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Timisoara Journal of Economics and Business TJE&B

STATE AUDIT FOR STRENGTHENING THE ACCOUNTABILITY IN PUBLIC FUNDS MANAGEMENT: CASE OF REPUBLIC OF MACEDONIA

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DOI: 10.1515/tjeb-2016-0006

The aim of this paper is to analyze the role of the state audit in strengthening the accountability in managing the public funds. Appropriate and effective use of public funds ensures a healthy economic and financial management, as well as transparency, which leads towards a positive development of the society as a whole. We evaluated the operation of the state audit in Macedonia by analyzing the regularity audit performed on five state institutions from 2010 to 2014 and we compared the results with the state audits in two neighboring countries. Our findings suggest weaknesses in the use of public money by the institutions covered by this analysis and in the operation of the State Audit Office. The research will help in increasing the public awareness about the necessity of responsible management in the public sector.

Keywords: **State audit, Public funds management, Supreme audit institution, Accountability, Republic of Macedonia**

JEL Classification: **M420, M480**

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1. Introduction

Public funds are necessary for the operation and execution of processes which are executed by the responsible people in the state institutions. Since public funds are limited, and the costs required to achieve certain goals are constantly increasing the effectiveness of public expenditure has a direct impact on the successful implementation of economic and social processes within the public sector. Therefore, management and control of public expenditure is important for economic, efficient and effective use of public funds.

Uncontrolled public spending in the public sector is a big problem that must be monitored by a separate control unit which is also known as the state audit. Most of the countries had imposed an obligation for reviewing the results of operations of the state bodies and institutions. For this purpose, they established special audit institutions - Supreme Audit Institutions (SAIs) which have a different legal status. The SAIs` s goal is to prevent misuse of public funds and risk management through three main roles of the audit including: testing, assessment and consultation. They use three types of audits: financial (or attest), compliance and performance (or value-for-money) (WB, 2001) to audit the public sector. In addition, SAI give appropriate recommendations and policy management to the public sector for more effective public spending. Improper use of public funds may adversely affect the structure of the state budget.

The conclusions from the resolution of 21st UN/INTOSAI Symposium (2011) on effective practices of cooperation between supreme audit institutions and citizens to enhance public accountability can be summarized in:

- heed citizens' concerns in their work and communicate this accordingly,
- communicate audits and audit findings to the public, and
- empower citizens to demand the implementation of audit recommendations

The subject of research of this paper is the role that the state audit has for strengthening the accountability of the authorized person in the state bodies' when using and managing public funds in the Republic of Macedonia (Macedonia). We evaluate the state audit role in strengthening the accountability of the government's unit management by reviewing the types of opinions on the annual reports of selected users of budget funds. The results from this research will contribute towards raising awareness of the influence of the State Audit Office for responsible use and management of public funds from the State Budget. The final result of the analysis will help to learn about the state audit influence on the improvement of the operation of the state institutions through the elimination of the irregularities and omissions.

2. Literature review

According to Bobes (2012) the effective use of public funds is necessary for the public finance management and for the efficient decisions done by the competent persons in the public sector. In addition, he stressed that the capacity of the public audit is to prevent and/or remove deficiencies in optimum time. Ramkumar and Krafchik (2005) considered the public auditors as watchdogs of public finances who act as critical links in enforcing the accountability of executive agencies to national and state legislatures, and through them to the general public.

For protecting their public funds, the countries form Supreme Audit Institutions (SAI) which is an important tool in regulating the use of public funds (Nguyen, 2012). SAIs role is to check whether public funds are being used efficiently, effectively and economically for the intended purposes and if they are in compliance with the existing rules and regulations (Baimyrzaeva andKose, 2005). Therefore, a reliable and objective reporting is critical for SAIs to ensure accountability and transparency in the public management. It also helps to the battle against corruption and waste, and suggests options in which government organisations can operate better. And most of it, by ensuring that money is well spent they can contribute to sustainable national development, reduce fraud and contribute to poverty reduction (OECD, 2011).

According to Khann (2013) with increasing emphasis on value for money audits or performance audits, the role of SAIs in enforcing accountability has increased significantly. However, lot much depends upon the law and its implementation under which a SAI acts. Koskun (2015) confirms that the SAIs play a critical role in promoting accountability transparency within government. Undoubtedly, this function of SAIs will continue; capacity will have to be strengthened in accordance with the widened accountability

Akyel (2013) make a conclusion that effective communications with the parliament, audited entities, media, civil society organisations and the public at large will enhance SAI's effectiveness and make it key in responding challenges for ensuring transparency and accountability of the public financial management.

In the last period, these types of institutions succeeded to develop internal capacity but according to OECD (2011) they still do not function in their full capacity in many countries. They lack level of authority, suitable skills and resources in order to carry out the audits and report the results transparently and without fear. Therefore, in the developing countries there is a need for better structured SAIs for improving the public financial management and accountability.

Midaoui (2011) proposes that developing countries firstly have to develop effective audits of regularity and compliance which is essential for developing a culture of control and accountability within the public institutions. According to him, the development of public auditing and SAI capacity building must go hand in hand in a context that fosters the independence of these institutions.

Mahacek and Vcev (2015) affirm the significance of elimination of irregularities and omissions through implementation of audit recommendations for improving business operations and results.

The IDI Global Survey (2014) results suggest that the institutions which are members of the European Organization of Supreme Audit Institutions (EUROSAI) are among the stronger, better performing SAIs European Organization of Supreme Audit Institutions. Pintea and Sorin (2009), in their comparative study on the Supreme Audit Institutions of the countries members of the European Union, made a conclusion remarks for the improvement processes of the institutions' activities in the domain of external public audit and financial control. The neutral approach is one of the major concerns related to SAIs in the studied Western Balkan countries (Lazarevic et al 2015) and it is influenced by the necessity to distinct the position from the status of SAIs, since these are (relatively) new institutions in the studied World Bank countries.

State audit in Macedonia

According to the principles of revision of the Declaration of Lima (INTOSAI, 1977), orderly and efficient use of public funds is important for the proper management of public finances and for making effective decisions by competent people in the public sector. In order to achieve this, every country needs to have its own independent supreme audit institution. This institution is known in Macedonia as the State Audit Office (SAO). The first bodies for auditing the Government were established in 1945.

The state audit is a relatively new concept in Macedonia and the State Audit Office (SAO) in this country was established in 1999.The subject of audit, in accordance with the Law for state audit (2010), includes: the budget, budgets of local government, budget funds, public companies, National Bank and legal entities where the state is the dominant shareholder. The State audit reports institutions are submitted to Parliament by the end of the fiscal year and before the adoption of the final account.

In the countries with developed economy (CEA, 2012) the operation of the auditors is controlled by a special organization, and in Macedonia the body that performs such activity is the Ministry of Finance.

The state audit performs: (i) regularity audit concerning the compliance of the work subject to the laws and regulations, and (ii) performance audit concerning the economic, efficient and effective operation and use of funds.

The State audit office of Macedonia has made efforts to comply with the requirements and standards of the European Union. However, the World Bank (2015) after assessing the public financial management with special emphasis to the external scrutiny and audit has announced several concerns:

- Recent proposals to anchor the SAOs role within the Constitution would bring the country into line with INTOSAI standards.
- Requirements to audit the financial operations and reporting of political parties may affect the perception of the SAO's functional independence.
- Improved transparency and accountability could be achieved by developing the capacity of parliament to examine SAO audit reports.

Lazarevic et al (2015) in the conclusion in their study of the issues related to the public sector performance in three Western Balkan countries, indicate that main challenges for performance audit in Macedonia are: improving the quality of performance audit, introducing mechanisms for monitoring the implementation of the recommendations, and generally raising awareness among the institutions regarding the role of performance audits.

3. Methodology and data

The methodology is based on a desk research of the documents from legal acts of the state audit, audit reports and State Audit Office report on operation, the annual programs and annual reports. Descriptive analysis is used for analyzing the SAO regularity audit reports for five years, from 2010 to 2014.

We have analyzed the audit report on five state institutions that are the largest users of budget funds in Macedonia: i) Budget, (ii) the Ministry of Finance, (iii) Foreign Investment Agency, (iv) the Pension and Disability Insurance, and (v) Government. In our research we take in consideration only the regularity audit. Additionally, we have reviewed the reports on the implementation of the given recommendations in the previous audit reports to assess in what degree the institutions realize those recommendations for improving their operations.

Comparative analysis and data from state audits of two neighboring countries Serbia and Croatia is also used, in order to see the functioning of the State Audit Office in comparative context. The reason for selecting those countries is that Croatia is already a European Union member state and together with Macedonia and Serbia they have arisen from the same

country, the former Republic of Yugoslavia. We have compared the structure of the expressed opinion of the three state institutions as an average share of a particular type of audit opinion in the total of audit reports during the examined period.

Beside the descriptive and comparative analysis, we have performed an in-depth interview with an experienced state auditor for more detailed explanation and understanding of the State audit office` operation.

The data for the research are collected from the web sites of Macedonian State Audit Office of Macedonia, State Audit Institution of Serbia and State Audit Office of the Republic of Croatia.

We have evaluated the State Audit Organization of Macedonia by:

- analyzing the operation of the State Audit Organization through review of total reports for performed audit during the examined period. The subject of the analysis is: the number of the performed audit by year, the number of follow-up audits by year, the realization of the planned audits in annual programs,
- analyzing the reports on regularity audit of five largest users of budget funds to detect the most frequent auditors' comments in its,
- comparing the operation, organization and regulation of state audit organizations in Macedonia, Croatia and Serbia and
- analyzing the structure of the total audit reports according to the types of audit' opinion.

4. Results

1. Analysis of the audit reports of State audit office of R. of Macedonia from 2010 to 2014

1.1. Number of audits

The number of performed audits is growing after 2012 and the number of follow-up audits for reviewing the implementation status for recommendations is significantly lower in 2014 compared to 2011 and 2010.

Table 1. Number of SAO audits and follow-up audits from 2010 to 2014

	2010	2011	2012	2013	2014
Number of audits	87	77	54	103	103
Number of follow-up audits	72	68	51	37	53

***Source**: The authors, based on Macedonian SAO reports for 2010, 2011, 2012, 2013 and 2014*

1.2. Planned and performed audits

The comparison of the performed audits on the five institutions subject of the analyses and the planned audits in annual plans for the period from 2010 to 2014 shows that Pension and disability insurance fund was not audited in 013 and 2014 despite it is a subject of compulsory annual audit according to the State Audit Law. And the Government was not audited in 2014 even it was planned for audit with the Annual program for 2014.

1.3. The audit opinions structure

In the SAO annual reports in the period 2010 -2014 the auditors were expressing opinion on:

- Whether the financial statements are showing the financial position and results of the conducted activities in an objective and truthful manner and
- Whether the displayed financial transactions and information are in accordance with relevant legislation, policies and guidelines.

The dynamic of the structure of individual audit opinions for the revised period is presented in the Table 2. The number of reports with unqualified opinion and reports without expressed opinion has decreased in the examined period while the reports with qualified opinion and with negative opinion has increased.

Table 2. Expressed opinions on the reliability and truthfulness of the financial statements given in the annual reports of SAO of Macedonia (2010 to 2014).

Expressed opinions	2010	2011	2012	2013	2014
Unqualified opinion	44%	46%	38%	29%	26%
Qualified opinion	21%	27%	25%	40%	45%
Disclaimer of opinion	22%	14%	20%	10%	7%
Negative opinion	13%	13%	17%	21%	22%

Source: The authors, based on data from the website of the State Audit Office of Macedonia

The structure of the opinions expressed by the auditors about the compliance of the financial transactions and information with legislation, policies and guidelines given in the annual reports from 2010 to 2014 is shown in the table below. The reports with unqualified opinion and with disclaimer of opinion have decreased, and the reports with qualified and negative opinion have increased in 2014 compared to 2010.

Table 3. Expressed opinions on the compliance of financial transactions and information with legislation, policies and guidelines referred to in the annual reports of SAO of Macedonia (2010 to 2014).

Expressed opinions	2010	2011	2012	2013	2014
Unqualified opinion	37%	31%	28%	27%	22%

Expressed opinions	2010	2011	2012	2013	2014
Qualified opinion	23%	33%	31%	46%	39%
Disclaimer of opinion	7%	4%	3%	1%	0%
Negative opinion	33%	32%	38%	26%	39%

***Source**: The authors, based on data from the website of the State Audit Office*

1.4. Audit recommendations implementation

The SAO audit reports contain 3803 recommendations made for years 2010 through 2014 and state agencies and other audited organizations implemented 1694 (44%).

2. Analysis of audit reports of five selected institutions

The analysis includes audit reports of five institutions from 2010 to 2014. Subject of analysis are: General Budget, Ministry of Finance, Government of RM, Fund for Pension and Disability Insurance, and Agency for Foreign Investments and Export Promotion. The audit was not performed in each of the years during the examined period, and the reason is that some of the institutions were not part of the planned audits in the annual programs of the State Audit Office (Appendix 1).

Summing up the results of the audited reports give the following findings on the work of five institutions in terms of:

- Deviations - All institutions that are subject to this analysis have deviations in their work. Some are repeated in different institutions.
- Systematization of working places - inadequate number of employees or a lack of staff in places where employment was planned.
- Stuff - placing personnel without professional qualifications for jobs that require special skills and expertise.
- Cooperation with other institutions- lack of cooperation between institutions.
- Software- outdated software solution or no option in the software for entering the appropriate documentation.
- Documentation- improper documentation or lack of evidence.
- Procedures and processes- lack of proper procedure needed or no implementation of the already existing working procedures.
- Internal control- internal inadequate system of control or lack of early warning system.
- Public purchases - no implementation of the procurement procedures

- Compliance with legislative acts - non-compliance with laws, regulations and other acts within the institutions.
  - Audit opinion – qualified opinion is expressed in 67% of audit reports on compliance with laws and regulations, as well as the objectivity of the financial reports audited. In 25% of reports unqualified opinion is expressed, and for 6% of institution has been expressed a negative opinion.
  - Implementation of recommendations - All institutions that are subject to this analysis have taken some measures to implement the recommendations over the five-year period, however, they have been partially implemented during the examined period.

3. Comparison of the state audit organization of Macedonia, Croatia and Serbia

3.1 Similarities and differences in organization and operation

The similarities among the compared audit organizations are: independence, financing by the budget, preparation on annual programs, they are under control of the national assembly, disclosure of audit reports on their web sites, licensing of the auditors, follow-up of the given recommendations in the audit reports and operation according to the International Audit Standards and INTOSAI standards.

The differences are:

- The provision for Macedonian State audit Office is not provided in the State Constitution Law,
- The Macedonian State audit has not a rule book for operation.
- The State Audit Office of Macedonia does not disclose the realization of its strategic goals in the years,
- The State Audit Office of Macedonia dose not disclose the information about the findings in it audit reports for the media representatives and
- The State Audit Office of Macedonia does not disclose the results of the implementation of the subjections from the previous audit reports.

3.2 Audit opinions on the objectivity and truthfulness of the financial statements

A comparison of audit opinions on the objectivity and truthfulness of the financial statements of the Macedonian with the opinions expressed on state audits of Serbia and Croatia is made on an average share of a particular type of audit opinion on the reviewed period and provides the following features:

1. Most of the reports of the Macedonian State Audit Office give an unqualified opinion (33%) and qualified opinion (33%), but there is a remarkable number of reports with negative opinions (25%), and lower number of reports without expressed opinion (9%).

2. Most of the reports of the Croatian and Serbian state audit offices are with qualified opinion (78% and 72%), and less reports are with unqualified opinion (21% ie. 25%). But significantly low number of reports is without expressed opinion and negative opinion. The Croatian Audit Institution does not have reports without expressed opinion while the Serbian audit institution has only 3%, and only 1% of the reports of the Croatian and 0.2% of the Serbian audit reports are with negative opinion.

Our results are with the findings of Mahacek and Funaric (2013) that since 2007th the percentage of unconditional and unfavorable opinions of the State Audit Office of the Republic of Croatia is significantly reduced, and the percentage of conditional opinions increased. Their conclusion is that in all observed years most frequently expressed is a qualified opinion, which is indicating constantly avoiding of the application and partial application of the legal procedures.

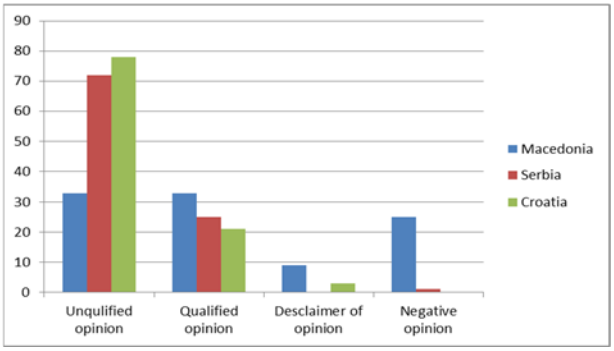


Figure 1. Average opinion structure of the state audit offices of Macedonia, Serbia and Croatia on the objectivity and truthfulness of the financial statements (2010 to 2014) in (%)

Source: The authors, based on data from the websites of the State Audit Offices of Macedonia, Serbia and Croatia.

Conclusions

State audit is the leading control mechanism because it helps to improve the work in the public sector by analyzing the performance of those in power. State Audit affects the control of public spending and reduces the risks in the public sector to an acceptable level. SAIs are in charge of checking whether public funds are being used for intended purposes efficiently, effectively, and economically in compliance with existing rules and regulations (Ramkumar and Krafchik, 2005).

The results from reviewing the SAO regularity auditing reports for five years (2010-2014) identified several weaknesses in the operation of the examined institutions. Certain observations are repeated in all examined institutions:

- Stuff
- Cooperation with other institutions
- Software
- Documentation
- Procedures and processes
- Public procurement
- Compliance with laws

A comparison of the average structure of the opinions expressed in the audit reports of the Macedonian, Croatian and Serbian state audit institutions from 2010 to 2014, shows that the Macedonian SAO has a higher percentage (33%) of reports with expressed unqualified opinions, and significantly lower percentage (33%) of reports with qualified opinion compared to the Croatian and Serbian state audit institutions. However, the data indicating that there is a considerable percentage (25%) of reports with negative opinion and a relatively large percentage (9%) of reports where there is no opinion expressed in comparison to very low percentage of such opinions in the Croatian and the Serbian state audit reports.

We have found several similarities in organization and in operation of the three compared state audit organizations. The similarities are mostly in its: independence, source of financing, planning processes, authorized institution, disclosure of audit reports, process of licensing and of follow-up of the recommendations in the audit reports and compliance with International Audit Standards and INTOSAI standards.

The comparison of functioning of the Macedonian SAO with the SAOs of Croatia and Serbia recognizes a few weaknesses. One is that SAO is not regulated by the Macedonian Constitution Law; the other is the lower transparency in general and in disclosing the realization of the previous recommendations and achieved strategic goals.

The results of this study indicated the need of additional measures and activities to improve the performance to ensure responsible use of public money and to increase the confidence of the citizens. The recommendations are for the policy makers, the SAO and the civil society. Here-in, we present them:

- The regulation of the SAO in the Macedonian Constitution Law,
- To increase the SAO independence,
- To improve SAO transparency by disclosing proper information about the results of the audit to the public,

- To improve the awareness of the state institutions of the role of the state audit and of their responsibility in managing public money,
- To improve public awareness of the importance of the state audit reports for effective management of the public money.
- To establish a public surveillance n the state audit profession,
- To provide effective and real sanction for non-compliance with the law.
- To establish the professional organization for improving the professional capacity of the state auditors.

Appendix

Appendix 1. Performed audits on the Budget of RM, Ministry of Finance, Government of RM, Pension and Disability Insurance Fund and Agency for Foreign Investments and Export Promotion (2010-2014)

Institution	2010	2011	2012	2013	2014
Budget of RM	Yes	Yes	Yes	Yes	Yes
Ministry of Finance	Yes	No	Yes	No	No
Government of RM	No	Yes	No	No	No
Pension and Disability Insurance Fund	Yes	Yes	Yes	No	No
Agency for foreign investment and export promotion	No	No	Yes	No	No

Source: The authors, based on data from the website of the State Audit Office

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DOES TRADE OPENNESS HAS NOTEWORTHY EFFECT ON BILATERAL TRADE FLOWS OF E.C.O. COUNTRIES; AN EMPIRICAL INVESTIGATION

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DOI: 10.1515/tjeb-2016-0007

This study empirically investigated the effect of trade liberalization on the bilateral trade flows of [2]ECO (Pakistan, Turkey and Iran) countries using annual time series data for the period of 1980-2016. The study applied unit root test, bound testing approach and ARDL regression analysis technique to empirically examine the role and impact of trade openness on bilateral trade flows of ECO countries. The empirical results found long-run positive and significant effect of trade openness on bilateral trade flows of ECO countries. Further, the study concluded that trade openness playing an important role in exports as well as in fulfilling the requirements by imports. The findings of the study might provide significant guidelines to policy makers to initiate rules and regulations for the improvement in international trade that might help in attainment of sustainable foreign exchange reserves and economic growth of ECO countries.

Keywords: **E.C.O. Countries, Bilateral Trade, ARDL regression analysis, diagnostic & stability analysis**

JEL Classification: **O**

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2 Economic Cooperation Organizations formally known as RCD (Regional Cooperation for Development).

1. Background of the Study

Trade liberalization or trade openness plays a vital role in the economic development of any nation and could notably be called growth locomotive. Free trade or trade liberalization consists of strategies that support trade without quantitative and qualitative restrictions across international boundaries, where trading allies are permitted by the policy to have mutual benefits from the trade exactly according to the law of comparative advantage. Trade liberalization consists of policies of complete or partial removal or reduction of tariffs and non-tariff restrictions and barriers on the free exchange of capital, services and goods globally to promote "free trade". Today, most of the developing and developed countries approved the policy of trade liberalization through the diminution or complete eradication of trade barriers. Popular trade barriers adopted since last few decades are import and export tariffs, export subsidies, technical barriers and quotas. Time has witnessed great economic developments and sharp changes in living standards. This development can be attributed towards globalization and liberalization of international trade due to technological developments and concerted efforts to reduce trade barriers.

Trade liberalization or Trade Openness has direct and indirect positive effects on economic growth by enhancing technological transfers, productivity, infrastructure, investment, market exposure, employment, mobility of factors, etc. Trade openness increase economic growth and support quality production by providing access to a competitive environment for investment and industrial production. However for less developed conventional economies which mostly depend upon agriculture sector the export performance didn't nourish under trade liberalization. The main reason behind this is the concentration of economic growth on agriculture output which is interconnected to climatic and periodic conditions and usually has high risk of uncertain agro-production unlike industrial production.

Trade liberalization policies enhance the production yield of economy and encourage specialization by producing those commodities in which country have comparative advantages. Furthermore exchange of information, technology and quality enhances the competition and overall productivity. Trade openness has great potential to create new investment opportunities by providing free mobility of capital. Open economies are more capable to utilize economies of scale and directed to large scale investment requisite to less developed nations.

Geographically Pakistan is surrounded by landlocked countries like Afghanistan and the Central Asian States. Pakistan plays a vital role as trade transit trade for smooth and rapid courses of trade across borders. To improve transit trade traffic through the region Pakistan is in compliance with the historic Transit Trade Agreement with Afghanistan, as well as other transit agreements has been established with different countries like the Transit Trade Framework Agreement with ECO countries and a Quadrilateral Agreement with China, Kyrgyzstan, Kazakhstan, are being implemented following the rules of WTO (GATT Article V).

The effect of trade liberalization on bilateral trade is uncertain and ambiguous due to its diverse impact on different sectors and capital intensiveness of industry which works both ways increasing and decreasing bilateral trade through enhancement of production activities and labor substitution mechanism. This study aims to empirically investigate the effect of trade liberalization on bilateral trade of ECO countries. These countries have similar religious, customs and traditions as well as closely bound with many trade agreements. But from several decades these countries have facing several challenges that also effects their bilateral trade and investments. That's why this study will not only add to existing literature but also some valuable suggestions for policy makers to enhance bilateral trade among these countries. Further, this study will also emphasize to find the causal link among the bilateral trade of study countries.

This study will be great assistance for understanding the role of trade openness in economic development and growth of ECO Countries. International trade and economic growth are interrelated phenomenon, increase in economic growth creates surplus output that leads to increase export earnings and thus that foreign exchange is utilized in purchasing imports. In short economic growth leads to higher trade earnings while at the same time foreign trade contribution improve economic growth and development. So this study highlights the main factors affecting these two crucial macroeconomic variables and their impact on each other as well.

Being struggler in the race of the world economies, ECO countries has to adopt liberalization police to pace up its development and grab the advantages of free international market. But at the same time it's a less develop country with poor industrial base and has to protect domestic industry by providing incentives in the form of subsidies as well as protection in the form of import quotas and tariffs. The study will focus on providing suggestions to tackle this issue by signifying advance measures of trade liberalization which would nourish economic growth and domestic investment under free trade environment by doing so both quantity and quality of overall economic output could be enhanced. The study will hopefully

provide guideline and will benefit future researcher, micro and macroeconomic agents and policy makers.

2. Literature review

Generally perceived that trade liberalization or trade openness have noteworthy effect on the international trade as well as generate a competitive environment for the countries to improve the quality and quantity of the products to enhance increase in their exports and foreign trade (Ravallion, 2004). Openness of trade is one of the apparent characteristics of economic growth and definitely an important element to its defining distinctiveness. That's why many researchers have attempted to evaluate the effects and importance of trade openness in economic growth. Mixed literature been exists regarding to trade openness and its possible effect. Some empirical studies support positive effect, some negative while some studies didn't found any significant effect of trade openness or liberalization policies. Some of the economist suggests that developing countries can gain much from international trade, while other have doubtful believe on the gain from foreign trade.

This study is different in two ways; firstly, a vast number of studies exist on the role of trade openness in different countries, but none of the study on ECO countries. Secondly, approximately all of the studies focused on the effect of trade openness in economic growth, but this study evaluating the role of trade openness in bilateral trade flows of ECO countries. This topic is gaining much interest because foreign trade is the active element of growth and development and those countries whose international trade is high (i.e. China, Germany, France, Korea, Japan, USA etc.) their growth is also high. That's why this study is focusing on the role of trade openness in bilateral trade flows of ECO countries as these countries are strongly linked with each other by politically, socially, religiously, morally and economically. A brief description of some of the past literature regarding to trade openness and bilateral trade flows are given below.

Vedpal and Sudesh (2004) examined the long run relationship between trade openness and economic growth for India. The study used cross sectional data covering the period of analysis from 1951-2002. In methodology of the study Vector Auto Regressive (VAR) model, Error Correction Model (ECM) and Granger Causality test were used to find out long run relationship between trade openness and economic growth. The study found significant and positive long run relationship between trade openness and economic growth with increasing performance of growth for India.

Dritaski and Adamopoulos (2005) investigated the impact of trade openness, exports and imports on economic growth of Greece. The study used annual time series data for the period of analysis from 1960- 2002. In methodology of the study co-integration method was used to examine the long run relationship between exports, imports, Foreign Direct Investment (FDI) and economic growth. The results obtained from the regression analysis of the study revealed that Foreign Direct Investment (FDI), exports and foreign trade had positive significant impact on long run economic growth of Greece maintaining their smooth and steady state level. Dritsaki (2004) attempted to analyze the relation between exports, investment and economic growth among European Unions, Bulgaria and Romania applying co-integration, Granger Causality and multi-variate Vector Auto-Regressive (VAR) Model. The result indicates that there is strong causal relation among exports, investment and economic growth of these countries. Dritsaki and Adamopoulos (2004) investigated the causal relation between foreign trade, Foreign Direct Investment (FDI) and economic growth for Greece using time series data from 1960-2002. The study found long-run causal relation among trade, foreign direct investment (FDI) and economic growth applying Johansen co-integration and Granger Causality test. Dritsaki, Vazakides and Adamopoulos (2004) empirically examined the effect of exports and investment on economic growth for three 3BALTIC Countries using panel data from 1992: I – 2000: IV. The study found encouraging long-run effect of exports and investment on economic growth of BALTIC countries applying co-integration test and tri-variate Vector Auto-Regressive (VAR) Model.

Adebiyi and Ros (2006) empirically investigated the relationship between trade openness, trade policies and economic growth of Nigeria. The annual time series data was used in the study covering the period of analysis from 1970-2005. Vector Auto-Regressive (VAR) technique was applied in the methodology as analytical techniques. The results obtained from the regression analysis and estimation of variables reveals that trade openness had significant and positive impact on Nigeria's economic growth.

Achay (2006) studied trade flows among different countries of the world. The study used panel data for the five sub-periods on yearly basis from 1970-2000. In methodology of the study Trade Gravity Model was applied to find out trade flows relationship among 126 different countries of the world. The results obtained from the study showed that bilateral trade flows had positive and significant impact for these 126 selected sample countries with each other fetches to momentous increase in their growth from bilateral trade.

[3] Estonia, Lativa and Lithunia

Thai (2006) examined the bilateral trade flows among Vietnam and twenty-three (23) European Countries. The study based on panel data covering the period of analysis from 1993-2004. In methodology Trade Gravity Model was applied to empirically estimate trade potentials of Vietnam and its bilateral trade flows with selected sample of 23 European Countries. The results obtained from the regression analysis of the study indicate that economic growth, exchange rate and market size played noteworthy role in bilateral trade flows among Vietnam and its trading partners of European Countries.

Khan and Bashir (2007) examined the impact of trade labialization on economic growth of Bangladesh. The cross sectional data was used in the study covering the period of analysis from 1974-2002. In methodology of the study Johnson co-integration and Error Correction Model (ECM) were applied to empirically investigate short run and long run relationship among physical capitals, real interest rate, trade openness and economic growth of Bangladesh. The findings of the study revealed that physical capitals and real interest rate had significant and positive impact on Bangladesh's economic growth in long run, while financial liberalization in short-run. The study concluded that main reason behind long run failure of financial liberalization policies of government was that, the government of Bangladesh didn't attract foreign and new investment in their domestic investment. In policy recommendation they suggested that Bangladesh government should need to bring improvement in their infrastructure, way of governance, better and friendly climate for foreign investor and reforms in liberalization policies to get full fruit from trade openness.

Erdem and Nazliglu (2008) investigated the bilateral trade flows determinants of agriculture exports between Turkey and European countries. The panel data was used in the study covering the period of analysis from 1996-2004. In methodology of the study Trade Gravity Model was applied to explore and estimate the variables of bilateral trade flows for exports of agriculture sector of Turkey. The study found that agriculture exports of Turkey were positively correlated with European Union (EU) countries. The results obtained from the regression analysis of the study revealed the positive and significant effect of bilateral trade flows on imports population, Turkish's people living in European Union (EU) countries and size of the economies, whereas, negatively correlated with geographical distance and transportation's cost.

Ahmed (2010) estimated the role of trade openness in relation with institutional change and its effect on economic growth using panel data for 133 countries, taking period of analysis from 1985-2009. The growth model was used in the study and regressed through Generalized Method of Movement (GMM). The results revealed that trade openness and

institutional change has robust affirmative and vital effect on economic growth especially for developing countries. The study also found significant effect of trade openness on the per-capita economic growth. Surprisingly, the co-efficient value of trade openness and institutional change were different when regressed on the real and current values of growth for the selected sample study countries.

Zaman, et. al., (2010) attempted to empirically examine bilateral trade impact between Pakistan and Turkey. The panel data was used in the study covering the period of analysis from 1990-2008. In methodology of the study Trade Gravity Model was applied to explore the bilateral trade flows between Pakistan and Turkey. The results obtained from the regression analysis of the study showed strong relationships between bilateral trade flows and economic growth for both Pakistan and Turkey and weak relationship between distance of these two countries and bilateral trade flows. In recommendations of the study they suggested that bilateral trade between these two countries needs more boost up and upgrading for achieving the prosperous economic growth.

Hsin-yi (2010) re-examined the impact of trade openness and inflation on economic growth of selected sample of one hundred and six (106) countries. The study used panel data for the period of analysis from 1970-2007. In methodology of the study Johnson co-integration and Vector Auto Regressive (VAR) model were applied for the estimation of results. The study found that trade openness has positive and significant impact on economic growth for selected sample of included studied countries. Further, the study also analyzed that inflation had negatively associated with trade liberalization and economic growth of these selected sample countries.

Malik and Chaudhary (2012) empirically analyzed the trade openness, trade policies, bilateral trade flows of exports and imports among some selected Asian countries and Pakistan. The study based on panel data over the period of analysis from 1996-2006. The Trade Gravity Model was used in the methodology and regressed through Generalized Least Square (GLS) method for the estimation of variables. The results obtained from the study revealed positive and significant impact of trade flows (exports and Imports) between Pakistan and selected sample study of Asian Countries. The exchange rate also played a crucial role in increasing and determining the exports and imports of Pakistan and selected sample of Asian countries. Further, the study examined that current year trade flows had strongly correlated with and affected by previous year trade flows.

Ulasan (2012) empirically investigated the relationship between trade openness, international trade and long-run economic growth for Turkey using cross sectional data for the period of 1960-2000. For regression analysis the simple Ordinary Least Square (OLS) technique were used with applying instrumental variable. The model was double log to reduce the variance and error estimation in the data. The results showed positive and significant effect of trade openness and international trade on long run economic growth for Turkey. Further, the study suggested that in economic growth of Turkey the other variables like population density, institutions, geography and economic stability also played a major role.

Mercan, et. al., (2013) studied the impact of international trade and trade openness on economic growth of BRIC-T [4] countries. The study regress panel data and the period of analysis were from 1989-2010. The results of the study revealed that foreign trade (exports and imports) and trade openness had positive and significant effect on economic growth of these emerging countries.

Shaista, et. al., (2013) empirically investigated the bilateral trade flows of Pakistan with five (05) major trading countries.[5] The study used panel data for the period of analysis from 1990-2010. In methodology of the study Trade Gravity Model was used for the analysis and estimation of the variables. The results obtained from the regression analysis of the study found positive and significant association between bilateral trade flows and Gross Domestic Product (GDP) of these countries. The results of the study also showed the negative impact of Distance and Dummy variables used for culture similarities on economic growth of these selected samples of countries.

Tabari and Haghight (2014) attempted to analyze the bilateral trade relationship among Iran and forty-five (45) Asian countries. The study was based on panel data covering the period of analysis from 2001-2011. In methodology of the study Trade Gravity Model was used and regressed with the help of Pooled Estimated Generalized Least Square (EGLS) based on Random effect and fixed effect Model. The results obtained from the regression analysis of the study revealed that bilateral trade flows of Iran had positively correlated with selected sample of 45 Asian countries leads to an increasing the Iran's exports and imports that have noteworthy impact on economic growth of Iran. Further, the study found that increase in real exchange rate has negative impact on the exports and positive on the

[4] Brazil, Russia, India, China and Turkey.

[5] Japan, Turkey, Malaysia, India and Iran according to the researchers of the paper.

imports of Iran. Due to fluctuation in exchange rate the exports of Iran decreases and its imports increases during the selected period of analysis of the study.

Elshehawy, et. al., (2014) investigated the bilateral trade flows and exports among Egypt and its trading partners (42 countries). The study was based on panel data for the period of analysis from 2000-2013. In methodology of the study Trade Gravity Model was applied to estimate the impact of exports for Egypt. The results obtained from the regression analysis of the study showed that exports of Egypt, regional trade and importer's population had positive and significant effect on Egypt's economic growth. The study also found the negative impact of transportations cost and geographical distances on the Egypt's economic growth.

3. Econometric Model and Specification

For the development of econometric model the idea was taken from the earlier studies of studies of (Burger, et. al., 2009; Kolstad, 2009; Mehlum, et. al., 2006; Santos, et. al., 2006; and Moulton, 1986). As this study aims to empirically investigate the role of trade openness on the bilateral trade of ECO countries, therefore, the model used consists of multiple properties of the variables i.e basic trade variables, proxy variables, characteristics variables and specification variables. The general form of the model is

$$BT_t = \beta_0 + \beta_1\omega_t + \beta_2\kappa_t + \beta_3\phi_t + \beta_4\theta_t + \eta_t \quad (1)$$

Here BT represents bilateral trade among ECO (Pakistan, Turkey and Iran) countries, "ω" represents the basic growth variables, "κ" represents the proxy or dummy variables, and "φ" represents characteristics variables and "θ" specification variables. "t" represents the characteristics of data that is time series.

The general theoretical model following the model (1) for the ECO countries be in the form of

$$BT = (X, M, TOP, ER, TOT) \quad (2)$$

Here, "BT" is the [6]bilateral trade, "X" are the exports of each ECO country, "M" is the imports, " TOP" is the trade openness, "ER" is the real effective exchange rate and "TOT" is the terms of trade.

The econometric model following the theoretical model (2) is in the form of

$$BT_t = \beta_0 + \beta_1 X_t + \beta_2 M_t + \beta_3 TOP_t + \beta_4 ER_t + \beta_5 TOT_t + \eta_t \quad (3)$$

Data Description and Analysis

The data used in this study is annual time series data obtained from different sources i.e. World Data Indicator (WDI), Pakistan Bureau of Statistics, The global economy, World economy, World Bank and Trading Economics.

4. Methodology, Results and Discussions

Table (1) shows descriptive statistics and results of Jarque-Bera normality test for Pakistan, Turkey and Iran. Standard deviation is high in case of Turkey, medium in case of Pakistan and lower and close to mean value of Iran. Tough it is complicated to interpret the skewness value and it may be negative or positive and shows the probability of distribution of random or error term. The results integrated in table (1) indicate that the skewness in the data of Pakistan and Turkey is negative while positive in case of Iran. The results of Jarque-Bera test incorporated in table (1) indicating the normality of data used in this study for all the three ECO (Pakistan, Iran and Turkey) countries.

Table 1. Descriptive Statistics and Normality Test

	For Pakistan	For Turkey	For Iran
Mean	-6.153714	-4.738236	3.543615
Median	7.432964	-2.314748	-4.197542
Maximum	109.2846	106.0085	59.01285
Minimum	-104.3991	-153.7022	-38.47917
Std. Dev.	52.28473	64.50466	23.21462
Skewness	-0.121988	-0.201342	0.804739

[6] BT is obtained by adding the foreign trade of ECO countries to each other (among) only (Pakistan, Turkey and Iran).

	For Pakistan	For Turkey	For Iran
Kurtosis	2.394527	2.802469	3.459389
Jarque-Bera	0.514897	0.243084	3.385094
Probability	0.773021	0.885554	0.184050
Observations	36	36	36

The data is also test for unit root by applying Augmented Dicky-Fuller test as unit root and non-stationarity had remains one of the keen suspicious for researchers and economist especially in time series data. The results of ADF test incorporated in table (2) shows that some variables are stationary at I(0) and some are at I(1).

Table 2. Unit Root (Augmented Dicky-Fuller) Test Results

Variables	For Pakistan		For Turkey		For Iran	
	At Level	*1st Difference*	*At Level*	*1stDifference*	*At Level*	*1stDifference*
Bilateral Trade	-1.515662	-4.083325*	---	---	---	---
Exports	-0.843435	-5.713608*	-1.807383	-6.139153*	-3.736127*	-6.762772*
Imports	-2.339358	-5.207517*	-3.423833*	-5.195161*	-2.408032	-5.929501*
Trade Openness	-3.714832*	-6.263890*	-1.716254	-4.343162*	-3.282734*	-6.573651*
Exchange Rate	-1.717455	-4.546345*	-2.774761	-5.716765*	-1.372615	-4.877385*
Terms of Trade	-1.037125	-3.815054*	-3.638712*	-5.363532*	-1.913876	-3.892853*

(*) shows rejection of Null Hypothesis (unit root) at 5%

It is noticeable that a minor modification in specification or assumptions might greatly influence the outcomes of the unit root test and as a result, a stationary time series might become non stationary series and vice versa (Chowdhury and Shrestha; 2005). Therefore even though if the stationary of the data is determined by the unit root test and every variable is found to be non-stationary, yet there remains a risk of misspecification. From this point of view, ARDL is the most suitable integration technique, as stationarity of variables relies on the various unit root test applied: various approaches could produce differing outcomes that influence the robustness of outcome. Like for instance Pesaran et al (2001), the dependent variable should be integrated of order one however the independent variables could be I(0) or I(1).

The major emerging power and economic strength of any developing economy is its exports, as they are the main source of foreign exchange earnings which are necessary for financing imports of a developing country with deficient capital. Similarly imports are also indispensible for establishing local infrastructure and capital formation of an emerging

economy as well as necessary source of input for manufacturing of exportable. Therefore, trade is a most important determinant of economic growth. Trade pattern and development progression are reciprocal, nature and pattern of trade transforms with phases of development. On the road of development, in beginning an economy typically exports primary commodities and imports consumer goods, however with progression, exports transformed to manufactured goods and imports to machines and technological equipments.

To empirically examine that does trade openness playing any considerable role in bilateral trade flows of ECO countries, the ARDL model that is regressed for regression analysis of the variables data for Pakistan, Turkey and Iran are;

$$BT_t = \beta_0 + \beta_1 X_t + \beta_2 M_t + \beta_3 TOP_t + \beta_4 ER_t + \beta_5 TOT_t + \sum_{t-1}^{t=n} \alpha_0 \Delta BT_{t-1} + \sum_{t-1}^{t=n} \beta_1 \Delta X_{t-1} + \sum_{t-1}^{t=n} \beta_2 \Delta M_{t-1} + \sum_{t-1}^{t=n} \beta_3 \Delta TOP_{t-1} \sum_{t-1}^{t=n} \beta_{10} \Delta ER_{t-1} + \sum_{t-1}^{t=n} \beta_{13} \Delta TOT_{t-1} + \mu_t \quad (4)$$

The above model (4) is regressed by applying ARDL technique for regression analysis of the variables data separately for Pakistan, Turkey and Iran and the results obtained are integrated in table (3). The overall performance of the model is satisfactory as the value of Prob. F-stat is (0.00000) for ECO countries. The value of Durbin-Watson is also very close to the desired value for the entire models and shows negligible chances of serial and auto-correlation in the data. Further, the R^2 value for all the model is more than ninety percent indicating that the model successfully explains more than ninety percent variation between dependent and independent variables confirms goodness of fit of the models.

Table 3. Regression Analysis of the Variables Data

Variables	For Pakistan	For Turkey	For Iran
Constant	0.145687** (0.062374)	0.299837*** (0.154533)	0.132731* (0.053214)
Exports	0.179591* (0.063156)	0.250543** (0.129158)	0.122064* (0.078262)
Imports	0.192061** (0.074051)	0.278432* (0.048608)	0.149705* (0.084078)
Trade Openness	0.172469* (0.046321)	0.126713* (0.067920)	0.136582** (0.072371)

Variables	For Pakistan	For Turkey	For Iran
Exchange Rate	-0.112563* (0.045786)	-0.232213** (0.059178)	0.265076** (0.095540)
Terms of Trade	0.122373** (0.053815)	0.310126*** (0.045171)	0.174065*** (0.078219)
Lag of BT(-1)	0.351522* (0.109295)	0.295256*** (0.114247)	0.365090** (0.136532)
R-Squared	0.978875	0.980163	0.977431
Adj. R-Squared	0.974473	0.969142	0.965768
Durbin Watson	1.916885	1.918600	1.894108
Prob. F-Stat	0.000000	0.000000	0.000000

(*), (**) and (***) showing significance at 1%, 5% & 10% respectively.

Trade openness reveals the intensity of foreign trade policies of any economy regarding trade regulations and restriction for the rest of the world. Most of the government regulations especially economic policies are reciprocal. Therefore by imposing some kind of restriction in form of tariffs or quotas by a country to protect domestic industry will restrain other countries to export to the imposing country and will also decrease its imports from the same country. However trade openness or trade liberalization in general is considered to be progressive and beneficial for economic development of any economy but it is constrained by the level and condition of economic growth of any economy. Trade liberalization works in a constructive way if the economy is competent in quality production of much exportable merchandise however for less developed countries that are incompetent in manufacturing sector and relies on conventional agriculture sector and imports from other countries cannot easily grab the advantages of open economy.

As the primary objective of this research study is to empirically examine the role and impact of trade openness on trade flows of ECO countries. The results integrated in table (3) shows that trade openness have positive, momentous and significant effect on bilateral trade flows among the ECO countries. Further, the study also finds that exports, terms of trade and exchange rate also playing an important role in trade flows of these countries.

It is a fact that exports play an important role in economic growth of country with highest potential of employment provision. The economic growths of country in open economies are directly associated to expansion of export and export works as locomotive for economic growth. To meet the requirements of ongoing trends in international market and fashion, indispensible concentration must be paid to this sector. Besides tough competition from international market, this sector also has the capability to make its stand in the world

market by furnishing this sector with latest technology and by exploring demand trends in different regions. The empirical results obtains from regression analysis of ARDL approach integrated in table (3) shows that exports plays positive and significant role in bilateral trade flows in ECO countries.

Imports of a nation are exports from the rest of the world. Exports by a country are imports for the rest of the international market. Economies import products which are unfeasible or inefficient to produce domestically in other words those products in which the country has comparative disadvantage. While export merchandize in which a country has comparative advantage in its production or have abundant resources to produce it. Imports were considered to be expenditure of an economy's budget in post liberalization era but soon world economies realized the importance and value of imports in accomplishing the requirements of growing economic development. Thus protectionist's policies were sidelined in the interest of economy and promote acknowledgement of technical and resource diffusion from developed economies. Infrastructural and economic growth of developing economies greatly depends upon the imports of machinery and capital inflow from abroad. As most of traditional LDC's are labor intensive economies with inadequate capital therefore to exploit natural resources through labor force, LDC's intensely need to import capital and infrastructural inputs to establish and develop industrial base which is key determinant for development. The empirical results of this study show that imports have also an influential and affirmative role in bilateral trade flows of ECO countries.

Exchange rate or foreign exchange rate is the ratio between the currencies of two countries, or in short it is the value of currency of an economy in terms of another. Foreign exchange rate can be either expressed as value of foreign currency in terms of domestic currency (direct quotation) or as value of domestic currency in terms of foreign currency (indirect quotation). Exchange rate plays vital role in determination of key foreign trade transactions. The results given in table (3) indicate encouraging role of exchange rate in bilateral trade flows of ECO countries.

Terms of trade (TOT) is simply the comparative value of exports in terms of imports and is described as the ratio between prices of export and prices of imports. In other words it is inferred as the quantity imported by an economy against per unit of export merchandise. An improved term of trade is advantageous for the economy, as it can purchase more imports for some certain amount of exports. The terms of trade might be inclined by the exchange rate as an increase in the rate of a economy's currency decrease the import prices domestically however doesn't directly influence the export prices of the country. The

empirical results of this study capture the affirmative role of terms of trade in bilateral trade of ECO countries.

Moreover, this study also inspects the long-run relation of variables included in the model by applying the Bound Testing Approach. The Null Hypothesis is $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$, assuming that there hasn't exists any long-run relation among the variables. In contrast the Alternative Hypothesis showing the existence of long run relation, that is $\beta_1 \neq 0$, $\beta_2 \neq 0$, $\beta_3 \neq 0$, $\beta_4 \neq 0$, $\beta_5 \neq 0$. The hypothesis is tested through bound testing approach comparing the F-stat value with Pesaran test values (Pesaran, et. al., 2001). If the F-statistics value is greater than critical value of upper bound assume by Pesaran test, showing rejection of the null hypothesis (Pesaran, et. al., 2001). The result of bound testing approach given in below table (4) shows that long run relation exists between trade openness and bilateral trade flows among the ECO countries.

Table 4. Bound Testing Approach Results (Null Hypothesis: No long-run relationships exist)

	For Pakistan	For Turkey	For Iran
F-statistic Value	7.511608*	5.663195*	4.134416*
I0 Bound Value	2.86	2.62	2.62
I1 Bound Value	4.01	3.79	3.79

(*) shows rejection of Null Hypothesis (unit root) at 5%

Diagnostic and Stability Analysis

To check the stability and reliability of the models this study applied different stability and diagnostic tests.

To check the serial correlation and Heteroskedasticity, Breusch-Godfrey Serial Correlation LM Breusch-Pagan-Godfrey Heteroskedasticity tests were applied and the results integrated in table (5) and (6) indicate that the model is free from serial correlation and confirming the stability and reliability of the models.

Table 5. Breusch-Godfrey Serial Correlation LM Test Results

	For Pakistan	For Turkey	For Iran

	For Pakistan	For Turkey	For Iran
F-statistic	0.535411	0.022428	0.060007
Obs*R-squared	1.718452	0.038209	0.108357
Prob. F(1,19)	0.5950	0.8827	0.8096
Prob. Chi-Square(1)	0.4235	0.8450	0.7420

Table 6. Breusch-Pagan-Godfrey Heteroskedasticity Test Results

	For Pakistan	For Turkey	For Iran
F-statistic	7.511608*	5.663195*	4.134416*
Obs*R-squared	2.86	2.62	2.62
Scaled explained SS			
Prob. F(11,17)			
Prob. Chi-Square(11)			
Prob. Chi-Square(11)	4.01	3.79	3.79

Further, for the specification error and biasness Ramsey RESET tests were applied and the results incorporated in table (7) shows that the model is free from specification error.

Table 7. Ramsey RESET Test Results

	For Pakistan		For Turkey		For Iran	
	Value	*Probability*	*Value*	*Probability*	*Value*	*Probability*
t-statistic	1.679187	0.1376	1.214387	0.1735	0.905988	0.3748
F-statistic	1.89479	0.1376	1.788702	0.1735	1.632791	0.3748

Conclusion and Policy Recommendations

The primary objective of the study is to empirically examine the role of trade openness on bilateral trade flows of ECO countries that are closely connected by socially, politically, economically, religiously, culturally and with many terms and agreements. The study found that trade liberalization has momentous effect on the bilateral trade flows of these countries and concluded that these countries needs to make strong alliance of trade among each other. Further, trade specialization and trade integration with skilled labor and technical transfer is needed to get maximum fruits from trade openness. Moreover, the

empirical results also showed that exports, imports, exchange rate and terms of trade has also positive and significant role in bilateral trade flows of ECO countries.

Trade policies and trade openness takes an important part and focusing analysis from several decades in developing countries. Due to sharp increase in economic growth of many developing countries after adopting trade liberalization policies majority of low economic growth and developing countries coincides their hopes for rapid economic growth with trade openness and trade policies. Trade policies may boom and speed up the process of economic growth that leads to economic development of that country. As trade liberalization is considered as "an engine of economic growth", that's why ECO countries too keeping the importance of trade liberalization had adopted and exercised different trade policies to gain maximum fruits from foreign trade.

Globalization of world economies and world trade brought the foreign trade of ECO countries under tough competition, with speedy developments in technology and modernism, each country has to maintain its standards in accord with the rest of the world industries. It is immense need of any economy to focus on modification structural and policy measures to flourish industry and stand in competition with world market standards. Available resources of ECO countries should be utilized in such an efficient way so that human capital and prevailing economic determinants can be adjusted to bring about required structural transformation of industry for acceleration of the export industry and thus foreign exchange reserves.

Policy Recommendations

A country's economic development and stand in the world economies can be fairly judge by its contribution in international trade, or it is worth saying that contribution in international trade is the indicator of an economy's performance and its level of fabrication. From the empirical analysis of the bilateral trade flows, this study recommends following suggestion that may bring significant increase in the exports of these countries that will lead to decrease in trade deficit and an augment to growth of ECO countries.

- To reform its custom and trade procedures by focusing on diminishing time and cost of trade transaction.
- To provide a suitable atmosphere for international trade practices following World Custom Organization (WCO) Framework of Standards.

- There is need of an incorporated, online, automatic, immediate functioning system to effectively work for Customs clearance.
- Public-Private Partnership (PPP) envisages assimilating all stakeholders concerned with international trade and the logistic supply chain.
- Facilitates public sector organizations as well as private sector trade bodies dealing with commerce and industry for customs, trade, transport, insurance and finance activities.
- To encourage implementation of standard international codes of trade and transport terminologies for trade and transport legislation as an effort to be in equivalence with the best of the world.
- To improve export competitiveness, speed up industrialization and maintain the high economic growth and to significantly decrease the expenses of doing trade and commerce in ECO countries.
- Considerable efforts need to explore the markets for trade of ECO production in the world market.
- To support trade logistics by systematic modification of infrastructure and services.
- Restrictions on inflow and outflow of capital need to be minimized or removed to promote foreign direct investment among ECO countries.
- Need of free floating foreign exchange system determined by market forces.

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NATIONAL COMPETITIVENESS THROUGH THE EUROPE 2020 STRATEGY AND HUMAN DEVELOPMENT INDEX IN CEE COUNTRIES. A PANEL DATA ANALYSIS

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DOI: 10.1515/tjeb-2016-0008

In the new innovation economy, national competitiveness is an expression of the quality of the human capital and of the capacity to attract and retain the talent. In this paper, we propose to verify the link between the national competitiveness and the human capital, measured by the public expenditure on tertiary education and by the public expenditure on research and development. The research methodology uses the Panel Data method for Central and Eastern European countries by analyzing data on competitiveness scores in the Europe 2020 Report 2014, the Human Development Index 2015, the Global Competitiveness Report 2016 and those on public expenditure on tertiary education and by the public expenditure on research and development, corresponding to the period 2010-2014. The objectives of this paper are: synthesis of theoretical delimitations on competitiveness, highlighting the relationship between national competitiveness and human capital, testing this relationship for the case of Central and Eastern European countries. The results show a significant and a positive relation, indicating that investment in education and research contributes significantly to increasing the national competitiveness. The obtained results draw attention to the fact that Central and Eastern Europe countries need to initiate measures to reduce the drain-brain phenomenon and to create a favorable socio-economic context for retaining and attracting the talent.

Keywords: **Competitiveness, Human capital, Education, Panel data analysis**

JEL Classification: **I25, I31, C23**

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1. Introduction

The dynamics of the global economy, the speed of the human evolution and the increased aspirations for higher standards of living, have determined the concerns on the possible solutions for economic progress and civic welfare. Thus, competitiveness has become the binder of many social, economic and political factors, which enhance the ability of nations to produce and to distribute the welfare among their population.

Competitiveness is one of the largest and most debated concepts in the contemporary economy, due to the multitude of meanings and interactions that define it. At the theoretical level, competitiveness does not have a precise meaning, unanimously accepted. Over time, scientific debates have put the equal sign between competitiveness and productivity, growth and economic development, national wealth, globalization, sustainable development or ability to sell national economic goods on international markets.

The origin of the concept of competitiveness is in the theory of foreign trade, but the economic development has expanded its features in relation to the rapid changes in technology, the scale of globalization and economic liberalization.

Currently, the world economy is under this "race test" called competitiveness. The world states are seeking to capitalize on the unique factors that can lead to an increased level of well-being.

The current trends in the global economy show that focusing efforts to improve the quality of human capital is the optimal solution for progress towards the new innovation economy. In this regard, the importance of the human factor in determining the share of the competitive level of nations has increased significantly. As innovations increase market competitiveness, the national competitiveness level increases too. The source innovation is the human factor and the investment in his education, and research and development ensure a greater competitive potential.

Given the fact that the Europe 2020 Strategy focuses on the importance of human capital in four out of the five objectives for increasing competitiveness, we consider that Central and Eastern European countries need to make further efforts to achieve the national targets and to increase the quality of the labor force. In other respects, the importance of this concern lies in the fact that quality of the labor force, education and the innovative potential are the future leading vectors of the national competitiveness. In this respect, the present paper is a further proof of this fact, and it also has the role of highlighting the possible benefits as a result of increasing human capital through all the aspects that characterize it.

In order to achieve the proposed objectives, the paper concentrates the topics of national competiveness, human capital and national competitiveness scores in two main parts. The first part of the paper puts the foreground the main approaches of the national competitiveness and reveals its plurivalent character from the influence factors perspective. The European Competitiveness Strategy 2020 is presented briefly in the light of its strategic priorities and from

the human capital vision. The link between national competitiveness and human capital is highlighted by the characterization of the Human Development Index, its components and the links between them.

The second part of the paper examines the relations between the competitiveness scores of the Central and Eastern European countries in the Europe 2020 Report 2014, the Human Development Index 2015, the Global Competitiveness Report 2016 and the data on the public expenditure on tertiary education and by the public expenditure on research and development, corresponding to the 2010-2014 period.

The last section of the paper discusses the results obtained and offers some future research lines on how human capital, through all its components, influences the national competitiveness.

2. Multicriterial Approaches Of Competitiveness

The economic debates had always the aim to identify the opportunities of economic efficiency growth of a nation, even if it did not always have a precise reference to the term of competitiveness. The need for competitiveness in a market-based economy is a stringent one, competition being an important part of the economic activity. The economic integration and the globalization have involved a permanent development of the competitive power, thus competitiveness having an increasingly larger importance and a complex significance.

The concept of competitiveness did not receive a unanimous or uniform approach. This has led to increasing the concept complexity and to its multidimensional understanding. Offering some exhaustive definitions and criticism of the concept is a difficult task, given its numerous approaches.

The academic definitions highlight some of the main delimiting lines of the concept: a) competitiveness as productivity; b) competitiveness as the ability of nations to enter the international competition in terms of trade; c) competitiveness as a nation's welfare; d) competitiveness as a social and economic objective.

In a general sense, competitiveness is defined as "the capacity of a country, measured by comparison with other countries, to train and to ensure an economic, social and political level to support the creation of added value" (Pauna, Iordan, Chilian, 2013). Hence, national competitiveness must be treated "in relative and not in absolute terms" (Berger, 2008), just so it can be "a basis for comparison" (Berger, 2008) for other nations.

In relation to productivity, competitiveness is "a set of institutions, policies and factors that determine the productivity of the country" (WEF, 2009), measured by the share of these indicators in the national economy, or "a way of expressing the aspiration for prosperity and productivity a country "(WCY, 2015).

Pair sense of competitiveness and productivity is seen in the works of Porter, Krugman or Kohler. In Porter's view, the productivity plays a decisive role in training all the determinants of competitiveness, both at the micro and macro level.

At the same time, Krugman believes that the potential of "a country's ability to improve, while living conditions, depends almost entirely on the ability to increase the production per worker" (Krugman, 2004).

Kohler understands competitiveness as the absolute level of productivity, which generates welfare of a nation, international trade contributing in this direction.

Competitiveness as the ability of the nations to enter the international competition trade has been defined as:

- "Competitiveness in terms of international trade, measure the advantages and disadvantages of a country in the process of selling goods on international markets" (Organisation for Economic Co-operation and Development, 2016);
- "Competitiveness is the ability of companies, sectors, regions competing internationally to ensure a sustained income from the relatively high capitalization of labor" (OECD, 2012);

At the same time, competitiveness has been defined also in terms of ability to create national wealth. Thus, Karl Aiginger treats competitiveness as "the ability to create wealth" and evaluate it "in sense of results" (outcome competitiveness) and in "sense of processes" (process Competitiveness) (Aiginger, 2006). Outcome competitiveness concerns the welfare of a nation characterized by low income per capita, by social indicators and the distribution size, and by a set of environmental indicators. Process competitiveness is defined by quantitative and qualitative factors that generate it, emphasizing the physical capital, labor, the technological progress, the institutions quality and their confidence level.

This approach is also found in Porter's works: "Competitiveness is the ability of an economy to provide a high standard of living of its citizens" (Porter, 2001).

Lastly, competitiveness is defined by its economic and social objectives whose achievement is felt among the population, as standards of living.

Thus, the "competitiveness (...) determines how countries, regions, and companies manage their competencies to achieve long-term growth, and to generate jobs. Competitiveness is, therefore, a path towards progress, which does not end with winners and losers: when two countries compete, both win"(IMD, 2012).

In a more concrete way, competitiveness is "a way to create jobs and to eradicate the poverty" (Competitiveness Advisory Group - Ciampi Group, European Enhancing Competitiveness, The First Report of the President of National Competitiveness Council of Ireland, 1988).

As shown, the general definitions particularly related to the potential to generate national prosperity, higher standards of living and international trade performance. However, the

literature argues that the notion of competitiveness is "amorphous" (Porter, 1990) that relates strictly to economic prosperity, not what determines it.

Economic dynamics of a country is in total dependence on the resources that it has at one time. If technological, material, natural and financial factors, constantly help fuel the economy, human capital is the factor that determines the size of these factors, and their productivity.

Human capital – economic growth relationship is rooted in the works of Adam Smith (1776) and Karl Marx. Although it doesn't provide a concrete way of estimating the value of human capital, Adam Smith (1776) stated in his "Wealth of Nations, that "the country is rich if it has wealthy/ educated individuals", citing that "the improvement of knowledge is a factor of economic progress". In Smith's view, technical capital is and remains resultant human capital, being tangible and measurable; Marx places the value analysis and value creative work out of the qualitative parameters.

Spending on education can be seen both as an investment as well as consumption. Border demarcation between investment and consumption has preoccupied economists (Kiker, 1971, Mincer, 1993; Schultz, 1993), without leading to a total consensus. In general, it was found that human capital treatment and investment, human capital skills can be used virtually anytime, depending on the social and economic environment in which individuals can place at a certain time. Recent studies (Pavlovic, Ljumovic, 2016) focus on investments in young people, through education and work skills, as a priority for achieving a better labor market efficiency and a stronger national competitive potential. Also, the innovative national potential, as a consequence of a high-performance education system, is essential for the sustainable competitiveness of a nation in the context of the characteristics of the current economy (Carayannis, Grigoroudis, 2016).

The most obvious results of the link between education and economic growth comes from studies of Sianesi and Van Reenen (2002); They highlighted the fact that increasing primary school enrollment by 1%, leads to a gross domestic product increase by 2% in less developed countries; the results showed the same in the case of developed countries. The same study revealed that employees with a higher level of education have a greater impact on the company productivity level. Highly qualified employees generate an abundance of knowledge in the company, thereby it increases its capacity for innovation.

3. The European Strategy For Competitiveness

At The European Union level, the policy of increasing the competitiveness involves reaching the national targets set in the Europe 2020 strategy.

Launched in 2010 under the official name 2020: A European strategy for smart, sustainable and inclusive growth, the European program projected the main areas which contribute to economic growth and social development in the context of the innovation economy.

The strategy has three interdependent priorities:

- Smart growth: developing an economy based on knowledge and innovation.
- Sustainable growth: promoting a more efficient economy in terms of resource use, greener and more competitive.
- Inclusive growth: promoting an economy with a high rate of employment, ensuring social and territorial cohesion.

The European strategy for increasing competitiveness, sits in the foreground the human capital factor in two ways: directly, through four objectives: increasing the employment rate, reducing early school leaving, increase the number of the university graduates, reducing the number of people at risk of poverty and social exclusion; indirectly, by the objective of increasing the public expenditure on research and development up to at least 3% of GDP.

The global trends on sustainable development have led to the finding that innovation plays the main role in upgrading the technology and the production processes, and also in the creation of a competitive production system. Based on knowledge and creative ideas, the current economy becomes the innovation economy, as a necessary step for the evolution of the nations.

The characteristics the innovational economy are: high level of education and science, high level of economic freedom, high weight of the innovational enterprises (over 60% of the national enterprises), increased competition in innovation, high living standards, human capital quality.

In this context, the role of the human capital through its innovative capacity, triggers national competitiveness, in the new features of the world economy.

From this perspective, the Europe 2020 Strategy focuses its objectives, investment in education and research and development activities, in order to create a favorable environment for innovative activity in competition conditions.

4. Human Development Index

In 1990 the economist Mahbub Ul Haq initiated the first Human Development Report in order to express the "richness of human life", rather than "the richness of the economy in which human beings live".

Its purpose is to measure the main components that influence the quality of human life and the national living standards. The measure of these components is given by the Human Development Index, resulted in the following indicators: a long and healthy life, access to knowledge and a decent standard of living.

The HDI is the geometric mean of the three-dimensional indices: HDI = (Health, Education, Income). The HDI results range between 0 and 1, 1 being the best and 0 the worst human development human development.

The role of the human capital on national competitiveness is a widely debated theme in the literature, considering several directions: the importance of the education (Smith, 1776 Blaug, 1976, Siannesi, Reenen, 2012), efficiency of the expenditure on education (Schultz 1961, Becker 1964, Mincer, 1970), the relationship between the education and the income levels (Hanushek, Woessman, 2007, 2008, 2011, Barro, Lee, 1993) the relationship between the education and the national capacity to attract foreign direct investment (Mugal, Vechiu, 2011, Lowell, Findley, 2001, Yussof Ismail, 2002, Hanushek, 2016, Badea, 2014, Pelinescu, 2015).

A significant contribution in this regard has Jacob Mincer, by demonstrating the relationship between the economic growth and the human capital, regarded as "a stock of skills and knowledge" (Mincer, 1975, p. 71). It concludes that "the only cost of an additional year of school is the expected return, thus ignoring the direct costs such as tuition fees" (Mincer, 1975, p. 74-78). In the same direction are T. Schultz's analyzes, for which "knowledge is a separate economic value" and the science itself "is a rational activity designed only for those enough trained to understand it" (Liana Badea, Angela Rogojanu, 2015, p.24).

Recognized for numerous works dedicated to the description of the human capital value, Hanuschek reiterates the fact that the differences between the human capital are closely related to differences in the growth rates of nations. It highlights the impact of competitive human resources on economic growth, taking into account factors such as higher education, vocational skills and talents (Eric Hanuschek, 2016, p. 12).

Given the economist's demonstrations who have analyzed the human capital impact on the national economy, it is inferred that human resources are the first factor that enhances the effectiveness of all other determinants of competitiveness.

5. Panel Data Analysis – CEE countries

The Countries of Central and Eastern Europe (CEE) are considered an inhomogeneous group regarding the economic and social environment but also in terms of interim results in the Europe 2020 Strategy's goals achievements.

Precisely for this reason, the EEC Countries were selected to detect the extent of the relationship between the national competitiveness and the human capital.

Research methodology and data

The selected data for analysis correspond to the 2010-2014 period (Eurostat Platform), 2010 being the year in which Europe 2020 Strategy was initiated, and 2014, the last year for which data are available.

The variables considered for testing the connection are oriented on the input factors: Expenditure on tertiary education (EDET), Gross expenditure on Research and Development, as

a percentage of GDP (GERD). The dependent variable is the Human Development Index (HDI), for the same period, 2010 - 2014.

For testing the relationship, we used the Panel Data Cross Sections method.

The estimated equation of the variables can be written:

$$HDI_{it}=\alpha+\beta_1 EDET_{it}+\beta_2 GERD_{it} \quad (1)$$

Where, Cross section (Estonia, Slovenia, Lithuania, Czech Republic, Latvia, Poland, Hungary, Romania, Slovakia, Bulgaria); t - time period (2010-2014); α - intercept; β_1, β_2 - coefficients

To test the relation between the competitiveness and the expenditure on education and on research and development, we used E-Views software. The obtained results are (Annex):

$$HDI_{it}=74.41+4.97EDET_{it}+3.12GERD_{it} \quad (2)$$

The resulted value of the R^2 is 0.78, while the value of adjusted R^2 is 0.76, which means that the relationship between competitiveness and the expenditure on education and on research and development is very strong. The model and the variables are significant at 5% significance level. This means that an increase of the expenditure on tertiary education and on research and development leads to an increase of the national competitiveness. Having these results, we can say that encouraging the education and fighting against the drop out early school, the labor market will become more specialized and efficient. High rate of tertiary educations are able to attract the foreign investors and raise the quality of life for the other citizens.

6. Human Capital impact on national competitiveness in Europe 2020 Strategy, Human Development Index and The Global Competitive Report

To double check the relation between competitiveness and the analysed variables, we tested the Pearson coefficient between the country ranks in the Europe 2020 Strategy Report 2014 and the Human Development Index 2014.

Table 1. The correlation between country ranks in the 2020 Europe Strategy and the Human Development

	N	Pearson	R^2	p	P Value
2020 Europe Strategy rank and Human Development Index rank	10	07891	0.6226	<0.01.	0.007

Source: own calculations

Going further, we have tested the relation between the country ranks in the Europe 2020 Strategy 2014, the Human Capital Index 2014, and the country ranks in the Global

Competitiveness Report 2014. The results confirmed that there is a strong positive correlation between them, meaning that the human capital is the current trigger for the national competitiveness.

Table 2. The correlation between country ranks in the Europe 2020 Strategy and the Global Competitiveness Report and the Human Development Index

	N	Pearson	R^2	p	P Value
2020 Europe Strategy rank and Global Competitiveness Report	10	0.6398	0.4093	<0.05	0.04
The Human Development Index and the Global Competitiveness Report	10	0.6398	0.4093	<0.05	0.04

Source: own calculations

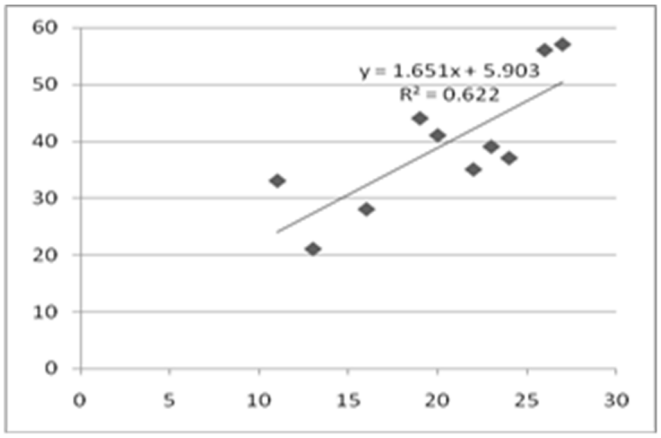


Figure 1. The Human Development Index and Europe 2020 Strategy

Source: own calculations

For the correlation between the Human Development Index and the Europe 2020 Strategy, the Pearson value is 0.78 and the R^2 value is 0.622, highlighting a strong and a direct connection. This means that improving the HDI score leads to a more favorable ranking score of interim results regarding the progress in achieving the Europe 2020 objectives.

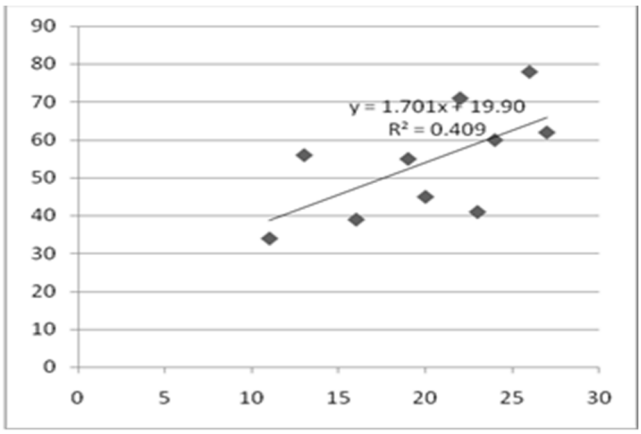


Figure 2. The Global Competitiveness Report and Europe 2020 Strategy

Source: own calculations

Correlating the countries ranks between the Global Competitiveness Report and the Europe 2020 Strategy we discover a positive connection, with the Pearson value of 0.63, and the R^2 value, 0.409. The Global Competitiveness Report contains 12 pillars, of which human capital (education and investment in research and development) is found in 5 of them (Pillar 1. Public and private quality institutions; Pillar 5. Higher education and training; Pillar 7. Labor market efficiency; Pillar 9. Technology, Pillar 12. Innovation).

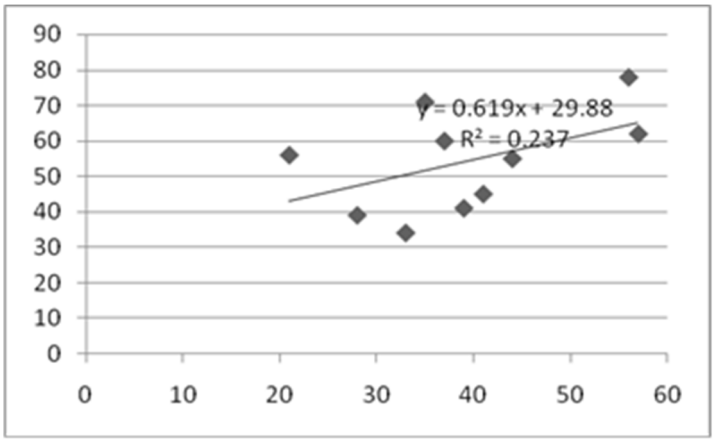


Figure 3. The Global Competitiveness Report and the Human Development Index

Source: own calculations

In the last test, the relation between the country ranking in the Global Competitiveness Report and the Human Development Report is weaker than the other ones, with the Pearson value, 0.48, and the R^2 value, 0.23. This fact can be explained trough the fact that the Global Competitiveness Index contains many macroeconomic indicators, not reflected in the Human Development Report. Even so, there is a positive relation between them, meaning that the human capital factor, through education and its innovative potential, has a major impact on the national competitiveness.

Conclusions

Although many studies have demonstrated the strong relationship between the national competitiveness and the human capital, expressed through the level and the quality of education, its effects become visible over a long period of time. From this point of view, this paper is limited by the reduced number of years under observation, as well as by the fact that the analyzed states are in the process of economic development. As a future direction for research on the impact of higher education and R&D investment on national competitiveness, it can be mapped around one or more countries that have made their mark in this direction, such as Sweden or Finland.

The national capacity to improve the quality of the human capital significantly influences the national competitiveness and welfare. The investments in tertiary education, in research and development and in infrastructure technology are the main determinants of the innovation economy where we currently are.

Through the Europe 2020 Strategy's objectives, the EU highlights their impact on growth and living standards of citizens, and also on the sustainable development. The competitive capacities of the CEE countries register different, but the impact of the human factor turns out to be as powerful for all of them. The CEE countries should focus more on the investment in higher education (Bulgaria, Romania and Latvia) and in the research and development (Romania, Bulgaria, Slovakia, Poland). Also, the analysed model states that achieving the Europe 2020 objectives leads to a better positioning in the rankings of the Global Competitiveness Report and the Human Development Index. From this point of view, Romania has a great opportunity to meet the tertiary education target, based on the current interim results. It depends on the measures of the officials and the initiatives of the society, the way in which this opportunity will be valorised and quantified in a competitive national advantage.

DOI: 10.1515/tjeb-2016-0008

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Appendix

Appendix 1. Model Summary [c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.826[a]	.682	.675	1.74773	.682	102.721	1	48	.000	
2	.886[b]	.785	.776	1.45066	.104	22.672	1	47	.000	.747

a. Predictors: (Constant), GERD
b. Predictors: (Constant), GERD, EDET
c. Dependent Variable: HDI

Appendix 2. ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	313.766	1	313.766	102.721	.000[b]
	Residual	146.619	48	3.055		
	Total	460.385	49			
2	Regression	361.477	2	180.739	85.885	.000[c]
	Residual	98.908	47	2.104		
	Total	460.385	49			

a. Dependent Variable: HDI
b. Predictors: (Constant), GERD
c. Predictors: (Constant), GERD, EDET

Appendix 3. Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	78.493	.513		152.940	.000
	GERD	3.981	.393	.826	10.135	.000
2	(Constant)	74.417	.956		77.823	.000
	GERD	3.123	.373	.648	8.381	.000
	EDET	4.980	1.046	.368	4.762	.000

a. Dependent Variable: HDI

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