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Original Article

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# DOES INSTITUTIONAL QUALITY ALWAYS ENHANCE COMPETITIVENESS? EVIDENCE FROM OECD COUNTRIES


*Kurumsal Kalite Rekabetçiliği Her Zaman Artırır mı? OECD Ülkelerinden Kanıtlar*

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## ABSTRACT

The institutional framework that reduces economic uncertainty and guides the behaviour of market participants has become a critical determinant of countries' long-term growth trajectories and their capacity to compete internationally. In a global environment characterised by the heightened mobility of capital and technology, cross-country differences in welfare are no longer explained solely by the availability of production factors, but increasingly by the quality of the institutional arrangements that govern their effective use. From this perspective, a well-functioning institutional framework that ensures orderly market operations, protects property rights, and lowers transaction costs emerges as a key foundation of sustainable competitive advantage.

The aim of this study is to empirically examine the impact of institutional quality on national competitiveness, focusing on 35 OECD countries over the period 2008-2017. Measures of competitiveness are drawn from the Global Competitiveness Index and the World Competitiveness Yearbook, while institutional structure is captured using the World Bank's Governance Indicators. The empirical findings indicate that Regulatory Quality and Government Effectiveness exert statistically significant and positive effects on both competitiveness measures. By contrast, the Rule of Law variable is found to have a negative impact on competitiveness. Overall, the study demonstrates that market-friendly regulations and bureaucratic effectiveness support competitive advantage, whereas the compliance costs associated with excessive regulation and rigid legal procedures may constrain competitiveness.

**Keywords:** Institutional quality, competitiveness, productivity, rule of law

## ÖZ

Ekonomik belirsizlikleri minimize eden ve piyasa aktörlerinin davranışlarını şekillendiren kurumsal yapı, günümüzde ülkelerin uzun vadeli büyüme performansları ve uluslararası rekabet güçlerinin açıklanmasında hayati bir öneme sahiptir. Özellikle sermaye ve teknolojinin küresel hareketliliğinin arttığı bir ortamda, ülkeler arasındaki refah farkları, yalnızca üretim faktörlerinin miktarı ile değil, bu faktörlerin verimliliğini belirleyen kurumsal altyapının kalitesiyle de açıklanır hale gelmiştir. Bu bağlamda, piyasa işleyişini düzenleyen, mülkiyet haklarını güvenceye alan ve işlem maliyetlerini düşüren etkin bir kurumsal çerçeve, sürdürülebilir rekabet avantajının temel kaynağını teşkil etmiştir.

Bu çalışmanın amacı, kurumsal kalitenin ulusal rekabetçilik üzerindeki etkisini 35 OECD ülkesi ve 2008-2017 dönemi özelinde ampirik olarak ortaya koymaktır. Çalışmada rekabet gücü göstergeleri olarak, Küresel Rekabetçilik Endeksi ve Dünya Rekabet Yıllığı verileri ele alınırken, kurumsal yapı göstergeleri olarak, Dünya Bankası Yönetişim Göstergeleri kullanılmıştır. Analiz sonuçları, Düzenleme Kalitesi ve Hükümet Etkinliği değişkenlerinin her iki rekabet gücü göstergesi üzerinde istatistiksel olarak anlamlı ve pozitif bir etki yarattığını göstermiştir. Buna karşılık, Hukukun Üstünlüğü değişkeninin rekabetçilik üzerinde negatif yönlü bir etkiye sahip olduğu tespit edilmiştir. Çalışma, piyasa dostu düzenlemelerin ve bürokratik etkinliğin rekabet avantajını desteklediğini, ancak aşırı regülasyon ve katı hukuki süreçlerin yarattığı uyum maliyetlerinin rekabetçiliği baskılayabileceğini ortaya koymuştur.

**Anahtar Kelimeler:** Kurumsal kalite, rekabetçilik, verimlilik, hukukun üstünlüğü

## INTRODUCTION

Institutional structure occupies a central place in the economics literature in explaining cross-country differences in income levels, total factor productivity, and long-term growth performance. Classical economic approaches largely accounted for national competitiveness through production factors such as natural resources, geographical conditions, and labour costs. However, with the increasing mobility of capital and technology in the global economy, pronounced differences in welfare levels and economic performance have emerged even among countries endowed with similar production factors. This development has underscored that economic performance is closely linked not only to the quantity of production factors, but also to the institutional framework that shapes how these factors are utilised.

Institutions are defined as the set of rules that govern economic and political interactions, reduce uncertainty, and guide the behaviour of economic actors. The impact of institutional structure on economic performance operates through two main channels. The first channel concerns the influence on investment and entrepreneurial decisions through the protection of property rights and the reduction of uncertainty. A credible institutional environment facilitates long-term decision-making by economic actors and encourages investment activity. The second channel relates to productivity gains achieved through the effective use of technology, efficient resource allocation, and improvements in production processes. Within this framework, enhancements in institutional quality positively affect not only growth rates but also total factor productivity, which constitutes a core component of competitive performance.

Although the literature generally identifies a positive relationship between institutional quality and economic performance, this relationship is observed to vary across country groups and according to the indicators employed. The multidimensional nature of institutional structure implies that different institutional components may exert distinct effects on competitiveness. While regulatory quality and the effectiveness of public administration tend to support competitiveness in many cases, the manner in which legal regulations are implemented may increase compliance costs in certain countries. This situation can generate short-term constraints on competitiveness, particularly in developing economies. Accordingly, analysing institutional structure by focusing on its sub-components rather than relying on a single composite index is essential for more clearly identifying the mechanisms through which competitiveness is shaped.

The purpose of this study is to examine the impact of institutional structure on countries' competitiveness and to identify how indicators of institutional quality are reflected in measures of competitiveness. In the analysis, competitiveness is represented by the Global Competitiveness Index published by the World Economic Forum and the World Competitiveness Yearbook compiled by the International Institute for Management Development. Institutional structure is assessed using the Governance Indicators dataset published by the World Bank, specifically covering voice and accountability, rule of law, regulatory quality, political stability, government effectiveness, and control of corruption. The study aims to empirically analyse the direction and magnitude of the effects of these institutional indicators on countries' competitiveness through the channels of market functioning, public administration capacity, and legal predictability.

## **INSTITUTIONAL STRUCTURE AND NATIONAL COMPETITIVENESS**

In the economics literature, explanations of nations' wealth, trade structures, and competitive performance were long approached within the framework of classical trade theories. The absolute advantage approach advanced by Adam Smith and the comparative advantage theory developed by David Ricardo argued that differences in production factors constitute the primary determinants of international trade and competitiveness (Smith, 1776; Ricardo, 1817). Within these approaches, national competitiveness was explained predominantly through production factors such as natural resources, geographical conditions, and labour costs, with economic performance largely reduced to factor endowments.

Similarly, the factor endowment model developed by Eli Heckscher and Bertil Ohlin conceptualised competitive advantage on the basis of capital and labour intensities, while maintaining the assumption that technology diffuses freely across countries and that economic actors operate under broadly similar institutional conditions (Heckscher, 1919; Ohlin, 1933). Within this analytical framework, institutions were not treated as a determining element of economic analysis and were largely regarded as exogenous.

However, the increasing mobility of capital, technology, and skilled labour in the global economy has led to pronounced differences in welfare and competitiveness even among countries with similar production factors. The divergences observed in long-term growth performance and productivity levels among countries with comparable production structures and factor compositions have demonstrated that competitiveness cannot be explained solely by production factors. In this context, institutional elements such as the rules under which economic actors operate, the manner in which market transactions are regulated, and the extent to which uncertainty is reduced have come to be recognised as fundamental determinants of competitiveness.

The theoretical limitations that had emerged were largely overcome by Michael Porter's approach to national competitiveness. Porter (1990) explained countries' competitive performance not solely in terms of factor endowments, but through the interaction between factor conditions, demand conditions, related and supporting industries, and firm strategy, structure, and rivalry. Within this framework, competitiveness is conceptualised not as a static state, but as a dynamic process that evolves over time and is shaped by policy choices. The role of the state and institutional structure is not defined as a direct source of competitive advantage, but rather as a framework that supports the development of productive factors, sets standards, and regulates market functioning. From this perspective, competitiveness is not reduced to foreign trade performance but is instead associated with a country's productivity level and its capacity to generate sustainable prosperity (Porter, 1990).

The new institutional economics approach has provided an important theoretical foundation for explaining the role of institutional structure in shaping competitiveness. This perspective is based on the assumption that economic transactions are not costless and that market processes cannot be considered independently of institutional arrangements (Coase, 1998; North, 1993). Douglass North (1990) defined institutions as the set of rules that structure interactions between individuals and organisations, emphasising that these rules guide economic behaviour by reducing uncertainty. Within this framework, institutional structure enhances competitiveness insofar as it supports investment, production, and innovation activities, whereas arrangements that permit arbitrary practices and rent-seeking tend to constrain economic performance (North, 1994).

Within this approach, transaction costs constitute the primary transmission mechanism linking institutional structure to competitiveness. Information asymmetries, bounded rationality, and uncertainty in contract enforcement impose additional costs on economic actors in processes such as search, bargaining, contract drafting, and monitoring. In environments where legal and administrative arrangements are ineffective, rising transaction costs divert firms' resources away from productive activities and innovation towards ensuring contractual security. This dynamic reduces productivity levels and ultimately weakens competitiveness in the long run (Daniel Markovits, 2021).

Acemoglu and Robinson (2012) conceptualise this process through the distinction between inclusive and extractive institutions, arguing that the protection of property rights and broad-based access to economic opportunities constitute fundamental conditions for a competitive market structure (Acemoglu, Johnson, & Robinson, 2005).

Institutional structure is assessed not as a single-dimensional concept, but through its constituent components that perform distinct functions. Regulatory quality shapes firms' operating environments by determining market entry conditions, the intensity of competition, and the scale of bureaucratic burdens. Government effectiveness supports the continuity of economic activity through productive inputs such as infrastructure provision, human capital development, and policy stability. Legal security, in turn, enables long-term decision-making by economic actors by ensuring contract enforceability and the protection of property rights (Kaufmann & Kraay, 2024). The combined functioning of these components determines the level of transaction costs and, consequently, overall competitiveness performance.

Nevertheless, the theoretical literature has also debated that the impact of institutional structure on competitiveness is not uniformly positive or linear under all conditions. Particularly in developing economies, where technological progress largely occurs through learning and imitation, excessively strict enforcement of intellectual property rights and legal regulations may hinder access to technology and constrain competitiveness in the short run (Chang, 2002; Mahmood & Rufin, 2005). Moreover, excessive complexity in legal and administrative procedures can slow the resolution of disputes, thereby generating additional costs for economic activity (Olson, 1982). Especially in economic structures dominated by small and medium-sized enterprises, high compliance costs may limit firms' ability to benefit from economies of scale and create indirect pressures on competitiveness (Cordes, Dudley, & Washington, 2022).

## LITERATURE REVIEW

In the economics literature, an approach that goes beyond traditional production factors such as capital accumulation and labour has increasingly come to dominate explanations of countries' levels of development, income distribution disparities, and international competitiveness. This perspective emphasises the decisive role of institutional structure in shaping the efficiency and effective utilisation of production factors and, consequently, economic performance. Institutions are regarded as the fundamental constraints that determine the extent to which countries are able to realise their economic potential. It is argued that countries with strong institutional structures are more capable of reaching their potential income and productivity frontiers, whereas countries with weak institutional foundations tend to fall short of their potential, even when individuals possess skills and rationality, due to the inability to establish effective cooperation and incentive mechanisms. Olson (1996) emphasises that structures conducive to productive cooperation cannot emerge spontaneously from individual actions alone; therefore, institutions play a critical role in creating market incentives and in constraining disruptive arrangements such as lobbying and cartel-like behaviour.

Within this theoretical framework, North (1990, 2005) argues that institutions shape individuals' economic behaviour and developmental orientations, and that formal institutions, in particular, contribute to the formation of a more efficient market structure by mitigating market failures. Acemoglu (2003) conceptualises the role of good institutions in promoting welfare gains through three core

characteristics: (i) encouraging economic participation by securing property rights for broad segments of society; (ii) protecting investors by placing constraints on arbitrary interventions by elites and political actors; and (iii) ensuring equality of opportunity that enables investment in human capital. Rodrik (2000) likens the process of institutional development in developing countries to technology adaptation, contending that institutions constructed in line with local conditions within the framework of participatory democracies enhance resilience to external shocks, strengthen short-term stability, and support long-term growth performance.

The majority of empirical studies examining the relationship between institutional quality and economic performance reveal a positive association between these two variables. Barro (1996), in an analysis covering approximately 100 countries, demonstrates that the rule of law, market freedoms, and human capital support economic growth. Similarly, Goldsmith (1995) finds that improvements in democracy and property rights exert an accelerating effect on growth. Scully and Slottje (1991), along with Gwartney, Lawson, and Holcombe (1999), confirm the impact of economic and political freedoms on growth, emphasising that economic freedom constitutes the more dominant determinant. Focusing on the interaction between democracy and economic freedom, Abrams and Lewis (1995) identify that democratic countries achieve higher growth rates as a result of expanding economic freedoms, while De Haan and Siermann (1998) show that rising levels of economic freedom positively influence growth.

Evaluating national competitiveness not solely in terms of growth rates, but also in terms of the capacity to generate sustainable prosperity and total factor productivity (TFP), renders the importance of institutional structure more explicit. In this context, regional and sectoral studies provide micro-level support for the relationship between competitiveness and institutional structure. Bastos and Nasir (2004), in a firm-level analysis of Eastern European and Central Asian countries, demonstrate that competitive pressure constitutes a key driver of productivity and argue that policymakers should reduce entry barriers in order to foster open market structures. Quijada (2007) finds that, for Latin American and Caribbean countries, the effect of economic freedoms on TFP is stronger than that of financial freedoms. A study by Balcerzak and Pietrzak (2016), covering 24 European Union member states, confirms that institutional quality is a fundamental determinant of TFP growth. Focusing specifically on governance indicators, Nedić et al. (2020) show that regulatory quality and government effectiveness exert a more dominant influence on growth in Western Balkan countries than other institutional indicators. Similarly, Hayaloğlu and Bal (2015) identify that regulatory quality and the rule of law positively affect growth in upper-middle-income countries.

The control of corruption and the protection of property rights also constitute critical institutional mechanisms that directly affect competitiveness. Mauro (1995) and Méon and Sekkat (2005) demonstrate that corruption reduces investment and distorts resource allocation, while Cieślik and Goczek (2018) show that corruption slows growth through its deterrent effect on foreign direct investment. Nevertheless, Drury, Kriekhaus, and Lusztig (2006) highlight that democratic accountability mechanisms may partially mitigate the adverse effects of corruption.

In the context of property rights, De Soto (2000) argues that weak property rights represent one of the main obstacles to capital accumulation and entrepreneurship. With regard to technology transfer, Thompson and Rushing (1996) find that patent protection increases total factor productivity, while Branstetter, Fisman, and Foley (2006) emphasise that strong intellectual property rights encourage technology transfer from multinational corporations. Lewer and Saenz (2011) further demonstrate that economic growth occurs more rapidly in countries where property rights are effectively secured.

Nevertheless, the literature also includes studies indicating that the relationship between institutional quality and competitiveness is not always linear or unidirectional. White (2010), by distinguishing between the rule of law and the rule of authority, argues that predictability does not necessarily generate positive outcomes under all circumstances. Chang (2002) similarly contends that, in developing countries, technological progress often occurs through imitation, and that excessively strict enforcement of intellectual property rights and legal rules may weaken competitiveness in the short run. Yamak (2017), in a study focusing on Gulf countries, finds that anti-corruption efforts and accountability support growth, whereas the rule of law and regulatory quality exert negative effects. This outcome can be explained by the tendency of small and medium-sized enterprises in developing economies to shift towards the informal sector due to high compliance costs. Informality, in turn, undermines national competitiveness by limiting access to economies of scale and inhibiting institutionalisation. Consequently, the literature suggests that the impact of institutional structure on competitiveness should be evaluated in the context of a country's level of development, stage of reform, and the interaction among institutional components.

## **METHODOLOGY**

### **Data Collection**

This study examines the effects of institutional structure-which directly or indirectly shapes the economic environment on competitiveness. In order to compare countries' competitive performance, the Global Competitiveness Index (GCI) published by the World Economic Forum (WEF) and the World Competitiveness Yearbook published by the International Institute for Management Development (IMD) are employed as dependent variables.

The independent variables are drawn from institutional indicators capturing different dimensions of governance. These include Control of Corruption, which measures perceptions of the extent to which public power is exercised for private gain; Government Effectiveness, which reflects the quality and political independence of public services, the quality of policy formulation and implementation, and the government's commitment to such policies; Political Stability, which captures perceptions of politically motivated pressure and violence; Regulatory Quality, which measures the government's ability to formulate and implement policies that promote and facilitate private sector development by removing barriers to economic activity; Rule of Law, which reflects the extent to

which economic actors have confidence in and abide by societal rules, including contract enforcement, property rights, the quality of police and courts, and perceptions of crime and violence; and Voice and Accountability, which captures perceptions of citizens' ability to participate in the selection of governments, as well as freedom of expression, freedom of association, and media freedom.

**Table 1. Variables Used in the Study**

| DEPENDENT VARIABLES   |                                      |            |
|-----------------------|--------------------------------------|------------|
| GCI                   | Global Competitiveness Index         | WEF        |
| IMD                   | World Competitiveness Yearbook Index | IMD        |
| INDEPENDENT VARIABLES |                                      |            |
| VOAC                  | Voice and Accountability             | World Bank |
| RULAW                 | Rule of Law                          | World Bank |
| REGUQ                 | Regulatory Quality                   | World Bank |
| POLS                  | Political Stability                  | World Bank |
| GOVEF                 | Government Effectiveness             | World Bank |
| CORRUPT               | Control of Corruption                | World Bank |

The analyses of the study, which covers 35 OECD countries, are conducted using data for the period 2008-2017 in order to avoid the effects of methodological changes in the Global Competitiveness Index (GCI).

## Data Analysis

In this study, the panel data analysis method is adopted in order to examine the relationships among variables by simultaneously accounting for both the time dimension and cross-sectional units. Panel data sets allow the behaviour of individuals, firms, sectors, or countries to be observed over time and, in this respect, provide greater explanatory power compared to analyses based solely on time-series or cross-sectional data (Baltagi, 2008). Within this framework, the panel data model is expressed in the following general form, consisting of the dependent variable, explanatory variables, the time dimension, cross-sectional units, and the error term:

$$y_{it} = \alpha_i + \chi_{it} \beta + \varepsilon_{it} \quad t=1,2,\dots,T; \quad i=1,2,\dots,N$$

In the panel data literature, two main approaches are distinguished depending on how unobserved unit effects are incorporated into the model: fixed effects and random effects. The fixed effects model is based on the assumption that unobserved effects specific to cross-sectional units are correlated with the explanatory variables, and it incorporates these effects into the model through unit-specific constant terms. Under this approach, time-invariant unit characteristics are captured by the constant term, and therefore the variation in the model primarily arises from changes occurring over time (Cameron & Trivedi, 2010).

The random effects model, by contrast, is based on the assumption that unit-specific effects are randomly drawn from a larger population and are uncorrelated with the explanatory variables. In this framework, effects specific to cross-sectional units are treated as a component of the error term, allowing the model to generate inferences not only for the units included in the sample but also for potential units outside the sample (Hill, Griffiths & Lim, 2008; Yerdelen Tatođlu, 2012).

The choice between fixed effects and random effects models is commonly made in empirical applications using the Hausman test. The Hausman test examines the core assumption of the random effects model, namely the absence of correlation between the explanatory variables and the error term. The null hypothesis posits that there is no correlation between these two components, while the alternative hypothesis suggests the presence of a statistically significant relationship. If the test statistic falls below the critical value of the relevant chi-square distribution, the random effects model is preferred; otherwise, the fixed effects model is considered to provide more consistent estimates (Güriş, 2018).

Following model selection in panel data analysis, it is essential to examine potential violations of key assumptions that may affect the reliability of the estimated results. In this regard, the presence of issues such as heteroskedasticity, autocorrelation, and cross-sectional dependence in the error terms must be tested (Ün, 2018). Heteroskedasticity refers to systematic variation in the variance of the error term across levels of the explanatory variables, while autocorrelation denotes temporal dependence among error terms. Cross-sectional dependence, in turn, captures the correlation of error terms across different cross-sectional units.

For the fixed effects model, the presence of heteroskedasticity can be analysed using the Modified Wald test, while for the random effects model, the Levene, Brown, and Forsythe tests may be employed. The existence of autocorrelation can be investigated for both model types using the Durbin-Watson test developed by Bhargava, Franzini, and Narendranathan, as well as the Locally Best Invariant (LBI) test proposed by Baltagi and Wu (1999). Cross-sectional dependence, in turn, can be assessed using methods such as the Breusch-Pagan Lagrange Multiplier test, the Friedman rank correlation test, the Pesaran CD test, or the Frees Q test.

When model assumptions are violated, classical standard error estimators may yield inconsistent and misleading results. Therefore, in the presence of such problems, robust estimates that are resilient to cross-sectional dependence, autocorrelation, and heteroskedasticity can be obtained by employing the Driscoll-Kraay robust standard error estimator, which is applicable to both fixed and random effects models.

## Findings

This study aims to examine the effects of institutional structure on the Global Competitiveness Index and the World Competitiveness Yearbook Index. In this context, the institutional structure indicators considered are Voice and Accountability (VOAC), Rule of Law (RULAW), Regulatory Quality (REGUQ),

Political Stability (POLS), Government Effectiveness (GOVEF), and Control of Corruption (CORRUPT), as defined within the World Bank’s Worldwide Governance Indicators framework. In line with the objective of the study, the models constructed for the analysis are presented below.

$$GCI_{it} = \gamma_0 + \gamma_1 VOAC_{it} + \gamma_2 RULAW_{it} + \gamma_3 REGUQ_{it} + \gamma_4 POLS_{it} + \gamma_5 GOVEF_{it} + \gamma_6 CORRUPT_{it} + \epsilon_{it}$$

$$IMD_{it} = \gamma_0 + \gamma_1 VOAC_{it} + \gamma_2 RULAW_{it} + \gamma_3 REGUQ_{it} + \gamma_4 POLS_{it} + \gamma_5 GOVEF_{it} + \gamma_6 CORRUPT_{it} + \epsilon_{it}$$

In the study, the first step involves examining the extent and direction to which institutional structure indicators are reflected in the Global Competitiveness Index as reported by the World Economic Forum. Within the estimated model, the independent variables VOAC, POLS, and CORRUPT do not yield statistically significant results and are therefore excluded from the model. Consequently, the analysis investigating the effects of institutional structure on the GCI proceeds with RULAW, REGUQ, and GOVEF as the remaining independent variables.

$$GCI_{it} = \gamma_0 + \gamma_1 RULAW_{it} + \gamma_2 REGUQ_{it} + \gamma_3 GOVEF_{it} + \epsilon_{it}$$

At this stage, the analyses conducted to test the model comprising these variables yield statistically significant results at the 95 per cent confidence level. Accordingly, in the random effects model, the independent variables REGUQ and GOVEF are found to be statistically significant at the 1 per cent significance level, whereas the coefficient of the RULAW variable is not statistically significant. By contrast, in the fixed effects model, statistically significant results are obtained for REGUQ and RULAW at the 1 per cent significance level, and for GOVEF at the 10 per cent significance level. Consequently, in cases where statistically significant results are observed, regulatory quality and government effectiveness exert a positive effect on the GCI, while the rule of law variable has a negative impact. At this point, the Hausman test is employed to determine which estimator should be considered, and based on the test results, the fixed effects model is selected as the appropriate specification.

**Table 2. Results of the Analyses Conducted for the GCI Index**

| Independent Variables          | Random Effects | Fixed Effects | Driscoll-Kraay Estimator |
|--------------------------------|----------------|---------------|--------------------------|
| REGUQ                          | 0.1940564***   | 0.1958221***  | 0.1958221***             |
| GOVEF                          | 0.1326535***   | 0.0608253*    | 0.0608253                |
| RULAW                          | -0.0362502     | -0.1754909*** | -0.1754909**             |
| c                              | 3.93616***     | 4.69386***    | 4.69386                  |
| F                              |                | 20.73***      | 25.43                    |
| Chi2                           | 129.99***      |               |                          |
| r2_w                           | 0.1262         | 0.1662        | 0.1662                   |
| r2_b                           | 0.7550         | 0.4135        |                          |
| r2_o                           | 0.7203         | 0.3690        |                          |
| Hausman Test                   |                | 52.27***      | 0.0000                   |
| <b>Heteroskedasticity Test</b> |                |               |                          |

|   |            |    |
|---|------------|----|
| Modified Wald Test                          | 863.02***  |    |
| <b>Autocorrelation Test</b>                 |            |    |
| Modified Bhargava et al. Durbin-Watson Test | 0.56081804 | <2 |
| Baltagi Wu LBI Test                         | 0.88573973 | <2 |
| <b>Cross-Sectional Dependence</b>           |            |    |
| Friedman Test                               | 156.662*** |    |
| *p<0.10; **p<0.05; ***p<0.01                |            |    |

Following the selection of the fixed effects model, tests were conducted to assess whether the model exhibited deviations from the key assumptions that could lead to misleading results. In this context, the Levene, Brown, and Forsythe test statistics (W0, W50, and W10) indicate the presence of heteroskedasticity in the model. The Durbin-Watson test developed by Bhargava, Franzini, and Narendranathan, along with the Baltagi-Wu LBI test both yielding values below 2 reveal the existence of autocorrelation. Moreover, the Friedman test confirms the presence of cross-sectional dependence among units. Consequently, to correct for these violations, the model is re-estimated using the Driscoll-Kraay estimator, which provides robust standard errors.

The results obtained from the Driscoll-Kraay estimator indicate that the independent variables REGUQ and RULAW are statistically significant at the 1 per cent and 5 per cent levels, respectively, whereas the GOVEF variable is not statistically significant. According to these findings, a one-unit increase in the regulatory quality index raises the GCI by 0.196 units, while a one-unit increase in the rule of law index reduces the GCI by 0.175 units. In addition, the explanatory variables account for 16.6 per cent of the variation in the GCI.

Following the analyses based on the GCI, the impact of institutional structure on competitiveness is further examined using the IMD index, another widely used measure for comparing countries' competitive performance. The results indicate that the independent variables VOAC, POLS, and CORRUPT do not yield statistically significant outcomes and are therefore excluded from the model. In this regard, as in the analysis conducted for the GCI, the study proceeds with the variables RULAW, REGUQ, and GOVEF.

$$IMD_{it} = \gamma_0 + \gamma_1 RULAW_{it} + \gamma_2 REGUQ_{it} + \gamma_3 GOVEF_{it} + \epsilon_{it}$$

The analyses conducted to test the model comprising these variables yield statistically significant results at the 95 per cent confidence level. Accordingly, in the random effects model, all independent variables are statistically significant at the 1 per cent significance level, while in the fixed effects model, REGUQ and RULAW are significant at the 1 per cent level and GOVEF is significant at the 5 per cent level. The results indicate that, in both models, the REGUQ and GOVEF variables exert a positive effect on the IMD index, whereas the RULAW variable has a negative effect.

**Table 3. Results of the Analyses Conducted for the IMD Index**

| Independent Variables                        | Random Effects | Fixed Effects | Driscoll-Kraay Estimator |
|--|----------------|---------------|--------------------------|
| REGUQ  | 6.46619***     | 6.041173***   | 6.041173***              |
| GOVEF  | 8.018188***    | 4.379052**    | 4.379052*                |
| RULAW  | -5.219027***   | -13.93377***  | -13.93377***             |
| c  | 45.0012***     | 91.3593***    | 91.3593***               |
|  |                |               |                          |
| F  |                | 12.42***      | 44.37***                 |
| Chi2   | 100.01***      |               |                          |
| r2_w   | 0.0461         | 0.1067        | 0.1067                   |
| r2_b   | 0.7805         | 0.2995        |                          |
| r2_o   | 0.6563         | 0.1870        |                          |
| Hausman Test                                 |                | 45.53***      | 0.0000                   |
| <b>Heteroskedasticity Test</b>               |                |               |                          |
| Modified Wald Test                           |                | 788.67***     |                          |
| <b>Autocorrelation Test</b>                  |                |               |                          |
| Modified Bhargava et al. Durbin-Watson Test  |                | 0.74708728    | <2                       |
| Baltagi Wu LBI Test                          |                | 1.05712       | <2                       |
| <b>Cross-Sectional Dependence</b>            |                |               |                          |
| Friedman Test                                |                | 154.954***    |                          |
| <b>*p&lt;0.10; **p&lt;0.05; ***p&lt;0.01</b> |                |               |                          |

To determine whether the random effects or fixed effects model should be preferred, the Hausman test is applied. Based on the results obtained, the null hypothesis ( $H_0$ ) asserting the absence of correlation between the error term components and the independent variables is rejected, and the fixed effects model is therefore selected.

Subsequently, the presence of heteroskedasticity, autocorrelation, and cross-sectional dependence issues that may lead to misleading results are examined. In this context, the Modified Wald test indicates the presence of heteroskedasticity in the model. The Durbin-Watson test developed by Bhargava, Franzini, and Narendranathan, together with the Baltagi-Wu LBI test, both yielding values below 2, reveal the existence of autocorrelation. Furthermore, the results of the Friedman test confirm the presence of cross-sectional dependence among units. Accordingly, due to these violations of the underlying assumptions, the model is re-estimated using the Driscoll-Kraay robust standard error estimator.

An examination of the results obtained from the Driscoll-Kraay estimator shows that the independent variables REGUQ and GOVEF have a statistically significant positive effect on the IMD index at the 1 per cent and 10 per cent significance levels, respectively, while the RULAW variable has a statistically significant negative effect on the IMD index at the 1 per cent level. Accordingly, a one-unit increase in the regulatory quality and government effectiveness indices increases the IMD index by

6.041 and 4.379 units, respectively, whereas a one-unit increase in the rule of law index reduces the IMD index by 13.933 units. In addition, the variables included in the model explain 10.6 per cent of the variation in the IMD index.

## CONCLUSION

In this study, the impact of institutional structure on countries' competitiveness is examined using panel data methods based on data from 35 OECD countries over the period 2008-2017. Competitiveness is represented by the Global Competitiveness Index and the World Competitiveness Yearbook indicators, while institutional structure is analysed within the framework of the World Bank's Governance Indicators. The empirical results reveal that institutional structure exerts a significant influence on competitiveness; however, the magnitude and direction of this effect vary across different institutional indicators.

The findings indicate that the variables Regulatory Quality and Government Effectiveness have statistically significant and positive effects on both competitiveness indices. This outcome confirms that the development of market-friendly policies, the reduction of bureaucratic obstacles, and the effective provision of public services free from political interference constitute key factors supporting countries' competitive advantage. In particular, improvements in regulatory quality enhance private sector dynamism by reducing uncertainty and lowering transaction costs.

The most striking finding of the study from a literature perspective is that the Rule of Law variable exerts a negative effect on competitiveness. This unexpected outcome may be explained by the increasing complexity of legal procedures and rigid regulatory frameworks in highly developed economies such as OECD countries, which can raise compliance costs and slow economic activity. The density of legal procedures and potential delays in judicial processes may compel firms to allocate resources to legal compliance rather than productive activities, or to relocate operations to alternative countries, thereby exerting downward pressure on competitiveness.

Overall, the findings demonstrate that enhancing competitiveness depends not only on the existence of institutional structures, but also on the manner in which they function. Rather than focusing solely on strengthening the legal framework, policymakers are advised to adopt an approach centred on an "effective state" that improves regulatory quality, reduces bureaucratic burdens, and lowers costs by accelerating legal and administrative processes. Future research would benefit from a more detailed examination of the underlying factors driving the negative impact of the rule of law such as judicial efficiency and compliance costs.

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