurement procedure is launched without previously being specified in a public procurement plan which puts a risk for corruption. Finally, in this regards, there are legally prescribed exceptions to the application of the PPL and when work, services and goods may be contracted without a previously implemented procedure like in the field of defence, diplomatic and consular offices, when contract is classified as state secret, when public procurement contracts for which funds have been provided from international organizations (donors and lenders).

Public procurement and public private partnership

The authority responsible for monitoring and control of PP law is the Ministry of finance and the authority responsible for monitoring and control of PPP law is the Ministry of economy. There is no distinguishing between procurement of PPP projects and general public procurement because the PPP law refers to the PP law.

There is no explicit provision in the PPP Law prescribing the prior consent from the PPC for using the economically most favourable bid as the criterion for awarding the PPP contract, but in practice there is an understanding that such consent is required. This comes from the fact that PPP law prescribes that provisions from the PPL concerning the award procedures for PPP public work contracts and PPP public service contracts will adequately apply to the award procedures for PPP procurement contracts. Thus, in practice, this understanding works contrary to the value for money principle at PPP and it ends in adverse bureaucratic approach.

Since 2014, the PPP law obliged the contracting authorities to use e-auctions, positive and negative auctions, in the evaluation bid process. According to the PPP Law "electronic auction" means a positive or negative auction realized after an initial full evaluation of bids, in which the bidders have a possibility, exclusively by electronic means, to revise the offered prices so that the ranking is done automatically by electronic means. On the other side the awarding procedure of the PPL (Articles 47/48), related to the exclusion from the procedure to the award of public contract for economic operators and potential bidders, is not in line with the EU Public Sector Directive (Directive 2015/24/EU replacing Directive 2004/18/EC which has similar provisions) as argued by RESPA 2016 study.

According to the PPP Law the total amount of funds to which the public partner may assume financial commitments in a given year related to PPP contracts, should be determined by the budget of the public partner. In PPP Law in Macedonia there are neither specific provisions of the procurement value for PPP nor requirements for assessment of the fiscal impact of the PPP contract. The procurement value of PPP should be assessed within the PPP feasibility study. The by-law adopted by the government on the preparation of the PPP feasibility study gives the structure where the economic and finance analyses for the PPP is required as well as value for money calculation. In Macedonia there are no particular provisions regarding high-value PPP procurements.

The Ministry of economy, as the authority to monitor and control the PPP Law, and the PPP Unit there do not approve the PPP tender documents. For the competencies of the central government, the government on the proposal of the proper ministry approves the tender PPP documents. At the local level the Mayor approves the tender PPP documents. There is also no need to consult the PPP Unit in the Ministry of economy on these tender documents. However, it is obligatory for all procuring authorities to follow the tender documents approval procedure.

Conclusions and recommendations

From the legislative and institutional point of view there are significant studies done by SIGMA, SAO, CSO and EU for the national authorities to assess thoroughly the PP efficiency. What is missing is an overall strategic PP document because we can see that there were frequent changes in the legislation reflecting the importance and the interest of the nation for the PP still, the changes were ad-hoc and not rooted in wider strategic document. Such a document might trigger also a more efficient cooperation and coordination of the different PP actors in Macedonia.

Further, it is indicative that a thorough training plan should be developed not only for the technical part of the PP but for strategic planning for efficient PP in Macedonia. In that regards the strategies, manuals and guidelines should be more detailed and useful. Improvement can be made by putting attention to the further development of the Public Internal Financial Control (PIFC) in Macedonia and more precisely related to the PPPs and concessions to enhance the capacity of the Ministry of economy (a good start could be improving the PPP registry and start of work of the PPP Council).

Further, the mandatory lowest price criteria should be abolished because it is against the value for money principle in the public sector. The lowest price and the economically most favourable choice should be left as a discretion to the PP certified experts at the contracting authority to assess the best price-quality ratio.

Also, Macedonia should assess the possibility for introducing measures for monitoring the implementation of the contracts for public procurement. Even though the PPL doesn't foresees any still, the contracting authority in its internal policy can assign a person responsible for monitoring the implementation of the public procurement contracts. In that regards the PPB should consider encouraging the contracting authorities with training and procedures.

References

- [1] Center for Civil Communication report No. 28 (2017). <http://www.ccc.org.mk/images/stories/i28mm.pdf>. Accessed 28.09.2017.
- [2] Center for economic analyses (2016): Assessment of the legislative and regulatory provisions related to the work of the State Audit Office. <http://cea.org.mk/wp-content/uploads/2017/02/WFD-CEA-Finalna-publikacija-FINAL-ENG.pdf>. Accessed 27.09.2017.
- [3] EU (2015): Progress report for Macedonia.
- [4] PEFA report for Macedonia (2015). <https://pefa.org/sites/default/files/assessments/comments/MK-Dec15-PFMPR-Public.pdf>. Accessed 27.09.2017.
- [5] Priebe report (2015): The Former Yugoslav Republic of Macedonia: Recommendations of the Senior Experts' Group on systemic Rule of Law Issues relating to the communications interception revealed in Spring 2015 https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/news_corner/news/news-files/20150619_recommendations_of_the_senior_experts_group.pdf. Accessed 27.09.2017.
- [6] Priebe report (2017): The Former Yugoslav Republic of Macedonia: Assessment and recommendations of the Senior Experts' Group on systemic Rule of Law Issues. https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/2017.09.14_seg_report_on_systemic_rol_issues_for_publication.pdf. Accessed 27.09.2017.
- [7] Public Procurement Bureau (2015): Annual report on the functioning of the PP in Macedonia. Available at: http://bjn.gov.mk/content/documents/Godisen-izvestaj-2015-godina_final.pdf (accessed 27.09.2017).
- [8] Public Procurement Bureau (2015): Strategic priorities for further development the public procurement system in the Republic of Macedonia 2014-2018.
- [9] ReSPA Regional school of public administration (2016): Comparative Analysis of Lessons Learned from Recent Development in Implementation of Public Private Partnership Projects in the Western Balkan Region. <http://cea.org.mk/wp-content/uploads/2016/02/ReSPA-PPP-Working-Paper.pdf>. Accessed 27.09.2017
- [10] Law on public procurement Official Gazette of the Republic of Macedonia, nos. 136/2007, 130/2008, 97/2010, 53/2011, 185/2011, 15/2013, 148/2013, 160/2013, 28/2014, 43/2014, 130/2014, 78/2015, 192/2015, 27/2016 and 120/2016). Available at: <http://bjn.gov.mk/content/documents/Precisten-tekst-rabotna-verzija-zjn-juli-2016.pdf> (Accessed 24.09.2017).
- [11] Law on prevention of conflict of interest (Official Gazette No. 6p.128/09 from 22.10.2009).
- [12] Rulebook on the form and content of notices and notifications on the award of public procurement contracts (2008). http://www.bjn.gov.mk/content/documents/Pravilnik-za-formata-i-sodrzinata-na-oglasite-i-izvestuvanjat_.pdf. Accessed 26th of September 2017.
- [13] Public Procurement Bureau: <http://bjn.gov.mk/>.
- [14] Public Procurement Council: <http://www.sjn.gov.mk/>.
- [15] State Appeals Commission upon Public Procurements: <http://dkzjn.mk/>.
- [16] NOVA TV (2017): Article by the journalist Menche Atanasova Tochi: <http://novatv.mk/somnezhi-deka-40-protenti-od-lekovite-op-paralelen-uvaz-se-falsifikat/>. Accessed 28.09.2017

UDK 334.788:51]:005.332.8(497.7)

THE IMPACT OF E-BANKING SERVICES ON PROFITABILITY: THE CASE OF A JORDANIAN COMMERCIAL BANK

Nawaf Salim Alghusain

Faculty of Business, Department of Banking and Finance, Al-Zaytoonah University of Jordan, Jordan

Ayman Abdalmajeed Alsmadi

Faculty of Business, Department of Banking and Finance, Al-Zaytoonah University of Jordan, Jordan

Raed Al-Qireem

Faculty of Business, Department of Banking and Finance, Al-Zaytoonah University of Jordan, Jordan

Correspondence: Ayman Abdalmajeed Alsmadi, Faculty of Business, Department of Banking and Finance, Al-Zaytoonah University of Jordan, P. O. Box 130, Amman 11733, Jordan.

Abstract

The world has witnessed successive waves of technology and telecommunications changes in the last few years. These waves of digital revolution has resulted directly to changes in the banking sector around the world. Banks in Jordan followed these waves which affected the ways of receiving and sending financial information, and promoting the banks new product and services. Traditional banking services have been subjected to many stages of development, and shifted from traditional activities that uses paper, to technical and virtual banks that use different networks. This study aims to evaluate the effect of E-banking services on the bank's profitability in Jordan. We have selected a sample of one of the biggest and successful commercial banks in Jordan to analyze the impact of implementing E-banking services on its profitability for the period of 2010-2015. The results of this paper shows that there is a positive relationship between banks billing (e-FAWATEER com) services, the use of E-banking , and using banks cards on the bank's profitability.

Keywords: *electronic banking, profitability, electronic financial services*

1. Introduction:

Nowadays, the world is witnessing an enormous development in information technology age, which has influenced all industrial and services sectors including the banking transactions and services introduced by banking and financial entities such as banks, insurance companies and deposit insurance incorporation ... etc.

As known, banking sector is the most important sectors that support the economy. These countries advance through the growth of the economy. Banks are playing a very important and effective role due to these developments and changes in the economic world. Thanks to the accelerating advances in technology, there diversity in almost all services banks are offering to their customers everywhere and anytime. Banks are considered among the most institutions that care about diversity of electronic banking services using IT, communications and the internet to introduce its various e-banking services to their clients in order to improve the level of these banking services and to obtain a high level of clients' satisfaction and trust.

In addition, the world of banking services has witnessed a scientific transformation in banks strategic dimensions and goals in the past few decades. This transformation was a logical outcome of the new technological revolution in the media, communication and globalization of banking and financial markets. This might have led the financial institutions in specific and financial ones in general to move toward offering a new type of services that goes along with the new facet of the banking market.

This paper explore the influence of electronic banking services on bank's profitability in Jordan. Some of the questions that rise are:

- What are the electronic banking services that Jordanian **Commercial** banks offer?
- Do these services affect the profitability of Commercial banks in Jordan?
- Are there any discrepancies in electronic banking services on the profitability of **Commercial** banks in Jordan?

1.1 Study Hypotheses

Based on the problem of the study, the following hypotheses have been formulated:

- 1) There is no relationship between implementing E-banking services and increase in bank profitability.
- 2) There is no relationship between using banks cards and increase in bank profitability.
- 3) There is no relationship between bank billing (e-FAWATEER com) services and increase in bank profitability.

1.2 The Importance of the Study

- 1) Banks are among the most important economic sectors in Jordan.
- 2) The diversity of electronic banking services came about due to the enormous and fast development in information technology, communication and the internet.
- 3) Availability, convenience of electronic banking services.
- 4) Few studies related to e-banking services in Jordanian banks urged the researcher to conduct this study.
- 5) The importance of this study is to be acquainted with types of e-banking services and the influence they have on banks' profitability.

1.3 Types of E-Banking Services

- 1) Automatic Teller Machine (ATM) service: An ATM is a banking machine that provides cash withdrawal, transfer and deposit operations in a highly secure system thus achieving the principles of auto systems. It is linked to a bank computer network in a way that ensures the rights of the banking operation parties.

Jordan's Banks ATMs offer a wide range of banking services around the clock. These ATMs provide clients with cash withdrawal, balance inquiries, Changing PIN number, ordering a mini account statement and many other services. There is a commission when using ATM services deducted either monthly for the bank clients or instantly if the client is using other bank is ATM. That process positively influences ATM and eventually the bank profitability.

There are many cards that can be used for ATM services, among which are: credit cards, VISA cards, MASTER cards etc....

- 2) SMS short text messaging: is a service offered by banks to their clients to obtain all information/ notifications related to account transactions as soon as they occur and to view accounts' balances, most recent transactions, or to transfer funds between personal accounts or to third party accounts. Part of this service is (SMS Push) which is a free service granted to any client upon his/ her request. The client selects the services and messages that he/ she wishes to receive on his mobile phone as an SMS in English.
- 3) Mobile Banking: is a banking service available through mobile phones that enables customers to use their smart devices to access their account information by inputting a pin code to perform banking transactions at their convenience. Most banks in Jordan nowadays have these days an interactive application that users install on their devices to allow them to use certain services, and perform transactions on their bank accounts.
- 4) Billing (eFAWATEERcom) service: an electronic system for viewing and paying bills. This service is presented and monitored by Central Bank of Jordan. It facilitates the process on citizens by saving them time and effort. It is flexible in using the different banking channels to conduct viewing and paying for bills by the private and public sectors. The central bank, in cooperation with (Madfo'atcom) company has specified a commission that is deducted from those who use the billing service. The commission is divided among the central bank 10%, the collecting bank gets 40% and bill's company gets 50%. These commissions are paid instantly at the time of bills payments. At the end of the day, ratios are calculated to determine profitability by accumulating all commissions in FAWATEERcom bank account and added at the end of the year to the general revenues. you will be able to pick the time and place you want to pay your bills through versatile list of payment channels that include ATMs, Tellers, Mobile and Online Banking services, Jordan's post offices, along with a number of trusted centers in hyper supermarkets such as Carrefour, Safeway and others.

In 2014, eFAWATEERcom had settled itself as the ideal choice of online payment for wide segment of Jordanian people applying to variety of businesses from individuals, companies, digital organizations and governmental institutions. This quick-witted system has been developed to improve the transactions processing performance that it measured over 250,000 transactions performed with total of 156 Million Jordanian Dinars of the financial operations from the date service was launched. With 55 Billers and more than 227 different services, we're in front of distinguished service that is to lead the market in the digital era.

There are many benefits of using eFAWATEERcom for clients such as:

- a. No time, money or effort consumed on traditional or impractical payment options.
 - b. Ability to avoid service interruption due to delayed payment.
 - c. A fast, reliable and secure process to pay and review your bills whenever and wherever you are.
 - d. Flexible and versatile payment channels that meet the client's needs.
- 5) Internet service: the service allows a client to conduct financial transactions by logging in to the bank's website. It is a convenient and secure service through which a client can make online money withdrawal and view and edit his/ her bank account information at any time and from any place, that has internet connection. It provides supervisory standards and flexibility and maintains security of information.

- 6) Call center (customer care service): banks operate communication centers and customer care centers that permit banking service over the phone by using a pin number. These centers operate around the clock, Thus making the service available 24/7.
- 7) Western Union Money Transfers: Western Union money transfer is an exceptional service provided by many Jordanian bank. It is designed to send and receive money transfers from more than 470,000 locations in more than 200 countries worldwide. It is the fastest and most secure channel of sending and receiving money within a short time.

2. Literature Review

Ceylan et al. (2008) analyzes the banking performance in Turkey. For the period of 1996 to 2000 and considered 14 banks. ROE (return on equity), ROA (return on asset) and MARGIN have been used as performance variables. The results show that in the first year there is no positive performance; it takes two or three years to reach a good performance. The results show that the ROE has a positive result in the second year of adoption.

Özataç and Nwobodo (2010) studied the internet banking in Cyprus for the period of 2004-2009, by using panel data of 22 banking. ROE and ROA have used. Two other ratios were included: the CA- ratio of total credit to total assets and the CD-ratio of total credit to total deposits used to test the link between Internet banking and performance. The results conclusion that the CA and CD ratios have negative relationship while using the internet.

Study of Egländ et al. (1998) estimated some of US banks that offering E-banking and analyzed the performance of these banks. This study found that no major differences in the performance of the group of banks offering E-banking activities compared to those that do not offer such services in terms of profitability. In addition, Hernando and Nieto (2005) examined the performance of some banks in Spain for the period of 1994 to 2002. The results of this study found higher profitability through increased commission income, increased brokerage fees and (eventual) reductions in staffing levels and concluded that the Internet channel was a complement to physical banking channels.

De Young et al. (2007) analyzed the effect of e-banking on the performance of banks in US markets. The findings concluded that e-banking improved the profitability of banks hence increasing their revenues. KPMG (1999) suggested that the evolution of Internet-banking can be analyzed within a five-stage, where the extent of services provided through Internet start from a promotional stage and extend to transaction-enabled business innovation stage in which institutions redesign their value-chain and offer highly personalized products and services. Analyzing the consumer side, Birch and Young (1997) show that consumers seek convenience, transactional efficiency, a choice of core banking products and non-core products, and access to competitive returns and prices. Wright (2002) mentions that Internet-banking has lifted the branch network as an entry barrier to the retail banking while introducing price transparency as customers can now easily compare prices online. Price transparency also brings faster commoditization of basic services and products. Wright also suggests that traditional retail banks have to develop new strategies to compete with Internet-only banks. Internet-only banks are pure-plays with no physical "bricks and mortar" branches.

Malhotra and Singh (2009) examined the impact of E-banking on performance of Indian banks during 2007 and found that the profitability and offering of internet banking does not have any significant association. Mohammad and Saad (2011) examined the impact of electronic banking on the performance of Jordanian banks for the period (2000-2010) by using OLS and found that E-banking has a significant negative impact on banks performance. Freedman (2000) suggested that electronic banking consist of some devices; access devices, stored value cards, and network money. Electronic banking is using new access devices and is therefore ignored. This has prompted a fresh look on this subject.

According to Nathan (1999) E-banking are providing a lot of benefits for both banks and clients. Advantage number one for the banks offer e-banking service is better branding to the market. Those banks that would offer such service would be apparent as leaders in technology completion. As a result, they would enjoy a better brand image. Another benefits are possible to measure in monetary terms. The main goal of every company is to maximise profits for its owner and other stakeholders. According to Allen and Hamilton (2002), an estimated cost of providing the routine business of a full service branch in USA is \$1.07 per transaction, as compared to 54 cents for telephone banking, 27 cents for ATM banking and 1.5 cent for internet banking.

3. Methodology

E-Banking Services is the process of conducting banking services electronically i.e. by means of new media and communication technology. In this pattern, the client does not have to go to a bank if it was possible for him/ her to conduct transactions or any banking activity from anywhere or at any time. Another definition would be that e-banking services or what is known as electronic banking operations is offering of innovative banking services via electronic communication networks limited only to subscribers to the service in accordance with subscription terms set by banks through a sort of a gateway in the network as means of communication with their clients. A third definition features that e-banking services is the banks trending toward expansion on the internet instead of establishing new buildings on the ground (Note 1). (Need 2 references) (Salhi & Alipour, 2010). The definition of electronic banking varies among researchers partially because electronic banking refers to several types of services through which a bank's customers can request information and carry out banking services.

Jordanian banks offer a diversity of e-banking services most of which are free services, but their influence might be through attracting new clients, which leads to growth of the bank's profits because of increased number of clients. Using electronic banking resulted in lower costs for banks in terms of number of staff for customer service, leading to an increase in banks' profitability and improve customer satisfaction towards banks.

Some e-banking services are paid services, which positively influence banks profitability such as ATM and billing services.

The population of the study is consisted of a sample of one of the biggest and profitable Jordanian commercial bank during the period 2010-2015 as all banks in Jordan are implementing E-banking services.

3.1 Data Collection

The data in this research were collected from preliminary resources such annual reports books, periodicals, magazines, publications, and past studies in the same field and some internet websites. We also benefitted from secondary data resources such as bank's financial statements and operational data taken from the bank annual reports for the years 2010-2015. The independent variable is the e-banking services such as, ATM, SMS, phone banking, internet banking, smart phone and billing (e-FAWATEER com) services. Concentration in this study will be on ATM and billing services. While the dependent variable is the profitability of banks and it will be measured through banks Return on Assets (ROA) and return on equity (ROE) and margin in Jordanian banks.

3.2 Data Analysis

The Dependent variable for this study is the bank profitability. It is often measured by price to earnings ratio. There independent variables affect profitability through dependent variable. Researchers measured profitability by return on assets (ROA), return on equity (ROE) and margin. These performance measures have been used in most studies and we have used them for this study.

Researchers use some equations to find return on assets (ROA), return on equity (ROE) and margin to measured profitability:

$$\text{ROA} = \text{Net Income} / \text{Total Assets}$$

$$\text{ROE} = \text{Net Income} / \text{Total Equity}$$

$$\text{Margin} = \text{Net interest revenue or Income} / \text{Total Assets}$$

When back to banks annual reports, researchers found these results about of return on assets and return on equity then finally found margin of profit, show below of tables:

Table 1. Calculate of ROA

Return on Assets (ROA)			
Year	Net Income	Total Assets	ROA
2010	53,213,883	2,083,965,605	2.553491424
2011	39,696,706	2,273,649,683	1.745946453
2012	46,607,908	2,409,637,456	1.934229064
2013	47,417,835	2,552,465,748	1.857726594
2014	46,761,696	2,609,714,566	1.79183182
2015	39,411,676	2,844,731,503	1.385426918

In this table, the maximum of ROA is year for 2010 and the total assets are increase each of year so that means is positive relation to profitability of bank.

Table 2. Calculate of ROE

Return on Equity (ROE)			
Year	Net Income	Total Equity	ROE
2010	52,213,883	324,556,650	16.08775633
2011	39,696,706	346,643,127	11.45175049
2012	46,607,908	374,085,142	12.45917113
2013	47,417,835	404,526,399	11.72181472
2014	46,761,696	431,784,321	10.82987356
2015	39,411,676	454,253,469	8.676141998

In above table, the maximum of ROE is year for 2010 and the total equity are increase each of year so that means is positive relation to profitability of bank.

Table 3. Calculate of Margin

Margin			
Year	Net interest revenue(Income)	Total Assets	Margin
2010	86,209,710	2,083,965,605	4.136810598
2011	85,741,269	2,273,649,683	3.771085301
2012	89,395,138	2,409,637,456	3.709899918
2013	95,175,503	2,552,465,748	3.728767098
2014	88,497,589	2,609,714,566	3.391083077
2015	90,268,780	2,844,731,503	3.173191561

In this table, the maximum of margin in 2010, it is different each year in this margin.

Table 4. Calculate of net direct credit facilities & number of ATM

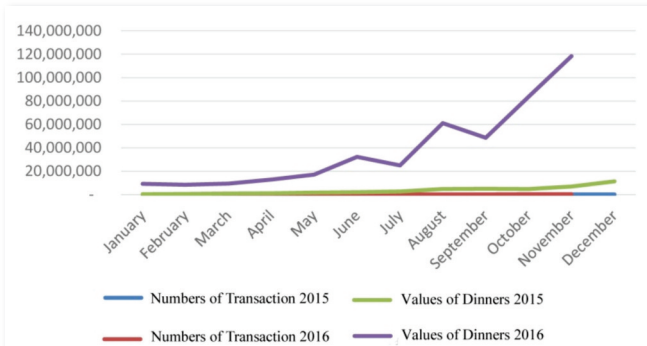
Year	Net Direct Credit Facilities	Number of ATM
2010	1,170,473,395	74
2011	1,248,699,799	73
2012	1,416,259,522	72
2013	1,328,188,339	76
2014	1,306,259,250	79
2015	1,936,230,189	83

In this table is increase numbers of Net Direct Credit Facilities at the end of year and in year of 2015 Net Direct Credit Facilities is 1,936,230,189 and the number of ATM is increase so it is positive relation.

Table 5. Monthly report to display system and electronic billing eFAWATEERcom

Total efawateercom				
Month	Numbers of Transaction		Values of Dinners	
	2015	2016	2015	2016
January	8,658	95,566	382,073	9,195,487
February	11,036	96,645	550,596	8,446,249
March	17,308	109,277	783,904	9,334,568
April	20,693	110,152	1,092,156	12,739,300
May	31,355	135,458	1,670,878	17,041,132
June	34,658	133,779	1,950,021	32,244,416
July	40,448	149,104	2,689,749	24,919,232
August	51,019	176,939	4,678,242	61,147,011
September	52,669	164,367	4,941,407	48,642,105
October	52,016	198,208	4,748,204	83,768,718
November	70,539	220,666	6,886,829	118,458,507
December	87,887		11,254,165	
Sum	478,286	1,590,161	41,628,224	425,936,725

Monthly report
to display system
and electronic billing
eFAWATEERcom



Evident among us through the graph and the table above:

- 1) Number of payment transactions executed through November 220,666 with a total value of 118,458,507 JOD.
- 2) Number of payment transactions that are executed through the system during the month of November by 22,458 Payment transaction or 11% compared with October 2016.
- 3) The high number of payment transactions that were executed through the system during the month of November by 150,127 comparative payment transaction with the month, November from 2015.
- 4) Total number of payment transactions that were executed through beginning system activity to now is 2,085,023 Payment transaction with a total value of 465,355,589,070 JOD

So that means that when the number of transaction increases, the values of money increased as well. It is a positive relationship between bank billing (e-FAWATEER com) services and increase in bank profitability.

4. Conclusion

This paper found that banks that follow the technological and service innovation in a good way achieve a competitive advantage in general. This eventually indicates that the customer satisfaction will increase, and thus improve the bank's performance.

The results of the analysis above showed that there is a positive relationship between the increase in using banks billing (e-FAWATEER com) services, and the impact on using Cards in the bank on increasing the bank's profitability. This proved that there is a significant impact on implementing E-banking services on enhancing the profitability in banking sector as it enhances the competitive advantage of the bank.

References:

- Allen, & Hamilton. (2002). Internet Banking: A survey of current and future development.
- Al-Smadi, M., & Al-Wabel, S. (August, 2011). The impact of electronic banking on the profitability of banks in Jordan. *Journal of Internet Banking and Commerce*, 16(2).
- Bahram, M., Zeinab, V., & Hussein, M. (2013). The Effect of Using Electronic Banking on Profitability of Bank. *Interdisciplinary Journal of Contemporary Research In Business*, 4(12).
- Birch, D., & Young, M. A. (1997). Financial Services and the Internet- What does cyberspace mean for the financial services industry? *Internet Research: Electronic Networking Applications and Policy*, 7(2), 120-128. <https://doi.org/10.1108/10662249710165262>
- Egland, K. L., Furst, K., Nolle, D. E., & Robertson, D. (1998). Banking over the Internet. *Quarterly Journal of Office of Comptroller of the Currency*, 17(4).
- Freedman, C. (2000). Monetary Policy Implementation: Past, Present, and Future – Will Electronic Money Lead to the Eventual Demise of Central banking? *International Finance*, 3(2), 211-227. <https://doi.org/10.1111/1468-2362.00049>
- Hernando, I., & Nieto, M. J. (2005). Is the Internet Delivery Channel Changing Banks' Performance? The Case of Spanish Banks. Banco de Espana, Unpublished Manuscript.
- Ho, C. S., Robert, J. K., & Liang, P. T. (2010). Internet-based selling technology and ecommerce growth: A hybrid growth theory approach with cross-model inference.
- Husni, A. K., & Noor, M. Al-Sa'di. (2011). The Impact of E-Banking on Bank Profitability: Evidence from Jordan. *Middle Eastern Finance and Economics*, 13.
- KPMG. (1999). Internet Financial Services Survey.
- Malhotra, P., & Singh, B. (2009). The Impact of Internet Banking on Performance and Risk: The Indian Experience. *Eurasian Journal Business and Economics*, 2(4), 43-62.
- Mohammad, A. O., & Saad, A. A. (2011). The Impact of EBanking on The Performance of Jordanian Banks. *Journal of Internet Banking and Commerce*, 16.
- Nathan, L. (1999). Community banks are going online, Community and Banking. Federal Reserve Bank of Boston.
- Onay, C., Osoz, E., & Helvacioğlu, A. D. (2008). The impact of Internet-Banking on Bank Profitability- The Case of Turkey.
- Owusu, B. (1997). Customer switching behaviour in service industries: An exploratory study. *Journal of Marketing*, 59(2), 71.
- Pyun, C. S., Scruggs, L., & Nam, N. (2002). Internet Banking in the US, Japan and Europe. *Multinational Business Rev.*, 7381.
- Sabah Abdullah Al-Somali, R. G. (2007). Internet Banking Acceptance in the Context of Developing Countries: An Extension of the Technology Acceptance Model. Birmingham: Operations & Information Management Group, Aston Business School, Birmingham B47ET, UK.
- Wright, A. (2002). The Changing Competitive Landscape of Retail Banking in the E-commerce Age. *Thunderbird International Business Review*, 44(1), 71-84. <https://doi.org/10.1002/tie.1039>

.....

UDK 347.451.6:303.71

INVESTMENT IN RESEARCH AND DEVELOPMENT IN THE PROCESS OF ACCESSION OF MACEDONIA IN THE EUROPEAN UNION

Marko Tomljanović,⁷

postdoctoral research assistant contact author
University of Rijeka, Faculty of Economics Rijeka, Rijeka, Croatia
Ivana Filipovića 4, 51000 Rijeka, Croatia

Zoran Grubišić

Belgrade Banking Academy, Belgrade, Serbia, full professor
Zmaj Jovina 12, 11000 Beograd, Serbia

Ivona Huđek, PhD student

University of Rijeka, Faculty of Economics Rijeka, Rijeka, Croatia
Ivana Filipovića 4, 51000 Rijeka, Croatia

Abstract

High unemployment rates, low employment rates, low levels of GDP per capita and still higher orientation of the activities of primary and secondary sector characterize Macedonia and other Western Balkan countries. In such circumstances, as a basic long-term economic and strategic goal is full membership in the EU, which is a complex and time-consuming process that requires the creation of foundations for the implementation of comprehensive structural reforms. It is identified the importance of investing in research and development and general knowledge-based activities, which represent a fundamental contemporary economic resource. The goal of the conducted research is to analyze the economic situation and the level of investment in research and development in Macedonia and to propose appropriate measures for their improvement. The purpose of the research is to highlight the importance of investing in research and development to achieve economic growth and the achievement of structural reforms in Macedonia, as a function of its adjustment to the EU economy. The research is based on the secondary sources, ie, statistical bases of the EU (Eurostat), AMECO and the World Bank as well as on data from the national statistical base and national strategic documents.

Keywords: economic growth, EU, EUROPE 2020, expenditure, Macedonia, research, development

JEL Classification: F15, O32

7) E-mail: mtomljanovic98@gmail.com, marko.tomljanovic@efri.hr

1. INTRODUCTION

The Western Balkan countries⁸ including Macedonia experienced severe consequences of war and political turmoil in the previous period. Thus, it was very difficult to face with the economic and social transition, resulting in unfavorable economic and social conditions. High unemployment, low levels of GDP per capita and unfavorable educational structure characterize the economic systems of these countries, which resulted in large numbers of the poor and low standard of living. In order to improve such economic situation, it is necessary to engage all factors of social, political and economic life in preparation for development strategies and national strategic plans. Overcoming these problems involves the assistance of European and international institutions, particularly in education, research and acquiring new knowledge. As a key, the long-term goal of the Western Balkans, it is to overcome the unfavorable economic situation and achieve competitiveness at the international level and full EU membership. The European Union has developed policies that support the gradual integration of the Western Balkans.

Generally, according to Article 49 of the Treaty on the Functioning of the European Union (TFEU), "every European country that respects the principles set out in Article 2 of the same Treaty (principles of human dignity, freedom and equality, democracy and rule of law, etc.) and which is ready to promote it, may become a member of the Union". On the other hand, under the 2009 Lisbon Treaty, Article 50 of the TFEU⁹ was introduced, according to which each member country may request the resignation from full membership in the EU. Furthermore, Article 50 of the TFEU implies exit negotiations in respect of the commitments previously assumed. In addition, if no agreement is reached, the Membership Agreement expires two years after the formal request to leave.

The accession of new EU members to the EU is determined by the two basic criteria¹⁰ of Copenhagen criteria from 1993 and the criterion from Madrid in 1995 (Kandžija and Cvečić, 2010). The Copenhagen criteria include the political, legal and economic criterion. Consequently, the political criterion implies *"the existence of stable institutions that will enable the implementation of democracy, rule of law, protection of minority rights and human rights"*. Furthermore, the economic criterion implies *"the existence of an efficient market economy ready to take over with growing competition"*. In this case, Sauron (1997) determines the fundamental characteristics that determine the existence of an efficient market economy: 1. the formation of supply and demand through free competition, 2. the absence of significant barriers to entry and exit from the market, 3. the existence of a consensus on economic policy, 4. eligibility of the private property system and agreement; 5. macroeconomic stability in accordance with the Maastricht criteria; and 6. developing a financial system that directs savings towards productive investments. Finally, the legal criterion "implies an obligation to accept the EU acquis in the candidate countries". The Madrid or administrative criterion represents a complement to the Copenhagen criteria and prescribes the existence and adaptation of the administrative structures for the purpose of successful adaptation to integration.

Faced with the potential accession of Western Balkan countries, in 2003, the EU defined "additional" criteria for the countries of the Western Balkans in order to stabilize this area. These criteria include cooperation

8) As defined by the European Commission in 2003, a group of Western Balkan countries includes all countries of the former Yugoslavia, with the exception of Slovenia and the addition of Albania. Upon declaration of independence, this group of countries involved Montenegro in 2006 and Kosovo in 2008. For the purpose of this research, the Republic of Croatia has been excluded from this group of countries since it became the EU member state in 2013. Kosovo has also been excluded from analysis because it is determinate that in this country does not exist structured data about investments to research and development. For the purpose of this research, the Republic of Croatia has been excluded from this group of countries since it became the EU member state in 2013.

9) This article was first activated by the United Kingdom, whose citizens voted to leave the EU in a referendum in 2016. Then the process known as BREXIT began.

10) Of course, countries must first "possess" a geographic criterion, which states that in this case it has to be a country that is mostly located on the European continent.

with the International Criminal Tribunal in Hague, taking care of refugee return and protection of minorities, insurance of the media rights and judicial reform, and encouraging regional cooperation and development and good neighborly relations (Kandžija, Cvečić, 2010).

The EU Strategy for the countries of South East Europe and the Western Balkan countries is defined through the Stabilization and Association Agreement (SAA), the encouraging of economic co-operation, financial assistance, political dialogue, and encouragement of cooperation and assistance in democratization and the protection of fundamental rights. The Stabilization and Association Agreement represents a new generation of agreements aimed at ensuring cooperation between the EU and the relevant groups of countries, aligning legislation, developing economic relations and promoting regional cooperation within the stabilization and association process. The agreement also contains an evolutionary clause granting the country the status of a potential candidate and thereby in some way "guaranteeing" future EU membership. Before the agreement comes into effect, the countries sign an Interim Agreement for regulating trade issues.

Macedonia was the first country in the region that signed SSP in 2000 which entered into force in 2004. At the end of 2005, Macedonia got official candidate status but there was no defined date for the start of the official negotiation. In 2008 the accession partnership was defined and in 2009 the European Commission proposed the start of official negotiations. The official negotiations have been offset by initiatives of the Council of Ministers because of disagreement over the name of the state, complex relations with Bulgaria about historical and ethnic issues and national issues that include the political integration of the Albanian population. Further progress of Macedonia towards European integration will be largely determined by solving the national problems and the implementation of political reforms demanded by the EU.

The main goal of the research conducted in this paper is to provide an overview of the theoretical aspects of investment in research and development as a factor of economic growth, analyze the economic situation in Macedonia, analyze the state of investment in research and development in Macedonia and ultimately to propose the measures for improvement of activities of research and development in Macedonia. The purpose of the research conducted in this paper is to point out its importance for achieving economic growth in Macedonia by reviewing theoretical assumptions and analysis of investments in research and development in order to adapt the EU economy.

By examining the literature there was a lack of relevant scientific papers on the effects and importance of investment in R & D as a factor of economic growth and convergence in the Western Balkan countries, from which comes the basic motivation and scientific justification for the implementation of this research. Also, during the research, authors faced the lack of an unstructured relevant data needed to evaluate the investment in research and development in Macedonia. Such a situation is also present in other Western Balkan countries. This group of countries, including Macedonia, represents *the future, but also the challenge and reality* of the EU, and it is, therefore, necessary to direct additional effort to improve their economic, social and political situation.

The paper is structured into seven interrelated chapters. After introductory considerations, the research methodology and the key variables and data sources are discussed in detail. The research has continued with the assessment of the economic situation in Macedonia, reviewing the current research on the importance of investing in research and development in the process of achieving economic growth and convergence. According to the scientifically based conclusions, a package of measures has been proposed to improve the position of Macedonia in the integration processes and to accelerate its adaptation to the EU economy. The paper ends with the conclusion summarizing the most important conclusions that have been reached during the research.

2. RESEARCH METHODOLOGY

In the research, a descriptive analysis of the economic situation and investment in research and development in Macedonia was conducted.

The following key indicators of the economic situation were used: GDP per capita (current US\$), GDP growth rate (%), added value of agriculture, industry and services (% of GDP), employment in agriculture, industry and services (% of total employment rate), unemployment rate (% of workforce), current account deficit (% of GDP), public debt level (% of GDP) and level of foreign investment (% of GDP).

Investments in R & D are analyzed on the basis of the following key data: investment in R & D (% of GDP), investment in research and development undertaken by the business sector, the public sector, the higher education sector and the private non-profit sector (% of total investments (%), the share of the population aged 18-34 participating in lifelong learning programs (%), public investment in education (% of GDP), share of population aged 30-34 years with completed tertiary education (%), number of new doctors of science on 1000 inhabitants, number of employees in science and technology, share of high technology products in total exports (%).

A significant problem in this area was the absence or the unsystematisation of a large number of investment in research and development key indicators, which were not available in any of the relevant statistical bases. Such a situation implies the need for significant efforts to create a relevant national statistical base, which would contribute to the quality of the research in this area

The analysis of the economic situation and investment in research and development has, according to the availability of data, covered the period from 2000 to 2016.

The research in this paper is based on secondary sources, ie, statistical bases of the EU (Eurostat), AMECO and the World Bank as well as data from the national statistical base and national strategic documents.

Following the descriptive analyzes and the proposed key measures, a projection of investment in research and development in Macedonia in the period 2015-2025 was carried out. The projection was carried out using the exponential smoothing method, which is commonly used in time series. Using this method, the forecast for the period is obtained as a weighted average of the actual and projected time series value in the period t . To the actual value of the time series in the period joins the weight w (smoothing constant), which takes the value between 0 and 1, while the weight is added to prognosis t . The higher the value of the parameter, the greater the weight added to the previous period (Winters, 1960).

The Holt-Winters method uses triple smoothing and has three smoothing constants:

- 1) the constant used for each exponential smoothing (overall smoothing)
- 2) the constant used to determine the trend the trend of the movement of the value (trend smoothing)
- 3) the constant used to determine periodicity of the value (seasonal smoothing)

Prediction is calculated based on the following formulas:

$$St = \alpha yt / It-L + (1 - \alpha) (St-1 + bt-1) \quad (1)$$

$$bt = y (St-St-1) + (1-y) bt-1 \quad (2)$$

$$It = \beta yt / St + (1 - \beta) It-L \quad (3)$$

$$44 \quad Ft + m = (St + mbt) It-L + m \quad (4)$$

where are:

y = observed values

S = smoothened values

B = trend factor of value

I = the periodicity index of the value

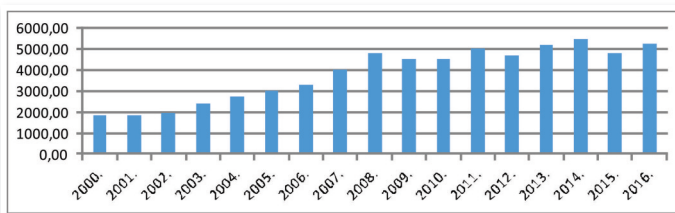
F = prediction for m period in advance

T = index indicating the time period

3. ANALYSIS OF THE ECONOMIC SITUATION IN MACEDONIA

The GDP per capita level in Macedonia was constantly increasing in the analyzed period, and this was particularly obvious in the period 2001-2008. After that, particularly because of the severe consequences of the global economic crisis, the Macedonian economy is slowing down, and it is also visible at the levels of GDP per capita, which by 2014 stagnate or fall. The GDP per capita amounted to USD 5237.17 in 2016, which represents an increase compared to 2015 (Chart 1).

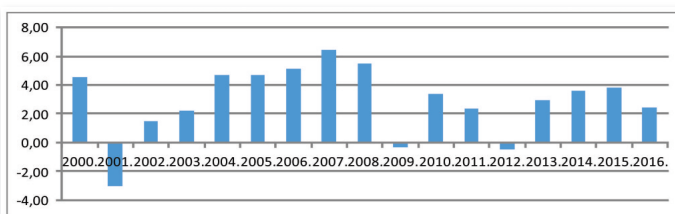
Chart 1:
Evolution of GDP per capita in
Macedonia in the period
2000 - 2016 (current US\$)



Source: developed by the authors, based on the World Bank (1), 2017

In the observed period, the Macedonian economy grew at an average of 2.9% per year, with negative growth rates in 2001 and 2009 and 2012 (Chart 2). Compared to the EU average over the same period (average growth rate of 1, 48% per year), it is clear that the Macedonian economy is growing faster, confirming the basic convergence assumption that "less developed countries are growing faster than the more developed ones."

Chart 2:
GDP growth rates in Macedonia
in the period 2000 - 2016 (%)



Source: developed by the authors, based on the World Bank (2), 2017

The available data suggest that in the analyzed period Macedonia decreased development lags for the EU average and, given the value of GDP per capita in 2016, was at 36% of the EU average, which represents

an improvement over 2005, when the Macedonian economy was at 28% of the EU average. However, this situation indicates the still great lags that represent a challenge in the process of joining the EU.

Furthermore, the state of the Macedonian economy has been assessed on the basis of the contribution of the three key economic sectors (primary, secondary and tertiary) to the added value of GDP and total employment.

The data from Table 1 indicate the certain changes in the structure of the Macedonian economy. It is evident that Macedonia over the observed period has reduced the share of the agricultural sector and the service sector and increased the share of the industrial sector.

Table 1: Added Value of agriculture, industry and services in GDP in Macedonia 2000-2016 (%)

Year	Agriculture	Industry	Services
2000.	11,98	25,39	62,63
2001.	11,50	24,30	64,19
2002.	12,34	23,50	64,16
2003.	13,35	26,03	60,62
2004.	13,31	24,24	62,44
2005.	11,34	23,71	64,95
2006.	10,34	24,92	64,74
2007.	10,36	23,88	65,76
2008.	13,29	22,69	64,02
2009.	12,00	21,95	66,05
2010.	11,73	24,40	63,87
2011.	10,87	25,10	64,04
2012.	10,53	24,37	65,10
2013.	11,52	25,45	63,03
2014.	11,72	26,29	61,99
2015.	11,41	26,62	61,98
2016.	9,89	29,71	60,40
EU	1,52	25,43	74,07

Sources: developed by the authors, based on the World Bank (3), World Bank (4), World Bank (5), 2017

Agricultural activities in Macedonia amount to 9.89% of GDP, which is 6.5 times more than the EU average. Furthermore, since 2012, Macedonia has steadily increased the share of the secondary (industrial sector) in GDP, which is above the EU average. However, the problem of such a structure arises from the orientation of the industry to the traditional sectors, which can not represent the strong foundation of economic growth and achievement of convergence in modern conditions. In that regard, this indicator points to the necessity of orientation to modern growth engines (investment in research and development and their products), and the emphasis is put on further research in this paper. Furthermore, data also point to a reduction in the share of the service sector, which is also in contradiction with modern economic trends. Namely, the share of 60.40% of GDP generated by service activities is considerably lower than the EU average.

In order to gain further knowledge of the economic situation in Macedonia, the employment trends in certain sectors for the period 2000-2016 are analyzed below (Table 2).

Table 2: Employment in agriculture, industry and services in Macedonia for the period 2000-2016 (%)

Year	Agriculture	Industry	Services
2000.	17,60	30,40	51,90
2001.	19,40	29,40	51,20
2002.	19,50	29,50	51,00
2003.	18,60	30,10	51,30
2004.	17,40	30,00	52,60
2005.	18,10	29,40	52,40
2006.	18,10	30,00	52,00
2007.	17,40	29,80	52,80
2008.	18,30	29,50	52,20
2009.	18,00	29,10	52,80
2010.	18,00	29,40	52,70
2011.	17,50	30,00	52,50
2012.	17,10	30,00	52,90
2013.	17,60	30,00	52,40
2014.	16,80	30,10	53,20
2015.	16,40	29,60	54,00
2016.	16,30	29,50	54,20
EU	4,4	23,75	71,55

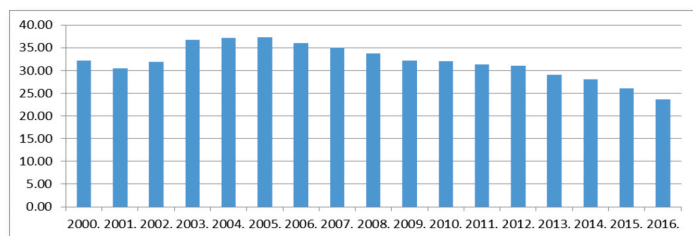
Source: developed by the authors, based on the World Bank (6), World Bank (7), World Bank (8), 2017

The data from the Table indicate that Macedonia has reduced the share of agricultural employees in the observed period. However, the level of 16.3% of the employed population in the agricultural sector is still 4 times higher than the EU average. Also, minor reductions have been achieved in the secondary sector, which employs 29.5% of the population, making Macedonia still above the EU average. In the service sector, employment growth has been achieved. However, the value of 54.2% is almost for 18% percentage points lower than the EU average. All this points to the necessity of further education of the population and the improvement of the workforce, which should be a key tool for achieving economic growth, convergence and adaptation of business conditions to the EU Internal Market.

The unfavorable situation in the Macedonian economy is particularly evident from the unemployment data (Chart 3).

Chart 3:

Movement of unemployment rate in Macedonia in the period 2000-2016 (% of workforce)



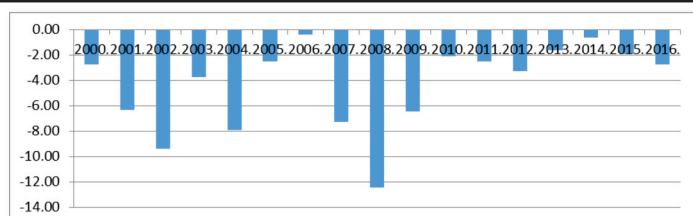
Source: developed by the authors, based on the World Bank (9), 2017

Although relative reductions have been achieved in the period since 2005, Macedonia still has a very high unemployment rate, ie 24.4% in 2016, almost three times higher than the EU average. Such a situation is the basis for creating social unrest, poverty and social exclusion, which ultimately represents a long-term problem and an obstacle to EU involvement and adaptation to modern economic conditions. According to Eurostat (2), 24.8% of the population in Macedonia is at risk of poverty and social exclusion. Also, the minimum wage in Macedonia amounts to EUR 213.7 (Eurostat (3), 2017).

As well as other countries in the region, Macedonia is an import-oriented country in terms of foreign trade, which during the entire observed period achieved a deficit of the balance of payments, which in 2016 was at the level of 2.74% of GDP (Chart 4).

Chart 4:

Current account deficits in Macedonia in period 2000-2016 (% of GDP)



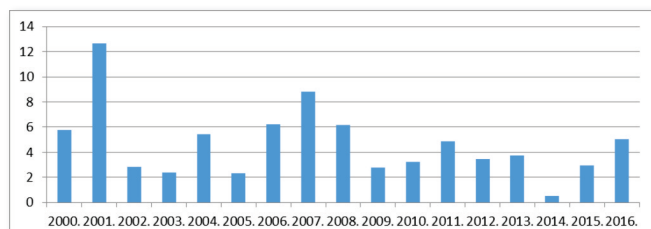
Source: developed by the authors, based on the World Bank (10), 2017

Analyzing the import structure, it is clear that Macedonia imports platinum, oil and automobile to a large extent, while exports are dominated by the reaction and catalytic products, centrifuges and insulated wire. Furthermore, Macedonia exports most to Germany, Serbia and Bulgaria, while most of the exports are exported from Germany, the United Kingdom and Serbia (The Observatory of Economic Complexity, 2017). The foreign trade position of Macedonia, and especially the structure of exports, points to the need for orientation on high technology products and to achieve competitiveness and recognition in the international market.

The values of FDI in Macedonia during the observed period were varied. Consequently, the highest level was achieved in 2001, 12.6% of GDP, while in 2016 FDI was at the level of 5% of GDP (Chart 5).

Chart 5:

Foreign Investments in Macedonia 2000-2016. (% of GDP)

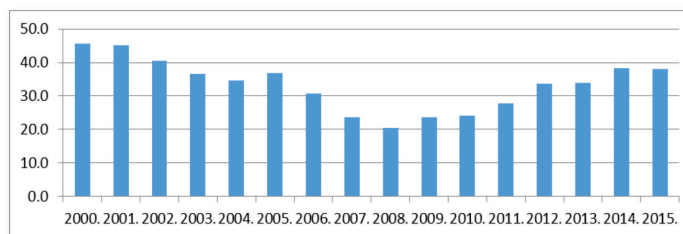


Source: developed by the authors, based on the World Bank (11), 2017

Values in 2016 represent a continuation of the positive trend, which began in 2014. However, in order to increase the inflow of FDI, Macedonia, like other countries in the region, must create a favorable investment environment, free from a large number of fiscal and other taxes, simplify administration and continue the fight against corruption. Only such systems will attract foreign investors willing to invest funds and stimulate economic development and the necessary structural changes. The global economic crisis has also had an impact on the increase in Macedonian public debt, as shown in Chart 4. The increase in public debt began in 2009 and continued until 2015 when public debt was at the level of 38%. And. However, with such increases, Macedonia is below the value of most EU member states (Eurostat (5), 2017).

Chart 6:
Debt Movement in Macedonia
in 2000-2015. (% of GDP)

*Source: developed by the authors,
based on the Eurostat (4), 2017*



The analyzed data indicate still significantly lagging behind of the Macedonian economy in the process of joining the EU. As major obstacles to this are the over-orientation of the agricultural sector and the orientation of industrial activity to traditional sectors, which can not guarantee the achievement of competitiveness and convergence. Furthermore, as the biggest restriction of adaptation to the EU is unfavorable social situation characterized by very high unemployment rates and a high share of the population at risk of poverty and social exclusion.

This all presents a challenge and a foundation for the launch of radical structural changes, based on the modern growth engines, ie investments in R & D and their products, which has been recognized in all developed European and world economies. The Macedonian economy must find ways of overcoming historical mortgages, political instability and economic downturns and direct economic and social trends to the requirements of modern business conditions.

4. PREVIOUS RESEARCH

Considerations on the importance of the investments in research and development as factors of economic growth have been updated in the 50's and 60's of the 20th century under the neoclassical theory of economic growth. It is based on the Solow-Swan model, which, along with the traditional factors of production (labour and capital), the technology has been identified as a key factor in long-term economic growth (Solow, 1956). Therefore, Solow (1957) considers the situations in which there is no technological progress, where the level of technology is constant, and the situation where is a technological advancement, i.e. when the level of technology is variable. Accordingly, technological progress represents a by-product of investment in physical capital in the companies.

Occurrence of the endogenous models during the 80's and 90's of the 20th century resulted in the reconsideration of existing, neoclassical models and the introduction of new economic growth theories with a special emphasis on the importance of knowledge, namely investment in R&D and education with the aim of accumulation of knowledge which leads to economic growth and the emergence of new products of higher quality. Unlike neoclassical theories, endogenous theories imply knowledge that is not only public good. In addition, it has the status of a market good determined by rivalry and exclusivity. Significant contributions to the model development were provided by Romer (1986 and 1990) and Lucas (1988), Grossman and Helpman

(1991), and Aghion and Howitt (1992). Romer (1986) points out that knowledge transfer results in positive effects in the form of technological innovations and emphasizes that increasing production directly depends on the amount of workforce involved in research and development processes (Romer, 1990). Also, according to Grossman and Helpman (1991), technological development is explained by the growth in the number of products, which is simply equated with the process of innovation development.

When considering the investment in research and development in the context of economic growth, the importance of education should be considered as well. The correlation between education and the achievement of GDP growth was discussed in the research of Mincer (1974), Easterlin (1981) and Steven and Weale (2003). Pereira and Aubyn (2009) and Solaki (2013), with the analysis of Portugal and Greece, observe the education from the macroeconomic aspect, while Bouaissa (2009) and Ahmed (2009) make it from a microeconomic point of view. Puljiz (2009), by the research conducted at the level of the Republic of Croatia, highlights the importance of the population with completed secondary education in the process of achieving economic growth, resulting from a higher representation of highly educated workforce in low productivity sectors.

Contemporary concepts developed in 2000, introduce new terms such as "new industrial space", "industrial clusters," "innovative miles," "self-learning regions," or "regional innovative systems" (Lawson, 1997). Audretsch and Feldman (1997) analyze the importance of geographic space in the process of transferring knowledge and information. According to these authors, the price of knowledge transfer increases as geographic distance increases, while as the most efficient instrument of its transmission, the frequent communication, i.e. the system face to face is identified. Griliches (1998) and Barro (1998) explain the impact of increasing the level of investment in research and development on overall productivity at the enterprise level, industry, and the overall economy.

Chesire and Malecki (2005), by introducing the term of regional innovation systems, emphasize the importance of concentrating highly-innovative companies that constantly and planned investments in new technologies while maintaining close relations with other relevant actors in the region, especially educational institutions, local and regional authorities, etc. Furthermore, Aghion et al. (2005) emphasize the importance of investing in research and development as a key driver of socio-economic changes. Namely, the authors point out that the most developed countries are responding to economic globalization through the promotion of science and technology policies, with the aim of ensuring competitive advantages and creating new jobs and representing the instrument of solving the growing global problems. Šimurina (2004) analyzes the technological performance of central and eastern European countries. The author concludes that the sources of growth differ between observed countries, emphasizing the dominance of Hungary and the Czech Republic in the export of high-tech products, while on the other hand, Slovenia occupies leading positions in the number of patent applications, research engagement and overall investment in research and development. Also, the author points out that the planning of future development strategies needs to take into account the historical heritage. Furthermore, by observing the same group of countries, Šimurina (2006) concludes that technology has a certain influence on the development of this group of countries. However, technology transfers, in this case, did not prove to be significantly effective in boosting economic progress. Audretsch et al. (2006) emphasize the importance of universities as the carriers of economic growth, job creation and achievement of the international competitiveness. The results of their research indicate the propensity of scientists to launch entrepreneurial activities and, through it, the commercialization of their own innovations.

From all of the above, the importance of entrepreneurial education arises. Empirical research supports positive relationships between entrepreneurial activity and economic results, such as economic growth and innovation (Van Praag and Versloot, 2007). One of the most acknowledged and accepted economic growth theories are based on empirical results that support the economic importance of entrepreneurship provided by Schumpeter (1911). Basically, these models are the idea that entrepreneurs are looking for profitable opportunities and therefore introduce new combinations or innovations (Van Praag, 1999). These new combinations are the main cause of development in the economic system because new business combinations destroy the balance in the economy and create new so-called creative destruction (Ayres and Warr, 2009:164).

Consequently, the education seems to be important to encourage entrepreneurship for several reasons (Reynolds et al., 1999, Sánchez, 2010a). Firstly, education provides individuals with a sense of independence of autonomy and self-confidence. Secondly, education raises people's awareness of alternative career choices. Thirdly, education expands the horizons of individuals, making people better prepare for perceiving opportunities, and provides the knowledge that individuals can use to develop new entrepreneurial opportunities. In order to start their own ideas, they develop the skills, knowledge and attitudes that are necessary to create the entrepreneurial culture. Nowadays, entrepreneurship education is recognized as a priority in the Europe 2020 strategy, within the European SME Policy and in key EU education and training strategies. More and more countries are recognizing the importance of entrepreneurial education and invest more in its implementation.

Considering the investment in research and development as a factor of economic growth and convergence Fagerberg et al. (1997) and Mankiew et al. (1992), accept the current thesis according to which less developed countries are growing faster than developed, under the condition of convergence towards common stable states, i.e. those countries or groups of countries with which they share common structural features (technology level, saving rate, population growth, etc.). Also, it is necessary to consider the structure of total investments in research and development, i.e. investments of public sector, business sector, higher education sector and the private non-profit sector. Also, Fagerberg et al. (1997) point out that the effects of investment in research and development cannot be manifested in the short term and emphasize the importance of the business sector investments. Namely, such investments are aimed at creating innovation, which must be implemented and succeeded in the market, what directly contributes to national competitiveness and economic growth. Furthermore, Guelllec and Pottelsberghe (2001) point to the effects of business sector investment from the spillover aspect and the absorption capability of technology from abroad of the public sector and the university. Therefore, in order to achieve economic growth, countries must open their boundaries and allow free access to foreign technologies and put their products in the function of achieving the prosperity (Damien et al., 2003). Dabić (2007) points to the lack of business sector investment in research and development activities and their implementation on the market, as one of the main reasons for lagging behind the EU for major competitors (USA, China, South Korea, etc.).

Similar conclusions have been made by analyzing the investment of the business sector in the Republic of Croatia in the process of joining the EU (Bečić and Dabić, 2008). Also, authors as the other "weak" sides of the Republic of Croatia emphasize unfavorable position in global science, technological lagging and poor implementation of scientific products in the entrepreneurial and industrial sectors, which is recognized as an aggravating circumstance in adapting to the EU economy. Almost the same conclusions are present in the papers of Prodanović et al. (2013), Krstić and Đunić (2014) and Švarc (2014), Tomljanović and Grubišić (2016), who are analyzing along with the Republic of Croatia the situation in other countries of the region (the Western Balkans). The authors emphasize the low level of investment in research and development, the inadequate engagement of the business sector and the lack of cooperation between universities and the economy in the process of commercialization of innovation. Furthermore, as a major problem is the closed-mindedness of the scientific systems themselves, i.e. the low mobility of scientists, teachers and other staff and students, the international dispersion of research results, as well as insufficient cooperation of institutions with relevant international partners. This has resulted in the emergence of two negative processes, namely brain drain and brain waste (abandoning jobs in the research sector and leaving for better-paid jobs).

5. ANALYSIS OF INVESTMENTS IN RESEARCH AND DEVELOPMENT IN MACEDONIA

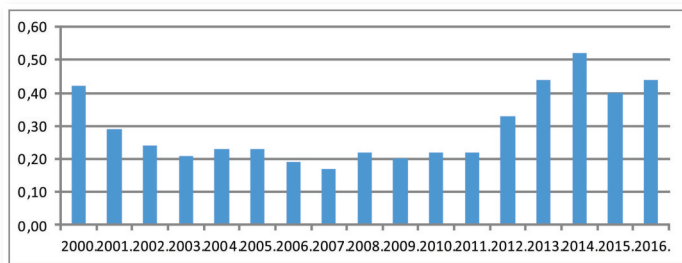
Investments in R&D in Macedonia have, with certain exceptions, been steadily increasing since 2007. Consequently, the largest growth was realized from 2012 to 2014, when investments in research and development in Macedonia were 0.52% of GDP. (Chart 7). However, the reduction was achieved in 2015 and a new growth was achieved in 2016 when investments in R&D were at the level of 0.44% of GDP. It can be

concluded that Macedonian investments in research and development are still very low compared to the EU average (2.03% of GDP) (Eurostat (7), 2017).

Chart 7:

Investments in R & D in Macedonia for the period 2000-2016 (% of GDP)

Source: developed by the authors, based on the Eurostat (6), 2017

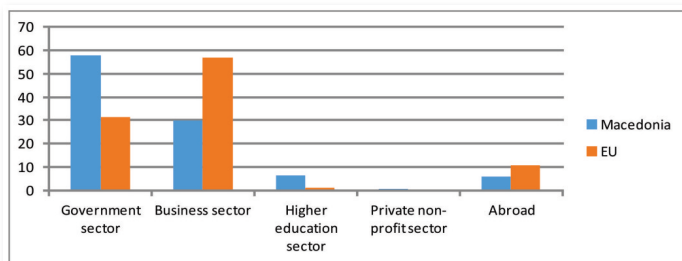


Furthermore, a better picture of investments in R & D in individual countries it is possible to get by analyzing its structure. In this context, it is necessary to look at the investments of the business sector, the public sector, the higher education sector, the private non-profit sector and foreign investments (Chart 8).

Chart 8:

Investments in R&D in Macedonia by source of funds (% of total investments)

Source: developed by the authors, based on the Eurostat (14), 2017



Most of the investment in research and development in Macedonia is financed by public sector activities ie 57.8% of total investment, followed by investment in the business sector (29.8%) and the higher education sector (6.4%). The smallest part of the total investment refers to the foreign investment and private non-profit sector investment. On the other hand, the EU's largest share of R & D investment is funded by the business sector's contribution, which accounts for 56.8% of total investment. Then followed by public sector investment (31.8%) and foreign investments. The smallest share at EU level also goes to private non-profit sector investments.

Nevertheless, in the case of Macedonia, it is necessary to further explain the structure of investment in research and development. Investments in research and development are undertaken by the higher education sector often do not have an economic function, ie they do not contribute to economic growth. The problem arises from the fact of low market commercialization of scientific research products resulting from scientific activities at universities. Such a situation in Macedonia as well as in other countries of the region imposes the need to strengthen the linkage between the academic community and the entrepreneurial sector, in order to initiate structural reforms and start up the economy.

Small and medium-sized enterprises that are the cornerstone of the world economy should intensify their scientific research activities and thus further increase their contribution to achieving progress and convergence processes. Nevertheless, the unfavorable entrepreneurial environment and the consequences of the global economic crisis in Macedonia and other countries of the region slow down this process and direct the interest of small and medium-sized enterprises towards survival, with an orientation towards new knowledge and technology taking a secondary role. According to available data, 52.6% of small and medium-sized enterprises in Macedonia survive, while 14.3% per year do not survive (Eurostat (8), 2017).

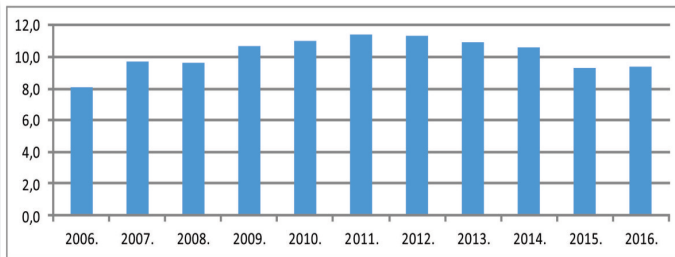
Contemporary theoretical approaches emphasize the crucial role of the workforce, ie their education and training in the process of achieving economic growth and the achievement of convergence. Such approaches impose the need to increase public investment in education and the participation of the population in life-long learning programs.

At the level of Macedonia, 9.4% of the population aged from 18 to 64 are included in lifelong learning programs. In the observed period, the highest values were achieved in 2011 when 11.4% of the population aged from 18 to 64 were included in some form of lifelong education (Chart 9). However, comparing with the EU average in 2016 (16.6%), there is a significant lag in this indicator as well.

Chart 9:

Participation of the population aged from 18 to 64 in lifelong learning programs in Macedonia for the period 2000-2016 (%)

Source: developed by the authors, based on the Eurostat (11), 2017



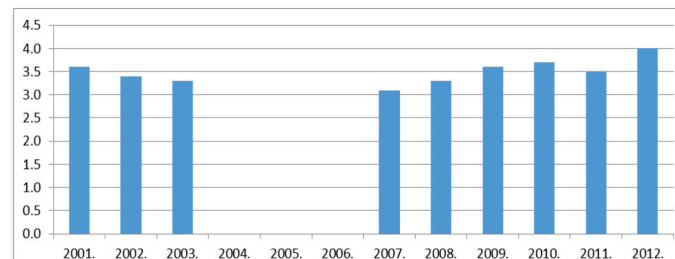
This situation arises as a direct consequence of the unfavorable economic and social situation in which the population is oriented towards survival and the provision of sufficient resources for normal life. Also, there is still insufficient awareness of the importance of continuous improvement and improvement in order to improve their own position and adaptability in the labor market.

Such a situation requires the increased engagement of political authorities in increasing total investment in education and enabling broadly accessible and financially acceptable education and training programs. Investments in education in Macedonia have started to increase since 2007, and this process (with the exception of 2011) required until 2012 when the level of 4% of GDP was reached (Chart 10). Such values represent a lag behind the EU average, with education accounting for 5.28% of GDP (World Bank (11), 2017).

Chart 10:

The trends of public investments in Macedonia in the period 2001-2012 (% BDP-a)

Source: developed by the authors, based on the Eurostat (9), 2017

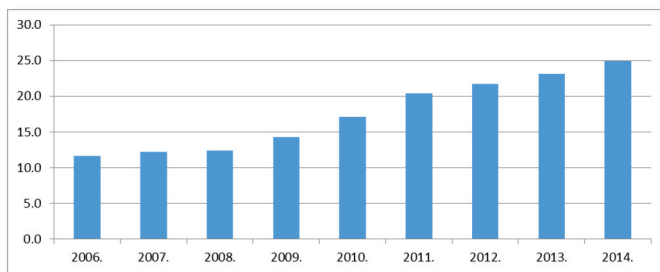


Total investments in education have had a positive impact on the share of the population aged 30-34 with completed tertiary education. Namely, the data presented in Chart 11 point to a steady increase in persons with completed tertiary education in the period 2007-2014. According to the latest available data, 24.9% of the population aged 30-34 in Macedonia have completed tertiary education. Still, despite the steady growth, Macedonia also lags behind in this indicator for the EU. Namely, at the EU level, 39.1% of the population aged 30-34 have completed some form of tertiary education (Eurostat (10), 2017).

Chart 11:

Population aged 30-34 with completed tertiary education in Macedonia in the period 2006 - 2014 (%)

Source: developed by the authors, based on the Eurostat (9), 2017



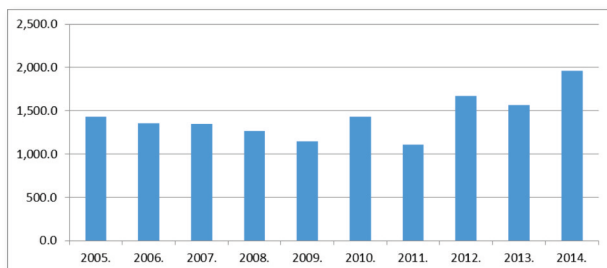
Furthermore, the higher education sector in Macedonia produces 0.2 new doctors of science per 1000 inhabitants, which is somewhat lower than the EU average (Eurostat (11), 2017).

Positive trends in education and the recognition of science and contemporary trends as a key condition for achieving economic growth have resulted in an increase in the number of employees in the science and research sector. Increased employment was started in 2009 and with certain exceptions continued until 2014 (Chart 12).

Chart 12:

Number of employees in science and technology in Macedonia in the period 2005 - 2014

Source: developed by the authors, based on the Eurostat (9), 2017



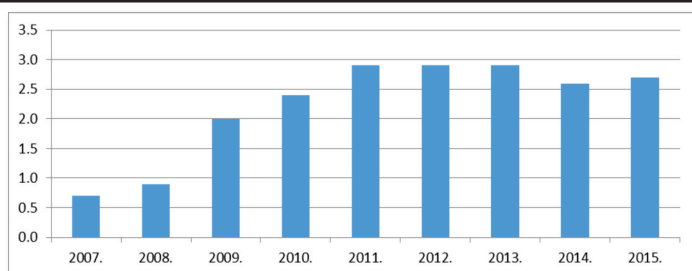
As mentioned above, such a situation is an opportunity but also a challenge in the commercialization of product research by employed scientists and their use for the purpose of economic growth.

The relationship between R & D and achievement of economic competitiveness of a country can be assessed on the basis of the share of high technology products in total exports. Data presented in Chart 13 indicate relatively positive trends in this segment in the period 2007-2015. years. Namely, in the observed period, the share of high technology products in total exports increased significantly compared to the beginning of the period and in 2015 it was cut off by 2.7%. However, in this segment, Macedonia is far below the EU average (17% of total exports in 2015).

Chart 13:

High tech product share in total exports in Macedonia in the period 2007-2015 (%)

Source: developed by the authors, based on the Eurostat (12), 2017



The analysis of the key indicators of investment in research and development in Macedonia shows positive progress in some areas, as well as the still significantly lagging behind the EU average. In this regard, the biggest constraints are the high orientation of investments in the higher education and public sector sectors

and the low levels of SME activity in scientific research activities. Furthermore, as a logical consequence of such a situation, there is a low level of high-tech products in total exports, which limits the ability to achieve international competitiveness and adapting to EU requirements in the process of achieving full-fledged membership.

All these limitations represent a challenge in the further integration process. The bearers of economic and political activity in Macedonia must create the conditions for launching structural changes, fundamental to invest in research and development and their products. As a necessity, dynamic management of structural changes is imposed. This is a relatively unexplored field of economic science, and this work has made the first step towards his further affirmation. The authors of this paper are of the opinion that dynamic management primarily requires the definition of quality measures and the creation of conditions for their implementation. The success of such a process requires the synergy of all involved entities and their coordinated efforts in achieving a common goal.

Therefore, a key development strategy is presented below, whose goals Macedonia must fulfill in the process of achieving full EU membership. Based on the available strategic documents, the authors of the paper suggest the development direction of the Macedonian economy.

5. MEASURES FOR IMPROVING INVESTMENTS IN RESEARCH AND DEVELOPMENT IN MACEDONIA

Investment in research and development in Macedonia, as well as in other countries of the Western Balkan and the EU member states has been recognized as one of the crucial factors to achieve economic growth and competitiveness of national economies and „necessary“ step into the transition to a „society“ of knowledge.

The basic goal of Innovative strategies in Macedonia is *“the transformation of the economy into a knowledge-based society capable of competing on the international market, through a highly educated workforce and innovation-oriented enterprises.”*

The implementation of innovation policies and achieve the goals of Innovative strategies of Macedonia takes place in close connection with other development documents and strategies at the forefront of investment in research and development, competitiveness, industry and joining the EU. As the most important strategic documents are necessary to allocate the National Programme for research and development in the period 2012 - 2016, Program to promote and support technological development (2012-2015) and the Industrial policy of Macedonia in the period 2009-2020 (Figure 1).

Figure 1:
Strategic framework of innovation policies in Macedonia



Source: developed by the authors, based on Innovative strategies in Macedonia in the period 2012 – 2020

The basic goal of National Programme for research and development is to achieve the level of investment in research and development 1% of GDP by 2017, ie, the level of 1.8% of GDP by 2020. Also, the Program stipulates the necessity of increasing the business sector investment in research and development on 50% of total investments by 2020. In addition to the basic goals, the Program is focused on five key thematic areas, to earn a competitive economy based on knowledge and innovation, the creation of low-carbon economy, sustainable development, security and crisis management and socio-economic and cultural development.

Program to promote and support technological development is focused on the implementation of the priorities of the strategy EUROPE 2020 (smart, sustainable and inclusive growth), strengthening the industrial sector and to create the preconditions for economic growth based on knowledge and innovation. Generally, the program is focused on research, the creation of knowledge and diffusion of technology for the development of industries.

Industrial policy of Macedonia aims to increase the competitiveness of industry and the economy through knowledge, innovation and research through orientation on five key areas: a) international cooperation and encourage foreign direct investment, b) applied research and innovation, c) environmentally acceptable products and services, d) the development of SMEs and e) cooperation through clusters and "network".

Innovation strategy of Macedonia in the period 2012-2020 pursues four key goals:

1. Encouraging business sector investment in R & D activities
2. Strengthening Human Resources
3. The creation of effective legislative environment
4. Increased mobility and collaboration among holders of innovation activities.

Goal 1 is planned through the implementation of activities that will increase awareness of SMEs on the potential benefits of innovation (consultation, workshops, and promotional activities) and the establishment of the Fund for Technology and Innovation, which will provide the means for concurrent small and medium enterprises in implementing innovation process. In addition, this area includes technical assistance, the establishment of university spin-off companies, commercialization of innovations, support eco-innovation and stimulate private investment in research and development.

As key areas to achieve goal 2 are determined by adjustment of the education system to labor market needs, rewarding the best individuals (students, lecturers, researchers), improvement of professional training and the promotion of lifelong learning and the modernization of tertiary education.

The creation of effective legislative environment (goal 3) is possible through the formation of a unified and efficient framework for scientists and research institutions, adjustment of the public procurement in order to stimulate innovative activities and the creation of a competitive business environment (modernization of the competition rules).

Increased mobility and collaboration among holders of innovation activities (Goal 4) is planned by increasing the number of clusters and to encourage their cooperation, strengthening the connection between research institutions and the economy, strengthening cooperation with foreign countries and security mechanisms for attracting foreign direct investment.

The achievement of key economic and strategic goals of Macedonia (full membership in the EU, economic growth, sustainable development and increase the competitiveness of the economy) means coordinated actions and fulfillment of the goal and priorities of key strategic documents, which are the most important areas identified like promotion of technological development, strengthening the scientific and technological basis industry and the development of SMEs. In accordance with the orientations of the strategic documents, as well as key development "leverage" identifiable investment in research and development, Enterprise and Industry and International Cooperation (Figure 2).

Figure 2:
Key development "leverage" of the economy of Macedonia



Source: developed by the authors

Innovation strategy of Macedonia proclaims as a basic goal increasing of investment in research and development at the level of 1% of GDP by 2017, ie. 1.8% of GDP by 2020. The special attention is paid to the development of industry in the changed conditions, ie, re-industrialization, which will guide the key holders to the industrial production of high technology products. Also, increased investment in research and development in small and medium-sized enterprises, are providing the conditions of funding and technical support to increase their competitiveness and recognition on the international level and make them "engines" of economic development. Economic activity in the modern business conditions are based on the connection between the research sector and small and medium enterprises, and it is, therefore, necessary to strengthen their cooperation and to implement the adjustment of the education system (particularly high) so that will be compatible with the needs of the business sector and the general labor market. Excellence, progress and competitiveness in the field of scientific research can be achieved only through international cooperation and networking with key regional and EU actors. Connectivity, coordination and concerted implementation of the three listed "leverage" to influence the initiation and acceleration of structural reforms in Macedonia, transformation towards "knowledge society" and the adjustment of its economy to modern demands of the EU.

Along with national strategies, Western Balkan countries including Macedonia should focus on the achievement of the objectives and priorities of regional strategies, of which the most important is the Western Balkans Regional R&D Strategy for Innovation.

The Strategy was defined in 2013 in order to create the foundations for reform of policies and institutional reforms, and promote the increase in innovation, economic growth and prosperity. The implementation of the Strategy will provide the countries of the Western Balkans with a number of opportunities for human resources development and financial leverage and will contribute to the creation of a political platform for the continuous promotion of policy reform and capacity building for the mobilization of external funding for research funding. The regional cooperation of R&D countries will also result in positive environmental pressures and will be an indicator of countries' orientation for the European Research Area (ERA) (World Bank, 2015).). This Strategy imposes the main goal on the Western Balkans which is the achievement of the level of investment in research and development of 1.5% of GDP by 2020.

Along with the fundamental objective, the Strategy is focused on meeting the four additional goals:

1. improving the science base and research excellence,
2. fostering cooperation and technology transfer between research institutions and industry,
3. creating the conditions for industrial innovation and innovative start-ups and
4. improving innovation management and innovation policies.

With the aim of achieving the objectives set out in the Regional Strategy for Innovation, the Action Plan for Regional Co-operation has been defined, proposing five regional initiatives, covering all aspects of research and development. The achievement of the Action Plan will be more effectively implemented through a financial assistance instrument called Western Balkans Research and Innovation Strategy Exercise Facility (WISE).

Within WISE, four programs have been proposed:

1. the establishment of the Research Excellence Fund, which aims to encourage cooperation between local researchers and scientists from abroad as well as the development of young scientists
2. a network of excellence development programs
3. a program of technological transfer, aimed at promoting cooperation between the research and business sectors
4. start-up program.

In addition to the previously analyzed National Strategy and the Regional Strategy for Innovation of the Western Balkans, Macedonia and other Western Balkan countries should put great emphasis on achieving the goals of the EUROPA 2020 Strategy, whose fulfillment positively influenced their integration processes, economic recovery and preparation for full EU membership.

The Europe 2020 Strategy, adopted in 2010, is a ten-year strategy, whose goal is to create Europe the fastest growing and most competitive knowledge based economy in the period up to 2020.

The most important priority of the Strategy is smart, sustainable and inclusive growth. Smart growth implies the development of knowledge-based and innovation-based economic activity. Sustainable growth endeavors to secure economy that makes efficient use of resources and inclusive growth is focused on the achievement of high rates of employment, which will contribute to social and territorial cohesion (Agency for mobility and EU programmes, 2015).

In close connection with the main priorities, five main objectives of the Strategy focused on employment, research and development, climate change and energy sustainability, education, and the fight against poverty and social exclusion (European Commission, 2015).

In the area of employment, the goal is to achieve an employment rate of more than 75% (population aged 25-64). The research and development goal implies investing in research and development at a level of 3% of GDP by 2020. Climate change and energy sustainability are based on achieving 20/20/20, ie reducing greenhouse gas emissions by 20% (or 30% if there are conditions) compared to the 1990 level, obtaining 20% of total renewable energy sources and increase energy efficiency by 20%. Furthermore, in the area of education, it is envisaged to reduce the early school leaving rate to below 10% and to increase the share of persons between 30 and 34 years of age with completed tertiary education at 40%. The goal of poverty alle-

viation and social exclusion is to reduce the number of people living at risk of poverty and social exclusion for at least 20 million.

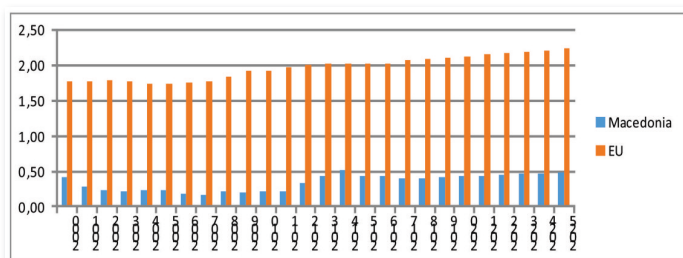
In order to achieve priorities, the EU has defined seven key initiatives. The initiatives needed to achieve smart growth include: Innovation Union (encouraging investment in research and innovation and strengthening the innovation chain), Encouraging the Young (strengthening education systems and facilitating labor market change) and the Digital Agenda for Europe (ICT and fast Internet application).

In the area of inclusive growth, the Agenda for New Jobs (employment, training and modernization of the labor market) and the European Platform Against Poverty (social and territorial cohesion and inclusion) are being implemented, while the priority of sustainable growth is realized through Resource Efficient Europe (the fight against climate change and clean and efficient energy) and the Industrial Policy of the Globalization Era (creating a better business environment and strengthening the foundations of the industry, thus ensuring a higher level of economic competitiveness) (Agency for mobility and EU programmes, 2015).

Using the exponential smoothing method, a projection of investment in research and development in Macedonia and the EU from 2017 to 2025 (Chart 14) was carried out. The projection results indicate that investment in research and development in Macedonia in the forthcoming period, after a slight decrease in 2017, will continue to increase. However, the increase will take place at a slow pace and by the year 2025, it is expected to reach 0.48% of GDP (Chart 14).

Chart 14:
Projection of movement of
investments in R&D in
Macedonia and the EU in the
period 2017-2025 (% of GDP)

Source: authors' calculations



Furthermore, a similar situation is present at EU level where investment in research and development is expected to reach a level of 2.24% of GDP. Such values represent some progress, but they will still be lower than those set out in the EUROPA 2020 strategy, which proposes to invest in research and development of 3% of GDP. However, the time period for the implementation of the Strategy is slowly coming to an end and questioning the achievement of the goals set, which has largely contributed to the negative consequences of the global economic crisis. Furthermore, the issue of future trends and the EU goals in the area of achieving the knowledge economy and the achievement of the digital transformation of the economy is raised. The key question is: *Should the EU set unrealistic or difficult targets or to define more easily achievable priorities based on previous achievements, taking into account the national specificities of the member states but also the candidate countries that are believed to soon have full EU membership?*

Taking into consideration the different national specificities and the uncertainty and dynamism of the contemporary economic environment, the results of projections should also be taken with a certain amount of reserve. Namely, they represent the values that have come about on the basis of the achievements so far. However, the economic systems of the countries are dynamic elements sensitive to changes in the environment, with deviations largely determining trends in future trends. Especially in terms of investing in research and development and their products, which represent an extremely sensitive area.

7. CONCLUSION

The research carried out has identified significant development lagging behind the Macedonian economy for development levels in the EU member states. As a major problem, however, it is still high orientation towards the activities of the agricultural sector, the tradition of the industrial sector and the lack of employees in service industries. Furthermore, Macedonia is characterized by a very difficult social situation characterized by high unemployment, low wages and a significant share of the population at risk of poverty and social exclusion. This situation results in significant social unrest, dissatisfaction and other disadvantages that slow down the progress and convergence of the developed EU member states.

This economic situation imposes the need for orientation towards contemporary sources of economic growth, ie investment in R & D and their products, which is recognized as the main driver of economic growth and structural changes in the work of relevant economic theorists. However, this area is still insufficiently explored in the works of Macedonian authors and authors from other countries of the region. The fundamental scientific contribution of this paper derives from the systematization of the current research on the importance of investment in research and development in the process of economic growth and the analysis of the current situation in this sector in Macedonia. Namely, as has been mentioned several times, the authors have encountered the problem of the unavailability and unsystematisation of key indicators of investment in research and development, which has relatively limited the scope of research. The collected and presented data will represent a quantitative basis for future research. Furthermore, the scientific contribution of work derives from the definition of the authors' development strategy, which as a key element of progress and further EU integration emphasizes the need to increase investment in R & D, their integration with the business sector and further foster international cooperation and internationalization of education systems and the entire economy. Only such an approach guarantees the successful and sustainable integration of Macedonia into the EU. Ultimately, the scientific contribution of the work comes from the projections of investment in research and development in Macedonia. Namely, the results of the projections suggest that investment in research and development in Macedonia will increase by 2025, but this process will take place at a slow pace. Such a situation is a challenge in the process of dynamic structural change management, which requires the close co-operation of all actors, especially the economic and political authorities.

Future research needs to include other Western Balkan countries, where similar research has not been carried out recently. In addition to descriptive research and projection of key variables, future research should focus on quantifying the impact of R & D investment on achieving economic growth and convergence in these countries, as well as identifying the most important indicators in this process.

References

1. Agency for mobility and EU programmes, (2015), available on: <http://www.mobilnost.hr/>
2. Aghion, P., Howitt, P. (1992). "A Model of Growth through Creative Destruction", *Econometrica*, 60, (2), 323-351.
3. Aghion, P., Bloom, N., Blundell, R., Griffith, R., Howitt, P. (2005). "Competition and Innovation: An Inverted-U Relationship", *The Quarterly Journal of Economics*, 120 (2), 701-728.
4. Ahmed, S. (2009). "Human Capital and Regional Growth: A Spatial Econometric Analysis of Pakistan", Thesis, Florence, Italy.
5. Audretsch, D. B., Feldman, M.P. (1997). "R&D spillovers and the geography of innovation and production", *American Economic Review*, 86, 4, 253-273.
6. Audretsch, D. B., Alridge, T., Oettl, A. (2006). "The knowledge filter and economic growth: The role of Scientist Entrepreneurship", Jena, Germany, Max Planck Institute of Economics, Discussion Papers on Entrepreneurship, Growth and Public Policy.
7. Ayres, W.U., Warr, B. (2009) "The Economic Growth Engine – How Energy and Work Drive Material Prosperity", Edward Elgar Publishing, United Kingdom
8. Barro, R.J. (1998). "Notes on growth accounting", Cambridge, United Kingdom, National Bureau of Economic Research, working paper no. 6654
9. Bečić, E., Dabić, M. (2008). "Analiza ulaganja poslovnog sektora Republike Hrvatske u istraživanje i razvoj", *Revija za sociologiju/Sociological Review*, 39 (1-2), 69-84.
10. Bouaissa, M. (2009). "Human Capital Theory, Returns to Education and On the Job Learning: Evidence From the Canadian Data", Preliminary and Incomplete Version, CEA, 43rd Annual Conference, University of Toronto, Ontario, May 29-31.
11. Cheshire, P, Malecki E. (2005). "Growth, development and innovation: a look backward and forward", *Papers in Regional Science*, 83, 249-267.
12. Dabić, M. (2007). "Innovation and transfer technology: Croatian experience", *Komercijalizacija i društvena primjena znanosti – indijska i hrvatska iskustva*, MZOŠ I HIT, Zagreb, Croatia
13. Damian, D., Lanubile, F. and Oppenheimer, H.L. (2003). "Addressing the Challenges of Software Industry Globalization: The Workshop on Global Software Development", In *Proceedings of 25th International Conference on Software Engineering*, IEEE Computer Society, Los Alamitos, 793-794.
14. Easterlin, R. (1981). "Why isn't the Whole World Developed?", *Journal of Economic History* 41, 1.-19.
15. European Commission (2015), available on: http://ec.europa.eu/index_hr.htm
16. Eurostat (1) (2017), available on: <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tec00114&plugin=1>
17. Eurostat (2) (2017), available on: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=cpc_psilc&lang=en
18. Eurostat (3) (2017), available on: <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tps00155&plugin=1>
19. Eurostat (4) (2017), available on: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=cpc_ecgov&lang=en
20. Eurostat (5) (2017), available on: <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&pcode=tips-go10&language=en>
21. Eurostat (6) (2017), available on: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=cpc_scienc&lang=en
22. Eurostat (7) (2017), available on: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=rd_e_gerdttot&lang=en
23. Eurostat (8) (2017), available on: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=cpc_insb&lang=en
24. Eurostat (9) (2017), available on: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=cpc_pseduc&lang=en
25. Eurostat (10) (2017), available on: <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&pcode=tsdsc480&language=en>

26. Eurostat (11) (2017), available on:
http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=educ_uoe_grad06&lang=en
27. Eurostat (12) (2017), available on:
http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=htec_si_exp4&lang=en
28. Eurostat (13), available on: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=trng_ifs_01&lang=en
29. Eurostat (14), available on: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=rd_e_fundgerd&lang=en
30. Fagerberg J., Verspagen B., Caniëls M. (1997). "Technology, Growth and Unemployment across European Regions", *Regional Studies*, Taylor and Francis Journals, 31(5), 457-466.
31. Grossman G.M., Helpman, E. (1991). "Innovation and Growth in the Global Economy", MIT Press, Cambridge
32. Guellec, D., van Pottelsberghe; B. (2003). "The impact of public R&D expenditure on business R&D", *Economics of innovation and new technology*, Taylor & Francis Group, 12 (3), 225-243.
33. Innovation Strategy of the Republic of Macedonia for the 2012-2020, available on:
<http://www.seecel.hr/UserDocsImages/Documents/InnovationStrategy%20EN%20version.pdf>
34. Kandžija, V.; Cvečić, I. (2010). „Ekonomika i politika Europske unije“, Ekonomski fakultet Sveučilišta u Rijeci/ University of Rijeka, Faculty of Economics Rijeka, Rijeka, Croatia
35. Krstić, B., Džunić, M. (2014). "Analysis of the Western Balkan countries' competitiveness determinants using the KEI methodology", *Ecoforum Journal*, 3(2), 69-76.
36. Lawson C. (1997). "Territorial Clustering and High Technology Innovation: From Industrial Districts to Innovative Milieux", ESRC Centre for Business 234 Research, working paper number 54
37. Lucas R. E. (1988). "On the mechanics of economic development", *Journal of Monetary Economics*, 22, 3-42.
38. Mankiw, G., Romer, D. and Weil, D. (1992). „A contribution to the empirics of economic growth“, *Quarterly Journal of Economics*, (107), 2, 407-437
39. Mincer, J. (1974). "Schooling, Experience and Earnings", NBER Press, New York, SAD
40. Puljiz, J. (2009). "Čimbenici regionalnog razvoja i regionalnih nejednakosti u Republici Hrvatskoj", Sveučilište u Splitu, Ekonomski fakultet Split, doctoral thesis
41. Reynolds, P.D., Hay, M., & Camp, S.M. (1999) "Global Entrepreneurship Monitor: 1999 - Executive Report", Babson College, London Business School and the Kauffman Center for Entrepreneurial Leadership, London, United Kingdom
42. Romer, P.M. (1986). "Increasing Returns and Long-Run Growth". *J.P.E.* 94 (1986), 1002-37.
43. Romer, P.M. (1990). "Endogenous technological change", *Journal of Political Economy*, 98, 71-102.
44. Pereira, J.; Aubyn, M. (2009). "What Level of Education Matters Most For Growth? Evidence From Portugal", *Economics of Education Review*, 28(1), 67-73.
45. Prodanović, S., Petković, D., Bašić, H. (2013). "Istraživanje inovacionog potencijala BiH s aspekta upravljanja i odlučivanja o RDI aktivnostima", 8. Naučno-stručni skup sa međunarodnim učešćem "KVALITET 2013", Neum, B&H, 06. – 08. juni 2013.
46. Sánchez, J.C. (2010). "University training for entrepreneurial competencies: Its impact on intention of venture creation", *International Entrepreneurship and Management Journal*, 7, 2, 239-254
47. Schumpeter, J.A. (1911) "The theory of economic development", Cambridge, MA: Harvard University Press.
48. Solaki, M. (2013). "Relationship Between Education and GDP Growth: A Bi-variate Causality Analysis for Greece". *International Journal of Economic Practices and Theories*, 3(2), 133-139.
49. Stevens, P., Weale, M. (2003). „Education and economic growth“, National Institute of Economic and Social Research, London, Great Britain
50. Solow, R.M. (1956). "A contribution to the theory of economic growth", *Quarterly Journal of Economics*, 70, 65-94.
51. Solow, R.M. (1957). „Technical Change and the Aggregate Production Function“, *The Review of Economics and Statistics*, 39, 3, 312-320.

52. Šimurina, J. (2004). „State of the Level of Technology in Central and East Europe“, Zagreb International Review of Economics & Business“, (7), 2, 95-106
53. Šimurina, J. (2006). „Creation and Transfer of Technology in CEE Countries“, Zagreb International Review of Economics & Business, 9, 1, 77-98
54. Švarc, J. (2014). „A Triple Helix systems approach to strengthening innovation potential of the Western Balkan countries“. International journal of transitions and Innovation system, 3(2), 169-188
55. The Observatory of Economic Complexity (2017), available on: <https://atlas.media.mit.edu/en/profile/country/mkd/>
56. Tomljanović, M., Grubišić, Zoran (2016), „Investment in research and development – A Factor of adjustment of Montenegro to the EU Economy“, Journal of Central Banking Theory and Practice, 5, 3, 139-165
57. Treaty on the Functioning of the European Union (TFEU), Article 49 (2017), available on: <http://eur-lex.europa.eu/legal-content/HR/TXT/?uri=CELEX%3A12012E%2FTXT>
58. Treaty on the Functioning of the European Union (TFEU), Article 50 (2017), available on: <http://eur-lex.europa.eu/legal-content/HR/TXT/?uri=CELEX%3A12012E%2FTXT>
59. Van Praag M. (2005) „Successful Entrepreneurship – Confronting Economic Theory with Empirical Practice“, Edward Elgar, Cheltenham UK, Northampton MA, USA
60. Van Praag M., Versloot, P.H. (2007) „What is the value of entrepreneurship? A review of recent research“, Small business economics, 29, 4, 351-382
61. Winters, P. R. (1960), „Forecasting Sales by Exponentially Weighted Moving Averages“, Management Science, 6(3), 324.–342.
62. World Bank (1) (2017), available on: <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD>
63. World Bank (2) (2017), available on: <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG>
64. World Bank (3) (2017), available on: <https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS>
65. World Bank (4) (2017), available on: <https://data.worldbank.org/indicator/NV.IND.TOTL.ZS>
66. World Bank (5) (2017), available on: <https://data.worldbank.org/indicator/NV.SRV.TETC.ZS>
67. World Bank (6) (2017), available on: <https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS>
68. World Bank (7) (2017), available on: <https://data.worldbank.org/indicator/SL.IND.EMPL.ZS>
69. World Bank (8) (2017), available on: <https://data.worldbank.org/indicator/SL.SRV.EMPL.ZS>
70. World Bank (9) (2017), available on: <https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS>
71. World Bank (10) (2017), available on: <https://data.worldbank.org/indicator/BN.CAB.XOKA.GD.ZS>
72. World Bank (11) (2017), available on: <https://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS>
73. World Bank (12) (2017), available on: <https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS>

.....

UDK 327.51:342.228(497.7:495)

THE IMPACT OF EXPATRIATE WORKERS' REMITTANCES ON THE CURRENT ACCOUNT OF BALANCE OF PAYMENTS IN JORDAN

Tawfiq Ahmad Mousa¹¹

Faculty of Business, Al- Zaytoonah University of Jordan, Amman, Jordan

Nawaf Alghusin

Faculty of Business, Al - Zaytoonah University of Jordan, Amman, Jordan

Ayman Al-Smadi

Faculty of Business, Al - Zaytoonah University of Jordan, Amman, Jordan

Abstract

Expatriates' remittances have grown continuously starting from 1.179 million JD in 2000 to 2.365 million JD in 2016 which is 49.8% growth. Remittances have a significant participation in the current transfer of Balance of Payments (BOP) of Jordan. It is acknowledged that remittances are very important source of foreign currencies and thus serves as a stable source to reduce the deficit of current account of BOP. It is worth mentioning that expatriates' play a vital role in the economic growth of a country as it is one of the largest sources of foreign currency and for the period under study, remittances covered more than 14% of imports. The objective of this paper is to investigate the role of remittances in reducing the current account deficit in Jordan. Multiple regression analyses, in addition, Pearson correlation matrix was used to show the relationships between the steady growths of remittance and improvement of current account deficit and found the significant positive relation.

Keywords: *Expatriates' remittances, Balance of payments, Current account, Current transfers.*

1. Introduction

Jordan is classified as a lower middle income country (World Bank 2011) with limited resources and dependent on expatriates' remittances and foreign aid. In the last decade, the economy of Jordan was severely affected by what is called (Arab Spring), increase of oil prices, global crisis and the influx of Syrian refugees. All these factors are very serious challenges that face the economy of Jordan and resulted in high rate of unemployment, inflation, budget deficit, high external debt and balance of payments deficit. Despite the fact that

11) Correspondence author's email: Tawfiq.obiedat@zuj.edu.jo

expatriate remittances constituted about 20 % on average of Jordan's GDP (Central Bank of Jordan 2000), the state of current account has shown a remarkable deficit. Remittances of migrant Jordanians, foreign direct investment and portfolio investment played a vital role in offsetting the reversals of current balance. Remittances are one of the main sources of foreign currencies and are one of the most important economic variable that contribute to the growth of the national economy because of the high ratio of the total volume of receipts that reached 35% of trade balance in 2016. The objective of this study is to analyze the impact of Jordanians' migrant workers remittances on the current balance of the balance of payments in Jordan.

The study starts with a background about migration of Jordanian skilled labor and the importance of remittances in the economy of Jordan. Part 2 is about conceptual frame work. Part 3 is about literature review. Part 4 deals with methodology, analysis and findings. Part 5 ends with conclusion and recommendations.

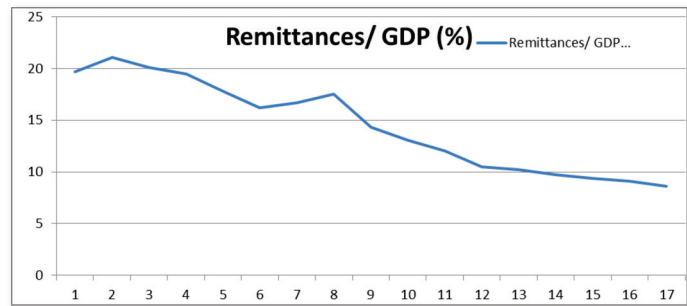
2. Migration of Jordanian skilled labor and the importance of remittances in the economy

According to the last census in 2015, the population of Jordan was 9.5 million of whom 31% were foreign nationals. This shows that Jordan has the highest refugees to population ratio. Jordan hosts 2.7 million registered refugees, while outward migration amounts to 785000 which constitute about 8.3% of population. Since 1973 oil price increases, large outflow of Jordanians immigrated to the Gulf States. Data on Jordanians abroad are scarce. According to (Migration Profile: Jordan.2016), Jordanians working in Arab countries amount to about 660000 and 125000 in the rest of the world's countries. The inflow of remittances officially recorded and sent back by expatriates during the period (2000-2016) estimated at around 35 billion dinars. This makes remittances the prime source of foreign exchange. Remittance constituted about 8.6% of Jordan's GDP down from about 20% in 2000. This is due to the increase of Jordan's GDP. It is worth mentioning that the nature of these remittances as private assets still play a vital role in supporting households' income and Jordan's economy in a sense that they play an important role in offsetting the deficit of current account of the balance of payments. The following table illustrates the importance of remittances to Jordan's economy. It also shows the trend of remittance.

Table 1. Remittances of Expatriate Jordanians (2000- 2016)

Year	Remittances in million JD	Remittances/ Export (%)	Remittances/ Imports (%)	Remittances/ GDP (%)
2000	1,179.0	87.4	40.8	19.7
2001	1,285.2	78.3	42.1	21.1
2002	1,364.2	69.4	43.2	20.1
2003	1,404.5	53.9	32.7	19.5
2004	1,459.6	53.0	28.3	17.8
2005	1,544.8	50.6	23.4	16.2
2006	1,782.7	48.3	24.5	16.7
2007	2,122.5	52.5	24.9	17.5
2008	2,242.2	49.9	18.6	14.3
2009	2,214.2	61.8	21.9	13.1
2010	2,247.3	53.3	20.3	12
2011	2,152.1	44.8	16.0	10.5
2012	2, 229.8	46.9	15.2	10.2
2013	2,327.7	48.4	14.3	9.7
2014	2,388.0	46.2	16.4	9.4
2015	2,423.3	50.5	16.7	9.1
2016	2,365.7	54.1	17.3	8.6

Figure 1
Remittances as a percentage
of GDP



From table 1, we can see that remittances represent about 55% on average of Jordan's export and 26% of imports are covered by remittances. Compared with GDP; remittances reached as high as 19.5% in 2000 and currently represent 8.6% of GDP. According to EL-)Sakka (2004) rate of remittances to private consumption is a measure of the extent to which remittances can be used to finance private consumption of domestic inhabitants. When it comes to the state of current account in relation to GDP, table 2 shows that the deficit of the current account started increasing from 2005 and in consequences affected the volume of foreign grants and the balance of trade, which is the major component of the current account that posted a high deficit as imports rose while exports stagnated. The rise in the deficit of the current account as a percentage of GDP during the period 2011- 2013 was due to the sharp deficit in the trade balance, slowdown of investments inflows and in the income account due to the regional instability and the necessity to accommodate the Syrian refugees consumption.

Table 2. Current Account Deficit as a % of GDP in Jordan

Year	GDP (Million JD)	Current Account (Million JD)	% of GDP
2000	5,996.5	- 153.4	2.6
2001	6,082.9	-284.0	4.7
2002	6,781.2	381.7	5.6
2003	7,08.3	882.6	12.2
2004	8,166.1	62.9	0.08
2005	9,595.1	1,559.4	16.2
2007	10,671.8	- 2,038.0	18.9
2008	12,132.3	- 1,445.2	11.9
2009	15,623.2	- 802.4	5.1
2010	16,895.2	- 931.4	5.5
2011	18,743.1	- 2,098.8	11.2
2012	20,487.7	- 3,344.9	16.3
2013	21,921.8	- 2,487.7	11.3
2014	23,876.2	- 1,851.7	7.7
2015	25,411.7	- 2,365.6	9.3
2016	26,600.5	- 2,560.2	9.6

Source: Central Bank of Jordan. Annual Reports . Various issues

3. Conceptual Framework

3.1. *The Current Account of Balance of Payments*

The current account is one of two components of the balance of payments. The other is the capital account. The current account is considered to be an indicator of economy's health. It consists of the balance of trade, net factor income and net cash transfers. The current account measures a country's foreign trade because it is the difference between the country's exports of goods and services and its imports of goods and services. A surplus in the current account indicates a rise in a country's foreign assets and vice versa. In the net factor income, payments represent an outflows and income receipts from investments abroad and remittances of expatriates are inflows. So the current balance is calculated by adding up 4 components; goods and services, income and current transfers as presented in the following formula:

$$CA = (X - M) + NY + NCT$$

Where,

CA: stands for current balance ; X, M: the export and import; NY: net income from abroad

NCT: net current transfers

3.2. *Interrelationships in the balance of payment*

The current account reflects the monetary transaction with the rest countries of the world. Transactions are either recorded as a credit or a debit. Within the balance of payments, there are three categories under which transactions are classified; the current account, the capital account and the financial account. The current account reflects the sum of the capital and financial accounts. The current account is the main causal factor with capital and financial account. Simply reflecting financing of a deficit or investment of funds arising as a result of surplus. The causative factor in the current account and that the positive financial account reflects the need to finance the country's current account deficit.

3.3. *Reducing or increasing current account deficit*

If a country has a deficit in its current account it means that a country is a net debtor to the rest countries of the world. The state of current account balance is influenced by many factors. But the main factor is the trade balance (export –import) which determines the current account state of surplus or deficit. The action to reduce a current account deficit involves increasing exports or decreasing imports or depreciating the exchange rate in order to make the goods and services cheaper for the foreigners. According to (Pitchford thesis) a deficit of current account does not matter if it is driven by the private sector (Cashin, P. and McDermott 1998). In case of surplus it is a good indicator of economic activity of a given country.

4. Literature Review

Because of the increase of flows of expatriates' remittances and their importance in the economic development of receiving- countries, a wide range of issues related to the expatriates' remittances became over the past years the subject of political debate, as well as of theoretical and empirical studies. Kandil and Mirzaie, (2001) in their analysis by using time series analysis found that remittances inflows led to the export growth in two countries (Jordan and Tunisia) out of four MENA countries. Bouhga - Hagbe (2004), reached a conclusion that in Morocco, expatriates' remittances covered the trade deficit and explained the surplus of the

external balance. According to (OECD 2006), when expatriates' remittances cause an increase of imports and deficit in trade balance in the receipt- receiving country, which is known as boomerang effect, the propensity to import increase. In the process of evaluating the impact of expatriates' remittances on economic variables, Ratha stressed the growing importance of remittances as a source of foreign exchange for developing countries which is reflected in his study on the relationships between remittances and economic growth in Sri Lanka during the period 1977-2012. Harsha Paranavithana(2014), using VEC model, he found a positive and direct relationship between remittances and economic growth in the long run, but no causality in the short run. Pradham,G et al (2008), investigate the relationship between remittances and economic growth in 39 developing countries from 1980-2004, using panel data fixed effects and random effects and found a direct relationship between remittances and economic growth. El-Sakka and McNabb (1999) estimated a macro model for total inflow of remittances through official channels in Egypt. They found that levels of income in both host and home countries have a positive impact on the inflow of remittance to the home country. They also found that remittance flows are highly responsive to black market premiums. The results also support the idea that interest differentials at home and abroad have a negative impact on the inflow of remittances through official channels. They also find that imports financed by remittances have higher income elasticity and relatively lower price elasticity as compared to other imports. Edards (2009) examined the relationship and growth input of remittances and transfers using fixed panel effects estimation (1979-2002) and found that remittances and foreign aid are negatively associated with growth. Pradhan. A.H et al (2012) in their research "Contribution of Remittances on Current Account of Balance of Payments in Bangladesh" using VECM estimation model found that the high contribution of remittances in the current transfer over the period 1997-2009) led to a positive link between remittances and current account. And finally, Jihad .Al-Sondos and Suliman Abu-Kharmah(2010), on their study about the impact of Jordanian workers' remittances on macroeconomic variables employing Multiple Linear Regression by the Least Square Method and statistical tests found a positive statistical significance impact of remittances on the macroeconomic variables and a positive impact on the increasing the per capita share of the GDP. Based on the previous literature the following hypothesis has been formulated as follows in its alternative form:

Hi: There is an impact of expatriates' remittances on current account of balance of payments in Jordan.

5. Methodology, Analysis and Findings

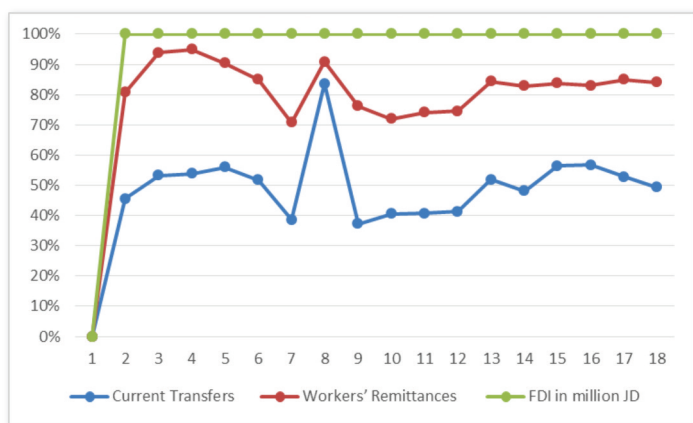
The objective of this study is to evaluate and analyze the impact of Jordanian expatriates' remittances on the current account of the balance of payments. The study is based on secondary data collected from the annual reports of the Central Bank of Jordan and from the Department of Statistics. A wide range of critical and exhaustive review of literature was used for the purpose of the study.

Table 3. Current Transfers, workers' Remittances and Current Account Balance

Year	Current Transfers	Workers' Remittances	% of Current Transfers	FDI in million JD	Current Acc. Bal.
2000	1,531.2	1,179.0	76.9	648.23	- 153.4
2001	1,679.7	1,285.2	76.5	194.54	- 284.0
2002	1,792.2	1,364.2	76.1	168.98	381.7
2003	2,273.0	1,404.5	61.8	388.37	882.6
2004	2,280.2	1,459.6	64.0	665.27	62.9
2005	1,855.0	1,544.8	83.3	1,408.0	- 1, 559.4
2006	2,080.5	1,782.7	85.7	2,282.5	- 1,133.3
2007	2,029.6	2,122.5	104.6	1,301.3	- 2,038.0
2008	2,896.0	2,242.0	77.4	2,005.7	- 1445.7
2009	2,696.0	2,214.2	82.1	1,713.3	- 802.4
2010	2,789.4	2,247.3	80.6	1,721.1	- 931.4
2011	3,454.7	2,152.1	62.3	1,046.2	- 2,098.8
2012	3,084.9	2,229.8	74.5	1,099.3	- 3,344.9
2013	4,813.3	2,327.7	48.3	1,382.2	- 2,487.7
2014	5,160.9	2,388.0	46.3	1,546.7	- 1,851.7
2015	3,989.3	2,423.3	60.7	1,136.2	- 2,365.6
2016	3,369.6	2,365.7	70.2	1,092.6	- 2,560.2

Source: Central Bank of Jordan Annual Reports (2000- 2016) Statistical Tables.

Figure 2
current account, FDI,
and workers' remittances



In order to find out the role of expatriate remittances in offsetting the current account

Deficit, we suggest the following model: $Y = a + b_1x_1 + b_2x_2 + b_3x_3 + \epsilon$

Where y stands for current account, X1 for current transfer; X2 for Expatriate remittances and X3 for foreign direct investment. Then we used multiple regression analyses, in addition to Pearson correlation matrix. The authors found that there is a negative and significant effect of expatriate remittances on the current account of balance of payments in Jordan; p. value (0.00) which is lower than 0.05, while the effect of FDI is positively correlated and insignificant, but the effect of Current Transfers on the current account of balance of payments is negatively correlated and insignificant as shown in Table 4.

Table 4 Regression analysis

Dependent Variable: current account balance

Variable	Coeff.	t-Stat.	Prob.
C	2,890.84	3.115	0.01
X1	(0.03)	-0.440	0.67
X2	(2.27)	-3.708	0.00
X3	0.25	0.463	0.65
R-squared	0.64	Akaike info crite.	16.37
Adjusted R-squared	0.55	Hannan-Quinn crite.	16.39
Log likelihood	(135.17)	D-W stat	1.42
F-statistic	7.60		
Prob(F-statistic)	0.003468		

In turn, we observe that the correlation coefficients between the current account balance and both the current transfers and expatriate remittances are negative, viz., a, viz, (-0.910) and (-0.650) respectively while the relation with the foreign direct investment variable has a positive association (0.910) as shown in Table 5.

Table 5 Correlation matrix

Variables	x1	x2	x3	y
x1 Correlation	1.000			
Sig (2 tailed)				
x2 Correlation	-0.670	1.000		
Sig (2 tailed)	0.000			
x3 Correlation	-0.900	0.840	1.000	
Sig (2 tailed)	0.000	0.000		
y Correlation	-0.910	-0.650	0.910	1.000
Sig (2 tailed)	0.000	0.010	0.000	
N	16.000	17.000	17.000	17.000

X1 stands for current transfer; **X2** Expatriate remittances; **X3** Foreign direct investment and **Y** for Current Account.

6. Conclusion and Recommendations

From the above discussion, we conclude that expatriates' remittances have become a significant issue due to its role in many aspects of economic growth of a receiving country. This paper concentrates on theoretical literature on remittances and investigate its link with current account of the balance of payments of Jordan. In terms of the expatriates' remittances, its trend has been increasing and positive in a sense that they reduce the deficit in current account. In order to enhance the size and roles of remittances in economic stability, we recommend the following:

1. A clear strategy should be adopted by the government to improve the skills of the emigrant workforce.
2. Attempts should be taken by policy makers to bring these remittances via formal channels.
3. Interest rates should be maintained on the accounts of migrant workers at levels that are higher than on domestic or foreign currencies deposits.
4. Special treatment in terms of duty and tax on equipment and investments of migrant workers.

References

- Bhatta.G. (2013). Remittances and Trade Deficit Nexus in Nepal: A VECM Approach.NRB Economic Review, Nepal Rastra Bank, Research Department 25(1):37-50.
- Bouhaga-Hgbe, (2006), Migration Remittances in the CCEEs : A case Study of Ukraine Imigrants in Czeh Republic. IES Working Papers: 19/ 2012.
- Cashin, P. and McDermott, (1988)" Are Australia's current account excessive?" Economic Research Vol.74.No.227.pp.346-361.
- Central Bank of Jordan. Annual Reports, Statistical Tables. Various Issues.
- Edwards,(2009).Remittances and Labor Force Participation in Mexico: An Analysis Using Propensity Score Matching. World Development, 2009, Vol.37. Issue 5, 1004-1014.
- Elbadawi. I and R. Rocha (1992). Determinants of Expatriate Workers' Remittances in North Africa and Europe. Working Paper No.1038. Country Economics Department. World Bank, Washington, D.C.
- El Sakka, M, and McNabb R. (1999). The Macroeconomic Determinants of Emigrant Remittances. World Development 27(8): 1493-1502.
- Francoise. De Bel- Air. Migration Profile: Jordan. Policy Centre EU. Issue 2016/06. November. 2016.
- Glytos,N.P (1993)" Measuring the Income Effects of Migrant Remittances : A Methodological Approach Applied to Greece Development and Cultural Change, Vol. – No. pp.131-68.
- Glytsos, N. (2002). "The Role of Migrant Remittances in Development: Evidence from Mediterranean Countries." International Migration. Vol.40. No. 1. pp. 5-25.
- Harsha,P. (2014). Do Workers' Remittances Cushion Economic Growth in SriLanka. International Journal of Business and Social Sciences, Vol.5.No.10 (1) September. 2014.
- Jihad, Al- Sondos and Suliman, Abu-Karmah (2010)" The Jordanian Workers' Remittances Impact on Macroeconomic Variables" International Research Journal of Finance and Economics", Issue.41. (2010).
- Kandil, M., and Mirzaie, I. (2008) The Impact of Capital and Remittances Flows on Economic Performance in MENA Countries. Egyptian Research Forum, Working Paper No. 440.
- Keely, C. B and Saket, B. (1984)" Jordanian Migrant Workers in the Arab Region: A case Study of Consequences for Labour Suppling Countries" the Middle East Journal, Vol. 38, No.4.pp. 685-698.
- OECD. (2006) International Migrant Remittances and their Role in Development. International Outlook 2006.
- Loser, C, et al. (2006)" The Macroeconomic Impact of Remittances in Latin America – Dutch Disease or Latin Cure?" Presented at the G-24 Technical Group Meeting in Singapore on September 13-14. Retrieved from <http://www.g24.org/lose0906.Pdf>.
- Matto.B. (2006). Workers' Remittances and Current Account Reversals. Bank of Italy Research Paper No. 537.
- Okodua, H and Oalyiwola, W. (2013), Migrant Workers' Remittances and External Trade Balance in Sub- Sahara African Countries. International Journal of Economic and Finance; 5(3):134-142.
- Pradham, G, et al. (2008). The European Journal of Development Research, Vol.20. 2008. Issue 3.
- Pradham. A.H, et al. (2012), Contribution of Remittances on the Current Account of Balance of Payments in Bangladesh: VECM Estimator. International Journal of Applied Research in Business Administration and Economics. Vol.01.Issue. 01.Article No.7.
- Pradham, A.H. et al. (2012) Contribution of Remittances on Current Account of Balance of Payment in Bangladesh: VECM Estimation. International Journal of Applied Research in Business Administration& Economics. March, Vol.1. Issue1/pp.70-77.
- Ratha[95]. Remittances and their Impact on Economic Growth. Social and Management Sciences, 21/1(2013), 3-19.
- Salisu, M., (2005)" The Role of Capital Flight and Remittances in Current Account Sustainability in Sub- Sahara Africa" African Development Review. Vol.17.No3. pp. 382-404.

- Talafha, H. (1985)" The Effect of Workers' Remittances on the Jordanian Economy" METU Studies in Development. Vol. 12. No. 1-2, pp.119-130.
- Taylor, J. E. (1999)" The New Economics of Labour Migration and the Role of Remittances in the Migration Process", International Migration, Vol.37. No.1, pp.63-88.
- World Bank (2006). Global Economic Prospects: The Economic Implication of Remittances and Migration. The World Bank. Washington, D.C.
- World Bank. Migration and development brief, various issues.
- Zaghloul, I. (1984). Remittances of Jordanians and their Impact on the Economy of Jordan. Department of Research and Studies- Central Bank of Jordan.

i This study titled "The Nexus between income inequality, international remittances and economic growth in Turkey" was presented in International Economy Conference in Bodrum/Turkey (2016).This masterpiece is revised and expanded version of presented study.



Publisher Center for Economic Analyses - CEA

For the publisher Marjan Nikolov

Title CEA JOURNAL OF ECONOMICS

Editorial board

Marjan Nikolov, PhD, President of CEA (Editor-in-Chief)
Bryan Roberts, Ph.D.
Senior economist at Econometrica Inc USA
King Banaian, Ph.D.
Professor in the Department of Economics at St. Cloud State University USA
Giorgio Brosio, Ph.D.
Professor of Public Economics, University of Turin, Italy.
Nevenka Hrovatin Ph.D.
Professor of Public Economics, University of Ljubljana, Slovenia
Dubravka Jurlina Alibegovic, Ph.D.
Senior research fellow and Head of Department for Regional Development, Institute of Economics, Zagreb, Croatia
William Bartlet, Ph.D.
Visiting Senior Fellow, European Institute, London School of Economics and Political Science
Borko Handziski,
Senior Economist at the World Bank, USA
BorceTrenovski, Ph.D.
Professor at the Faculty of Economics- Skopje, UKIM, Macedonia
Anto Bajo, Ph.D.
Professor at Institute of Public finance and Faculty of Economics and Business Zagreb.

Cover & pre-press GLOBAL Communications, Skopje

Skopje, June 2018

