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THE IMPACT OF COMPETITIVENESS ON GROWTH PERFORMANCE OF UPPER-MIDDLE INCOME GROUP COUNTRIES: 1997-2020 PANEL ARDL ANALYSIS

ABSTRACT

The main objective of this study is to measure the impact of competitiveness on economic growth. Another piece of information to be obtained from the study is whether Heckscher-Ohlin's propositions about foreign trade are valid in developing upper-middle-income countries. For this purpose, the period 1997-2020 of 13 countries (China, Malaysia, Indonesia, Kazakhstan, Turkey, Bulgaria, Mexico, Brazil, Jordan, South Africa, Argentina, Venezuela) was empirically examined. In the research, per capita income was used as the dependent variable to represent economic growth. Labor stock, capital stock, and Competitiveness Index are included in the model as explanatory variables. According to the Panel ARDL findings, the competitiveness index and labor stock contribute positively to economic growth. 1 unit increase in capital stock reduces national income per capita by 170.47 units.
Keywords: Economic Growth, Competitiveness, Panel ARDL

1. INTRODUCTION

The lack of qualified labor and capital stock, inequality in income distribution, low levels of welfare and unstable growth rates are common problems of developing countries. These problems are both the cause and the consequence of the lack of competitiveness. The increase in commercial activities along with globalization has forced countries to be more competitive. While highly competitive countries continue to increase their welfare level by getting more shares from the international market, the development gap between countries with low competitive power continues to widen. For this reason, increasing competitiveness and market share is important for countries at all development levels.

Many theories have been developed to explain what are the factors that provide competitive advantage on an international scale. Ricardo (1817) argued that competitive advantage arises from cost differences in production, but did not explain the reason for cost differences. Heckscher (1919) and Ohlin (1933), on the other hand, by trying to explain cost differences with factor endowments, claimed that the specialization of labor-rich countries in labor-intensive goods, while capital-rich countries export capital-intensive goods, will increase their competitiveness. According to the theory developed by Heckscher-Ohlin within the framework of factor endowments, labor and capital are determinant factors on foreign trade gains. The positive contribution of these factors on net exports is expected to improve the economic performance of the country. For this reason, labor and capital variables have been included in the empirical analysis as variables that can explain economic growth in this study. After explaining the theoretical framework of the subject under study, the literature including previous studies on the subject has been presented. In the last part of the study, empirical findings have been shared.

2. THEORETICAL FRAMEWORK

Economic growth occurs as a result of an increase in the number or productivity of production factors (labor, capital, natural resources, entrepreneurship). The increase in the number of the labor factor can be achieved by population growth and migration. The increase in the productivity of labor depends on variables such as equipping it with more capital, increasing the level of education and experience. The increase in capital stock depends on investment expenditures and hence the level of savings. Increasing the productivity of capital is possible with technological progress. An increase in natural resources is possible with new resource discovery or reclamation of existing resources. For example, an increase in natural resources can be achieved by discovering a previously unknown mineral deposit, as well as drying out a swamp and turning it into agricultural land can lead to an increase in natural resources. Obtaining more products from existing agricultural lands with technological investments can be shown as an example of the productivity increase of natural resources. The increase in the number of entrepreneurs is directly related to the economic conjuncture, ease of doing business, a properly functioning legal system and political stability in the country. To summarize, an increase in the number of factors of production may not always be possible, but an increase in their productivity may increase spontaneously as countries try to increase their level of competition. For this reason, competitiveness is usually measured by efficiency. Therefore, a link between competitiveness and efficiency can be established. High productivity or competitive level can contribute to growth potential by increasing the benefits to be gained from investments.

Table-1: Factors Forming the IMD International Competitiveness Index

Economic Performance	Domestic Economy International Trade International Investment Employment Prices
Government Efficiency	Public Finance Tax Policy Institutional Framework Business Legislation Societal Framework
Business Efficiency	Productivity & Efficiency Labor Market Finance Management Practices Attitudes and Values
Infrastructure	Basic Infrastructure Technological Infrastructure Scientific Infrastructure Health and Environment Education

Source: IMD

IMD (International Institute for Management Development) has defined international competitive power over the variables of economic performance, government efficiency, business efficiency, infrastructure and declared that improvements in these variables will increase competitiveness. While measuring the economic performance, it has taken into account the macroeconomic variables that are subject to the evaluation of the national economy. Government efficiency explains the extent to which government policies contribute to competitiveness. When determining the business efficiency rate of a country, it has taken into account the extent to which the country in question encourages businesses, the management skills and productivity levels of the enterprises. The infrastructure index was created by evaluating the country's technological, scientific, health and educational conditions. There have also been those who explain international competitiveness with different approaches. For example, Kogut (1993) noted that the change in competitiveness can only be explained by technological and organizational variables. According to Aiginger (2006), who argues that competitiveness will increase national welfare; Increasing R&D activities, production and export of high value-added goods, a qualified labor force will increase the competitiveness of countries. According to the Commission of the European Communities, which emphasizes the increase in productivity in the definition of competitiveness, economies that provide high and sustainable productivity growth have international competitive power. According to (The Organisation for Economic Co-operation and Development [OECD], 1996: 13), international competitiveness is the sustainable increase of factor incomes and employment levels of firms, industries and countries. The target to be achieved with the competitive power, which can be said to be due to productivity in general, is economic growth and increased welfare. However, Krugman (1994) pointed out that interventions to increase competitiveness can create negative consequences for the economy in general. In addition, Krugman (1994) stated that a firm may shut down due to poor performance, but this is not possible for countries. For this reason, Krugman (1994), who criticized the definitions of international competitiveness, argued that he could only make a definition at the firm level for competitiveness.

The phenomenon of competition can be defined at the international level as well as at the firm and industry level with a micro approach. Competitiveness at the firm level depends on the cost

of production of the firm, the quality of products, the qualifications of employees, production technology, management strategy and market share. While companies that can compete in the international arena are growing and getting stronger, it is seen that companies that cannot compete cannot survive. For this reason, the competitiveness of the companies and the determinants of this power should be defined correctly. Porter (1990:73), focusing on the share and efficiency of firms in the market in which they operate, has defined firms that use their capacity effectively and have innovative practices as firms with competitive superiority. According to the Commission of the European Communities (2006:2), a firm's competitiveness is measured by maintaining or strengthening its current position in international markets

The high competitiveness of industry means that it has strong companies in its field of activity, region or international arena. Porter (1990) has discussed the competitive power of the industry within the framework of factor conditions, demand conditions, and its relations with other industries. Among the factors, human-physical resources and infrastructure are very important for industrial competition (Porter, 1990:76). Consumers who demand new and high- quality products encourage the industry to be innovative and produce high standard products, contributing to the increase of the industry's competitive level. In addition, if the demand for the products produced by the industry is high, the industry can increase its productivity and competitiveness by taking advantage of economies of scale (Porter, 1990: 89). If its sub-industries are highly competitive, the main industry can become more competitive, by capturing the advantage of low input cost and time (Porter,1990:102). According to the definition made by Markusen (1992), the competitiveness of an industry is the ability to produce and sell at a lower cost than its competitors. Similarly, Bryan (1994) defined industry-level competitiveness as productivity in production.

3. LITERATURE REVIEW

There are numerous studies in the literature that examine the relationship between the components that make up the competitiveness index and economic growth. Alexander (1997), in his study covering the period 1974-1991 and examining 20 OECD countries, determined that inflation negatively affects economic growth. Hansson and Jonung (1997), who investigated the relationship between financial development and economic growth, found a positive relationship between variables for Sweden in the period 1834-1991. Heshmati (2001) detected that there is a causal relationship between health expenditures to economic growth in OECD countries for the period 1970-1992. Vedder (2001) stated that high tax rates negatively affected America's growth performance between 1957 and 1997. Asheghian (2004) confirmed for his analysis covering the period 1960-2000 that foreign direct investment has an impact on economic growth. Chang and Ying (2006) found that the increase in health expenditures increased economic growth in 15 OECD countries for the period 1980-1998. Yamak and Koçak (2007) have suggested that investments in information technology have a positive impact on economic growth. Genç and Atasoy (2010) determined that there was a causality from R & D expenditures to economic growth in the period 1997-2008 for 34 countries. Lall (2007) discovered that transportation and communication investments made in India between 1981-1996 contributed to economic growth. Omisakin, Adenyiyi and Omojolaibi (2009) found that trade openness accelerated economic growth by increasing competitiveness for Nigeria in the period 1970-2006. Açıkgöz and Karpat Çatalbaş (2010) showed that economic growth in Turkey after 1980 was due to total factor productivity. Çelik and Başkonuş Direkçi (2013) found that foreign debts had a negative effect on economic growth in Turkey during the period 1991-2010.

4. METHODOLOGY

For the 2021 fiscal year, upper-middle-income economies are defined as those with a GNI per capita between $4.046 and $12.535 (World Bank). According to this classification, there are 56 upper-middle-income countries and 12 of them have been selected for this research. In the selection of countries, besides being in the same income group, having IMD Competitiveness data was also taken into account. The countries subject to the study are China, Malaysia, Indonesia, Kazakhstan, Turkey, Bulgaria, Mexico, Brazil, Jordan, South Africa, Argentina, Venezuela.

Since the oldest common data of the selected countries belongs to 1997, the starting year of the period examined was chosen as 1997. As the most recent data available to contribute to the literature by comparing with past studies belongs to 2020, this study covers the period 1997-2020. The data used in the study were compiled from the World Bank, OECD and IMD databases.

Panel ARDL model was used as an econometric estimation method. The analysis was carried out using the Stata package program.

The aim of the study is to measure the impact of competitive power and also capital and labor factors, which Heckscher-Ohlin cited as the sources of competitiveness, on economic growth. The established model is as follows;

Economic Growth (GDP) = Competitiveness Index (IMD) + Capital Stock (CAPITAL) + Labor Stock (LABOR)

In the analysis, first regression analysis was performed with fixed effects and random effects methods, and then it was decided which model to use with the Hausman test. Cross-section dependency was tested by Pesaran's (2004) CDLM2 test. Stationarity was tested with the CADF-CIPS unit root test. The existence of the cointegration relationship was tried to be determined by Westerlund's (2008) Durbin-H test. Finally, the model was estimated by the Panel ARDL method.

5. FINDINGS

Table-2: Fixed Effects Model

Dependent Variable: GDP	Coefficient	St. Error	t-statistic	(Prob.)
IMD	24.28	3.40	7.14	0.007
CAPITAL	0.461	0.049	9.40	0.000
LABOR	0.149	0.054	2.67	0.006
C	24.176	1.577	15.32	0.000
F = 0.004				

Variables other than the labor force are statistically significant. According to the F statistic, the model is significant. There is a positive relationship between competitiveness and economic growth. When competitiveness increases by one unit, GDP per capita increases by 24.28 units. There is a negative relationship between labor force participation rate, capital stock, and Gdp per capita.

Table-3: Random Effects Model

Dependent Variable: GDP	Coefficient	St. Error	Z-statistic	(Prob.)
IMD	0.215	0.046	4.69	0.000
CAPITAL	0.309	0.034	9.06	0.000
LABOR	0.225	0.040	5.55	0.000
C	18.857	1.031	18.28	0.000
Wald X^2 (3) = 1177.46, Prob> X^2 = 0.000				

The random effective model is significant at a 10% significance level according to the Wald test. All variables are statistically significant. According to the model, a one-unit increase in competitiveness leads to a 24.13 units increase in per capita income. Increases in the labor force and capital stock by one unit lead to a decrease in per capita income of 30.64 and 43.67, respectively.

Table-4: Hausman Test

	X^2	(Prob.)
Hausman	1.61	0.6578

According to the result of the Hausman test, it is appropriate to use the random-effects model.

Table-5: Pesaran Cross-Section Dependency Test

	t-statistic	(Prob.)
Pesaran CDLM2	6.780	0.000

According to the findings of the cross-section dependency test, the null hypothesis claiming that the units are independent was rejected at the 1% significance level and it was concluded that there was cross-sectional dependency in these series.

Table-6: Unit Root Test (Level)

Variables	With Constant		
	CIPS Value / t-bar	z-bar	P-Value
GDP	-1.388	1.228	0.890
IMD	-1.292	1.556	0.940
LABOR	-1.542	0.706	0.760
CAPITAL	-2.852	-3.743	0.000
Critical Values	%10 -2.140	%5 -2.260	%1 -2.470
Variables	With Constant and Trend		
	CIPS Value/ t-bar	z-bar	P-Value
GDP	-2.016	0.916	0.820
IMD	-1.938	1.184	0.882
LABOR	-1.607	2.330	0.990
CAPITAL	-2.914	-2.196	0.014
Critical Values	%10 -2.670	%5 -2.780	%1 -3.010

Since there is a cross-sectional dependency in the model, the stationarity of the series has been investigated by the CADF-CIPS unit root test, which is one of the second generation unit root tests that takes dependency into account. The capital variable is stationary in level value, other variables are not.

Table-7: Unit Root Test (1st Difference)

Variable	With Constant		
	CIPS Value / t-bar	z-bar	P-Value
ΔGDP	-3.943	-7.034	0.000
ΔIMD	-3.723	-6.334	0.000
ΔLABOR	-3.236	-4.778	0.000
ΔCAPITAL	-3.833	-6.685	0.000
Critical Values	%10 -2.160	%5 -2.280	%1 -2.520
Variables	With Constant and Trend		
	CIPS Value/ t-bar	z-bar	P-Value
ΔGDP	-4.288	-6.330	0.000
ΔIMD	-3.869	-5.021	0.000
ΔLABOR	-3.429	-3.648	0.000
ΔCAPITAL	-3.844	-4.944	0.000
Critical Values	%10 -2.680	%5 -2.820	%1 -3.070

It is seen from Table-7 that all variables become stationary after taking the first difference.

Table-8: Westerlund-Durbih H Cointegration Test

Durbin-H Tests	Durbin-H Value	(Prob.)
Durbin-H Group Statistics	2.305	0.011
Durbin-H Panel Statistics	5.097	0.000

According to the findings of the Durbin-H test, the null hypothesis claiming that there is no cointegration relationship in the panel was rejected. In all countries in the panel, the IMD competitiveness index, labor force and capital stock have a cointegration relationship with the GDP.

Table-9: Panel ARDL Findings

	MGE			PMGE		
	Coefficient	St. Error	P-Value	Coefficient	St. Error	P-Value
Long Term Coefficients						
IMD	81.212	36.08	0.02	11.92	3.79	0.000
LABOR	818.84	883.55	0.32	252.41	30.35	0.00
CAPITAL	-2.292	187.67	0.012	-170.74	11.02	0.000
Error Correction Coefficient						
EC	-0.51	0.29	0.08	-0.13	0.07	0.05
Short Term Coefficients						
ΔGDP(-1)	0.07	0.19	0.72	0.22	0.15	0.14
ΔIMD	-9.21	7.86	0.24	0.975	2.06	0.63
ΔLABOR(-1)	44.54	65.88	0.49	-19.51	22.26	0.38
ΔCAPITAL(-1)	9.49	5.06	0.06	5.41	6.17	0.38
C	-2933.38	4272.12	0.49	-667.55	299.08	0.02
Hausman Test Statistics: $X^2 = 0.55$, prob> $X^2 = 0.9076$						

According to the Hausman Test statistics, the null hypothesis that "parameters are homogeneous in the long run" was accepted. For this reason, it has been decided that the pooled mean group estimator (PMGE) is valid. According to the findings of the panel ARDL analysis, the long-term competitiveness index and labor stock variables have a statistically significant positive impact on per capita income. Capital, on the other hand, has a significant and negative impact on per capita income. A unit increase in long-term competitiveness increases per capita income by 11.92 units. 1 unit increase in the labor stock increases per capita income by 252 units. One unit increase in capital stock reduces per capita income by 170.47 units.

When the short-term coefficients of the model are examined, it is seen that on income per capita competitiveness and capital have a positive and labor has a negative effect. However, these coefficients are statistically insignificant. The error correction coefficient shows that 13% of the deviations in the model will return to equilibrium within a period.

6. CONCLUSION

It is a surprising finding that capital stock negatively affects economic growth in the long run. However, this finding becomes more understandable when we consider that the countries that make up the panel are developing and labor-rich countries. Each time the countries in question increase their capital investment by one unit, they will have to reduce the labor factor by more than one unit. Another point is that the savings levels of the countries examined are not sufficient for capital investments. When they want to increase the level of savings, they need to cut the consumption expenditures of the public and the state at a greater rate. This, in turn, will reduce the level of welfare of the country in the short term, as well as the GDP calculated by the expenditure method will fall, as aggregated demand falls. The decrease in output will also lead to a decrease in GDP, as the falling demand will reduce the motivation for production. To sum it up briefly, it is inevitable that the GDP will fall when viewed from both the supply and demand front. To get out of this spiral, as suggested in the Heckscher-Ohlin theorem, the

specialization of labor-rich countries in labor-intensive goods can provide a competitive advantage. However, since the continuity of this situation may make development problems chronic for countries that struggle with low value added labor-intensive goods against countries that produce capital-intensive goods, necessary structural measures must also be taken simultaneously. Another issue that should be taken into consideration is the reversal of the factor density with the wrong policies that can be applied and the risk of losing competitive superiority. The positive effect of the competitiveness index on the GDP may create a motivation to invest more in the variables that make up this index. It is very important to know the impact of the competitiveness of developing countries on economic growth, to examine in which areas their competitiveness is weak, and to make the necessary improvements. For this reason, it will be useful to conduct a study examining the effects of the components of the IMD general index used in this study on the index.

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