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THE RELATIONSHIP BETWEEN ECONOMIC GROWTH AND INSTITUTIONAL STRUCTURE IN OECD COUNTRIES: CROSS-SECTIONAL ANALYSIS

In recent years, the corporation and the concepts of institutional structure have been one of the most popular concepts in the literature. In particular, the new growth theories have focused on the effects of corporations and the institutional structure on macro-level economic performance. In these theories, corporation is the most important component for the economic growth process. The aim of this study is to test the effect of institutional structure on economic growth in 30 OECD countries by using the data of 2009 through the cross-sectional analysis method. In the study, the variables of political stability, accountability, the effectiveness of governments, regulatory quality, the rule of law and the control of corruption were used as institutional structure indicators. According to the obtained results, the variables of accountability and the rule of law have a statistically significant and positive effect on economic growth. On the other hand, no significant interaction was found between the institutional structure and economic growth.

Keywords: economic growth; institutional structure; cross-sectional analysis; OECD countries.

JEL Classifications: O11, K11, I23, E11, E02.

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ВЗАЄМОЗВ'ЯЗОК МІЖ ЕКОНОМІЧНИМ ЗРОСТАННЯМ І ІНСТИТУЦІЙНОЮ СТРУКТУРОЮ В КРАЇНАХ ОЕСР: ПЕРЕХРЕСНИЙ АНАЛІЗ

У статті показано, що останніми роками корпорація і інституційна структура були одними з найпопулярніших понять в науковій економічній літературі. Зокрема, нові теорії розвитку зосереджено на впливі корпорацій і інституційної структури на економічні показники макрорівня. Згідно з цими теоріями, корпорація є найбільш важливим компонентом процесу економічного зростання. Перевірено вплив організаційної структури на економічне зростання в 30 країнах ОЕСР методом перехресного аналізу з використанням даних за 2009 рік. У дослідженні такі змінні, як політична стабільність, підзвітність, ефективність уряду, якість регулювання і верховенство закону і боротьба з корупцією, було використано як інституційні структурні індикатори. Після оцінювання отриманих результатів було встановлено, що змінні підзвітності і верховенства закону мають статистично значущий і позитивний вплив на економічне зростання. З іншого боку, жодної істотної взаємодії між інституційними структурами і економічним зростанням не було знайдено.

Ключові слова: економічне зростання; інституційна структура; перехресний аналіз; країни ОЕСР.

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ВЗАИМОСВЯЗЬ МЕЖДУ ЭКОНОМИЧЕСКИМ РОСТОМ И ИНСТИТУЦИОНАЛЬНОЙ СТРУКТУРОЙ В СТРАНАХ ОЭСР: ПЕРЕКРЕСТНЫЙ АНАЛИЗ

В статье показано, что в последние годы корпорация и институциональная структура были одними из самых популярных понятий в научной экономической литературе. В частности, новые теории развития сосредоточены на влиянии корпораций

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и институциональной структуры на экономические показатели макроуровня. Согласно этим теориям, корпорация является наиболее важным компонентом процесса экономического роста. Проверено влияние организационной структуры на экономический рост в 30 странах ОЭСР методом перекрестного анализа с использованием данных 2009 года. В исследовании такие переменные, как политическая стабильность, подотчетность, эффективность правительства, качество регулирования и верховенство закона и борьба с коррупцией, были использованы в качестве институциональных структурных индикаторов. После оценки полученных результатов было установлено, что переменные подотчетности и верховенства закона имеют статистически значимое и положительное влияние на экономический рост. С другой стороны, никакого существенного взаимодействия между институциональными структурными показателями и экономическим ростом не было найдено.

Ключевые слова: экономический рост; институциональная структура; перекрестный анализ; страны ОЭСР.

1. Introduction. The realization of long-term sustainable growth has been the main subject in most economical approaches. In this context, the main problem on which the economic growth theories focus has been the causes of the existing income differences between countries and sources of economic growth in the long term. In the context of these theories, the factors, of production such as labour, natural resources, physical capital and technology have been considered basic elements that identify the growth. In this sense, economic growth is discussed only in the context of economic factors and non-economic factors have been ignored.

The recent studies have provided various points of view in the economic growth literature as the existing growth theories failed to explain the gradual increase of income differences between countries contrary to the foresight of the convergence hypothesis and the explanations about the sources of growth are not considered as dissatisfactory.

In these studies, the roles of economic factors are not ignored and non-economic factors are given prominence in explaining the differences of per capita real income levels and economic growth rate. In particular, institutional factors such as demographic, cultural, political, legal and social structure become prominent as important explanatory variables.

In this study, the effect of the institutional structure on the economic growth will be investigated. In this context, some information about the institution and the components that form the institution will be presented at first and the effect of institutional structure on economic growth will be introduced theoretically later. And in the last chapter, the relationship between institutional structure and economic growth will be tested empirically and some inferences will be made.

2. The effect of institutional structure on economic growth.

2.1. Theoretical Framework. Institution is defined as a group of basic values that are widely shared by society, have become continuous and form the borders of human behaviours. In line with this, institution can be defined as the whole of the rules that express common behaviours, actions, habits, customs, values and beliefs in individuals in a society (Ata, 2009).

Institutional structure is considerable in economic life. The theoretical connection between institutional quality and economic growth depends on the sight that

claims that improvements of the components constituting the institutional quality will result in a raise of physical and human capital investments and this will increase the economic growth by providing more effective usage of the mentioned components (Hall and Jones, 1999). Accordingly, incentives and motivations (these are realized by institutional structure) that affect the behaviours of economic actors in society might provide the realization of activities such as the investment in economy, capital accumulation and organization of production (Knack and Keefer, 1995).

The relationship between institutions and economic structure is realized in line with the process below. Economic institutions might affect not only the economic growth but also the distribution of resources in an economy. Hereunder, economic institutions or economic institutional structure influence economic performance in the same period and this shapes the distribution of the resources in the following period (Acemoglu, Johnson and Robinson, 2004):

Economic Institutions$_t$ {Economic Performance$_t$ & Distribution of Resources$_{t+1}$}

An effective and positive impact of institutions on the economic performance might be possible through low transaction costs (Ahsan, 2001). Coase (1937) expresses that transaction cost depends on the structure of institutions, and an effective institutional structure has a basic function which brings standards to behaviours and reduces transaction costs. Low transaction cost and low production cost resulting from this causes refreshment in economy and these results in better operation and performance (Hira and Hira, 2000). In addition to this, institutional structure clears off the opportunism in economic barters that is caused by information asymmetry and limited rationality and results in the formation of a more reliable and less corrupted economic structure (Guvel and Ata, 2011: 156-157; Richter, 2005:174). Similarly, the existence of an effective institutitonal structure might prevent individuals working in public such as politicians and bureaucrats from using their authorities for their own benefits but not for society's benefits (like shaping public expenses) (Acemoglu, 2003). Ultimately, institutions are the components that restrict the indefinite individual behaviours and probable opportunism (Ahsan, 2001; North, 1997) and, by this means, make human behaviour more predictable and contribute to the formation of welfare (Kasper and Streit, 1998; Lambsdorff and Teksoz, 2005:157).

The existence of effective institutions encourage entrepreneurs to take risks and make investments by reducing operation and information costs of economic units in the environment of commercial risk and intense competition (Dampare and Piesse, 2002). Moreover, good institutions are components that can contribute to the orientation of human capital to more productive areas and to the improvement of human capital to have innovations, education and rational consumer characteristics (Acemoglu, 2003).

In this context, general belief in the literature about the relationship between institutional structure and economic growth is that an improvement which occurs in an institutional structure or an increase in the insitional quality will have positive effect on the economic growth.

2.2. Literature Review. In the studies which investigate the relationship between institutional structure and economic growth, it is a widely accepted approach that

these two facts have a strong correlation (Hall and Jones, 1999; Mauro, 1995; Rodrik and Subramanian, 2003).

The method used in the applied studies is generally multiple country estimations depending on cross-sectional and/or panel data. The indicators that are most commonly used in the applied studies consist of rule of law, corruption level, property rights, the application of the contracts, political structure, the efficacy of state etc. In this context, it is possible to summarize the significant studies carried out in this literature as follows:

Fedderge and Klitgaard (1998) tested plenty of institutional structure indicators and the effects of these indicators on the growth in the period of 1960-1985 in 118 countries by dealing with the relationship between institutional structure and economic growth in a holistic dimension. The authors considered some variables such as political and civil freedoms' level, political stability, accountability and the efficacy of political and social institutions. Some statistically significant relationships were obtained between the institutional structure indicators and the economic growth indicator through examining the relationship coefficients. Similarly, in the studies of Clague et al. (1996) and Lane and Tornell (1996), several various components were grounded on as insitutional structure indicators. According to this, institutional quality indices such as property rights formed by international organizations, political stability, institutional stability and corruption were used. The results of the mentioned studies show that effective institutional structure contributes to economic growth by providing the efficient use of natural resources and supporting innovations and technical improvement.

North and Thomas (1973) concluded in their study which they had carried out in Western European countries for the years between 900 and 1500 and between 1500 and 1700 that there was a positive relationship between property rights, that are indicators of institutional structure and economic growth. Similarly, in the studies of Knack and Keefer (1995), Acemoglu et al. (2001), property right indicator was used as the institutional structure indicator and the findings showed the positive relationship between these two variables. According to the results obtained in these studies, the institutional quality results in economic growth by providing the efficient use of resources and supporting innovations and technical developments.

Scully (1988) dealt with the relationship between institutional components and economic growth by using the data of 115 countries in 1960-1980. The author took the political, civil freedom and the level of economic freedom as the institutional variables. The findings obtained in this study suggest that the countries that have political, civil and economic freedom grow three times faster than the ones that do not have freedom in these fields. Similarly, Dawson (1998) used political, civil and economic freedom as the institutional structure indicators and tested the relationship between institutional structure and economic growth through the panel data method. The author found out in this study that economic freedom accelerates the total factor productivity and growth through investments and political and civil freedoms stimulate investments.

There are also studies analyzing the relationship between political institutions and economic growth as institutional structure indicators. Hall and Jones (1999) emphasized the importance of institutional structure in determining the economic

performances of countries. The authors found that government policies which were defined by institutional structures affect economic growth. Similarly, it was concluded in the studies of Alesina et al. (1996); Jones (2002); Edward et al. (2004); Marsiliani and Renstrom (2005) that the quality of political institutions caused the efficacy of production and higher growing rates.

Gregorian and Martinez (2000) obtained a finding in their study (which was on developing Asian and Latin American countries) that there was a strong and positive relationship between institutional quality and economic growth.

Mauro (1995) claimed that corruption would have a negative effect on economic growth as it decreased investments while he was investigating the relationship between institutional quality and economic growth. He concluded that improvements in the bureaucratic activity caused a positive effect on economic growth and this is defined by the increase in the investment level (Mauro, 1995).

On the other hand, we can see other studies which presented no significant relationship between effective institutional structures and economic growth. Marsh (1988) tested the relationship between economic growth and institutional structure by using the data on 47 countries for the years between 1965 and 1984. The author discussed democracy as a good institutional structure indicator. In the study, no statistically significant relationship between democracy and economic growth was found. Besides, Helliwell (1994) could not find statistically significant relationship between democracy as an indicator of a good institutional structure and economic growth. In addition to these, it was concluded in the studies by Londregan and Poole (1990); Bienen et al. (1993); Sachs and Warner (1997) that there was no direct relationship between institutions and economic growth.

Briefly, it is possible to say that the majority of empirical studies show positive effect of efficient institutional structure on economic growth, but there are also studies which found that the interaction between these two variables is not positive.

3. Model and data. The relationship between institutional structure and economic growth will be tested in the empirical part of the study by using the cross-sectional analysis and the least square method. The sample of the study will be based on the data of 2009 for 30 OECD countries (Table A1 in Appendix).

3.1. Empirical Model. The main purpose of the econometric model that will be used in the study is to determine the effects of institutional factors on economic growth. In the scope of the econometric model that will be designed, the variables of political stability, accountability, the efficacy of the government, regulatory quality, the rule of law and the control of corruption were included as explanatory variables. Economic growth has the function of dependent variable of the model.

$$Y_i = \beta_0 + \beta x_i + \varepsilon_i. \tag{1}$$

Here, Y_i represents the growth, while x_i represents the value that expresses the institutional structure. The i symbol shows the index value of the concepts which are different from each other and are used to determine the institutional structure.

The model which was designed in this framework is shown in equation 2 below.

$$G = f(PS, AC, EG, RQ, RL, CC), \tag{2}$$

G: Economic growth level.
PS: Political Stability.
AC: Accountability.
EG: The efficacy of the government.
RQ: Regulatory quality.
RL: The rule of law.
CC: The control of corruption.
The mathematical expression of the model is shown as follows:

$$G = c + [\beta_1 PS + \beta_2 AC \times \beta_3 EG + \beta_4 RQ \times \beta_5 RL \ \beta_6 CC] + \varepsilon.$$

Here, *c* is the fixed value; ε is the fault term.

3.2. Data. Economic growth level was used as the dependent variable in the model. Per capita income level was used as the indicator of economic growth. The data about per capita income levels of the countries was taken from the website of the World Bank.

The institutional quality level was preferred as the explanatory variable in analysis. The institutional quality consists of the components such as the background of the institutions, the applicability of contracts, bureaucratic efficacy, efficient judicial system, property rights, contract guarantee, and the level of corruption, political stability and government interference. In this context, governance indicators which were established in the end of 1990s by Kaufmann, Kraay and Mastruzzi, are used. The authors here describe the governance as traditions and institutions used in a country to implement the authority and investigate this under 6 headings.

The criteria that are used to figure out these 6 headings are shown in Table 1. The values range between -2.5 and +2.5, they express a positive development in the indicators belonging to that country's institutional structure when the values move from negative (-) to positive (+).

Table 1. **The components that are used in figuring out the Institutional Structure Indicators**

The Freedom of Expression and Accountability (Transparency)	Political Stability and Lack of Violence	The Efficacy of Administration
- political participation - the effectiveness of political process - political freedoms - political rights - human rights - democractic accountability	- domestic violence - terrorism - government stability - the role of military in politics - religious tension - ethnic tension	- the quality of provisions arranging the public services - the quality of bureuocracy - competence of civil servants - political freedom of public service - trust in government policies
The Quality of Regulations	**The Rule of Law**	**Prevention of Corruption**
- investment profile - excessive regulations on economic fields - price controls - inadequate banking supervision	- trust - law and order - obeying the rules - the frequency of committing crimes - the efficacy and the accountability of judicial system - the applicability of contracts	- the role of individuals and institutions in corruption activities - the corruptions that individuals and institutions perceived or meet - bribery

Source: Kaufmann et al., (2010: 7–8).

The resources of the dependent and independent variables that are described above and their expected effects on economic growth are shown in Table 2.

Table 2. **The Description and the Expected Effects of Variables Used in Model**

The Display of the Variable	The Description of the Variable	The Source of the Variable	The Expected Sign of the Variable
G	Per capita income level	The World Bank	Dependent variable
PS	Political stability	Kaufmann, Kraay and Mastruzzi (2009)	+
AC	Accountability	Kaufmann, Kraay and Mastruzzi (2009)	+
EG	The efficacy of government	Kaufmann, Kraay and Mastruzzi (2009)	+
RQ	Regulatory quality	Kaufmann, Kraay and Mastruzzi (2009)	+
RL	The rule of law	Kaufmann, Kraay and Mastruzzi (2009)	+
CC	The control of corruption	Kaufmann, Kraay and Mastruzzi (2009)	+

4. Results. In the estimated model, the relationship between economic growth as a dependent variable and political stability, accountability, the efficacy of the government, the regulatory quality, and the rule of law and the control of corruption as independent variables was investigated by the cross-section analysis. The estimation results obtained by the least squares method are given in Table 3. The R^2 value belonging to the estimated economic model was found as 0,58. The estimated economic model's R^2 value's not being low reveals the significance of the model.

Table 3. **The Estimation Results of the Model**

Variable	Coefficient	t-statistics***	p-value
Fixed Term	18368,22	5,878578	0,0000*
PS	1294,85	1,231557	0,2317
AC	48367,35	2,599530	0,0167**
EG	8709,868	0,575169	0,5713
RQ	-41659,00	-3,501774	0,0021*
HL	97104,60	2,673433	0,0142**
CC	-39375,35	-3,173642	0,0046*
N	30		
R²	**0,58**		
F	7,355933		

* statistically significant coefficient at the 1% significance level.
** statistically significant coefficient at the 5% significance level.
*** Calculated according to the changing variance by using white standard faults.

The most common problem in the studies with cross-sectional method is the changing variance. Therefore, estimations should be made by removing the changing variance problem. In this sense, the model in this study was estimated by using white standard faults approach (Woolridge, 2001) which is the most common and the most preferred method among heteroskedasticity-robust standard faults approaches to remove the changing variance problem.

The results of the model show there is a statistically significant and positive relationship at the 5% significance level between accountability and economic growth.

According to the results, an increase of 1% in the accountability level causes an increase of 48367,35 score in the economic growth level.

Identically, according to the empirical results, there is a statistically significant and positive relationship at the 5% significance level between the rule of law and economic growth. According to the results, an increase of 1% in the rule of law variable results in an increase of 97104,60 score in the economic growth level.

The results of the model show there is a statistically significant relationship between regulatory quality and the control of corruption although a result in the expected direction (positive) was not found.

On the other hand, according to the estimation results, it was not concluded that there was no statistically significant relationship at both 5% and 10% significance levels between the variables of political stability and the efficacy of the government and economic growth.

5. Conclusion. The recent theoretical discussions about the economic growth have been focused on the role of non-economical factors in the economic growth process. In this context, it has been discussed and advocated by many scientists and philosophers that institutional dynamics of political, judicial, social and cultural structures are the main determinants of economic growth. The main argument here is that institutional structures are the components that have functions of restricting, directing and motivating the behaviours of economic actors, and this way they make human behaviour more predictable and contribute to the formation of welfare.

The institutional structure is vital in economical life. The institutional structures' having great importance in economical life is realized through the effect of it on facts such as transaction costs, ambiguity and asymmetric information. A strong and effective institutional structure removes the imperfect knowledge among individuals and groups in society and might contribute to economic refreshment by reducing transaction cost. In the economies in which the knowledge is perfect and the transaction cost is low, investment activities increase and this increase might help the economic growth. Besides, in the economies in which the transaction cost is low, producers get such a cost advantage that might provide superiority to that economy against the others. Accordingly, effective organizations and institutional structures affects the long-term economic growth by preventing the waste of resources, removing the defects of market, creating positive externalities, reducing ambiguity, being effective on transaction costs, collecting financial resources together, facilitating the technological information flows and encouraging entrepreneurs.

In this article an empirical study was carried out by using the institutional structure indicators of 30 OECD countries and per capita income levels for 2009 to see the importance of institutional structure in economic growth process. As a result, it was concluded that the interaction between institutional structure indicators and economic growth was statistically significant and in the expected direction. However, no statistically significant interaction was found between some institutitonal structure indicators and economic growth. Hereunder, a statistically significant and positive correlation was found between economic growth and some institutional structure indicators such as accountability and the rule of law according to the results obtained. Moreover, a statistically significant relationship was found between economic growth and some institutional structure indicators such as regulatory quality and the control

of corruption even though the direction of this relationship was not expected. Besides, the results of the model reveal that institutional structure indicators such as political stability and the efficacy of the government do not have any effects on economic growth.

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Appendix:

Table A1. **The Institutional Structure Indicators and Per Capita Income Level Indicators (2009)**

Country	Political Stability	The Efficacy of the Government	Regulatory Quality	The Rule of Law	The Control of Corruption	Accountability	Per Capita Income ($)
Germany	0,855	1,484	1,469	1,634	1,704	1,560	40670
USA	0,410	1,388	1,361	1,525	1,182	1,115	45989
Australia	0,835	1,744	1,738	1,727	2,030	1,393	42279
Austria	1,128	1,634	1,475	1,758	1,753	1,374	45562
Belgium	0,786	1,475	1,270	1,371	1,435	1,394	43671
Czech Rep.	0,919	0,982	1,249	0,963	0,460	1,058	18139
Denmark	1,036	2,191	1,821	1,872	2,421	1,560	55992
Estonia	0,585	1,179	1,441	1,130	1,004	1,108	12868
Finland	1,357	2,131	1,729	1,937	2,221	1,530	44581
France	0,547	1,442	1,194	1,425	1,410	1,260	41051
South Korea	0,213	1,112	0,849	0,999	0,522	0,691	17078
Holland	0,855	1,691	1,681	1,781	2,101	1,551	47917
England	0,304	1,476	1,537	1,706	1,544	1,306	35165
Spain	-0,180	0,936	1,169	1,133	1,011	1,187	31774
Ireland	0,976	1,299	1,629	1,713	1,724	1,370	51049
Sweden	1,100	1,985	1,661	1,927	2,230	1,556	43654
Switzerland	1,214	1,915	1,554	1,751	2,011	1,560	63629
Italy	0,530	0,517	0,900	0,388	0,055	1,040	35084
Japan	0,954	1,256	1,068	1,315	1,350	1,187	39738
Canada	1,015	1,780	1,645	1,779	2,036	1,440	39599
Luxembourg	1,444	1,760	1,644	1,831	1,968	1,549	105044
Hungary	0,599	0,730	1,097	0,817	0,464	1,007	12868

The end of *table A1*

Country	Political Stability	The Efficacy of the Government	Regulatory Quality	The Rule of Law	The Control of Corruption	Accountability	Per Capita Income ($)
Norway	1,188	1,726	1,393	1,878	1,936	1,568	79089
Poland	0,907	0,645	0,934	0,683	0,483	1,026	11273
Portugal	0,791	1,207	1,037	1,037	1,080	1,211	21903
Slovakia	0,886	0,917	1,104	0,654	0,325	0,872	16175
Slovenia	0,869	1,163	0,892	1,113	1,056	0,987	23726
Chile	0,628	1,209	1,502	1,251	1,371	0,963	9644
New Zealand	0,992	1,876	1,769	1,910	2,377	1,492	29352
Turkey	-0,882	0,352	0,311	0,122	0,093	-0,119	82145

Source: International Propert Rights Index Report (IPRI, 2010:28-29); Kaufmann, Kraay and Mastruzz (2010); www.worldbank.org.

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