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## Institutional Quality and Unemployment in OECD Nations: A Panel Causality Test Using a Fourier Function

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### Abstract

A significant impact of institutional quality on sustainable growth has been revealed in recent studies. This study aims to examine the relationship between different institutions and their unemployment rates, considering the legal system and property rights index. A novel and robust panel Fourier causality test was conducted to investigate 38 OECD nations for the relationship between their institutional quality and unemployment rates between the years 2000 and 2018. Regardless of stationarity, the adopted method allowed for the endogenous identification of structures, locations, and forms, and the evaluation of causal relationships. In addition, the Fourier method and the trigonometric terms were used for analyzing the structural changes. According to the findings, a unidirectional causal relationship existed between the quality of the legal system and property rights and the unemployment rates in the investigated nations during the relevant period. In addition, bidirectional causality existed between the variables in Germany and the United States. It is therefore recommended to necessarily improve a nation's institutional structure to reduce its unemployment rate. Low unemployment rates would be achieved by improving institutional quality, particularly in developing nations. Therefore, policymakers must focus on formulating policies to reduce unemployment in the long run, considering the legal system and property rights of the nation.

Keywords: institutional quality, unemployment rate, panel fourier causality, OECD, legal system, property rights

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## 1. Introduction

The reason for the differences in the economic performances of different nations has been the most crucial debate in the community of economic research in recent years. The traditional growth theories provide no resolution to this debate. The neoclassical perspective considers the factors of production (accumulation of labor, human and physical capital, etc.) and technology among the conditions that determine the per capita output. These traditional factors are currently accepted as the main determinants of growth. However, what determines these factors is the critical question (Rodrik, 2000). None of the growth studies reported in the literature considered economic, political, and social institutions and their changes until the study conducted by North (1990).

Institutions are the main contributors to the differences in the economic growth and development of different nations. The investigation of how the institutions change and create effects would assist in understanding how these institutions could be improved to positively affect economic performance (Acemoglu & Robinson, 2008).

Acemoglu (2003) identified three vital elements for inclusive institutions that increase economic welfare by stimulating physical, human, and technological investments, which are as follows:

- Property rights must be enforceable throughout society. This would encourage individuals to participate in investment and economic life.
- Various constraints should be imposed on elites, politicians, and other influential groups. This would ensure that the incomes of the society and state investments are not used for the interests of the stated groups.
- Equal opportunities should be provided to different sections of the society. This would accelerate the investment in human capital and the creation of productive economic activities.

Currently, it is important to consider how unemployment is related to growth. As a general rule, economic growth is believed to lower unemployment. According to Okun's Law, a 1% increase in the GDP decreases unemployment by 0.5% (Okun, 1962). However, relationship between unemployment and economic growth are quite complex and are influenced by a range of factors. Technological changes, investments, industry dynamics, structural shifts, and labor market institutions are a few factors that influence unemployment (Peng et al., 2017; Aghion & Howitt, 2009). In separate studies on technology, Acemoglu and Restrepo (2018) and Acemoglu and Autor (2011) concluded that technology and employment are not mutually exclusive and that technological progress could both create and destroy jobs. It is argued that while technology could enhance economic growth and reduce unemployment by increasing productivity, it could also lead to greater unemployment by lowering the demand for labor. Acemoglu and Robinson (2012) associated the quality of the institutional structure closely with technology and the factors stated above.

Rodrik (1999) emphasized that economic growth theories are inconsistent with real-world data and that this fact complicates the understanding of the various factors associated with growth. It is, therefore, necessary

to conduct empirical studies. If the three conditions outlined by Acemoglu (2003), as described above, are fulfilled, the institutional quality would boost growth and decrease unemployment. This led to the formation of the hypothesis in the present study. Using the panel causality test developed by Yilanci and Gorus (2020), the present study investigated whether this hypothesis empirically supported in OECD nations.

## 2. Literature Review

The present study is based on the relationship between unemployment and institutional quality. Numerous studies have explained the causes of unemployment in different nations and regions, revealing that various factors influence the labor markets. However, these studies were generally conducted through labor market institutions.

The characterization of labor market institutions is essential in analyzing the unemployment rates. However, in the literature, the role of labor market institutions is widely debated<sup>1</sup>. For instance, Nickell et al. (2003) used the available employment protection, the benefit replacement rate, benefit duration, union density, coordination, and employment taxes as the institutional variables of the labor market. However, to date, no consensus has been reached on effective labor institutions as interactions between institutions and further complex institutional arrangements may occur (Eichhorst et al., 2010).

Different from the literature, the labor market institutions stated in the present study are closely related to the legal institutions. Institutional policies against unemployment may be characterized as policies aiming to eliminate the adverse effects of institutional arrangements on labor markets and reduce unemployment by changing the institutions related to labor markets (Ernst et al., 2022). In addition, different institutional structures in different nations may lead to different performances (Belot & Ours, 2001). Therefore, understanding which institutional structures reduce unemployment is critical to formulating effective unemployment policies.

This study aims to investigate the interactions between the legal system and property rights and the unemployment rates. Institutions play a crucial role in maintaining macroeconomic stability, preventing potential crises, and reducing the impact of shocks (Rodrik, 2000). Political institutions of a nation also have a significant influence on economic institutions (Acemoglu, Johnson, & Robinson, 2005). Therefore, establishing an accurate diagnosis by examining the political institutions while analyzing a nation's economic indicators is necessary. The nations with macroeconomic issues, such as high inflation, large budget deficits, and overvalued exchange rates, which were investigated in the present study, often have weak institutions (Acemoglu et al., 2003). Therefore, in the present study, the legal systems and property rights variable was included as the representative of political institutions (Acemoglu & Robinson, 2005). A novel and robust Panel Fourier Yilanci and Gorus (2020) causality test was adopted to investigate the relationship between institutional quality and unemployment.

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<sup>1</sup> See Nickell, 1997; Nickell and Layard, 1999; Blanchard and Wolfers, 2000; Nickell, 2003; Belot and van Ours, 2004; Freeman, 2005; Ederveen and Thissen, 2007; Griffith et al., 2007; Freeman, 2008; Stockhammer and Klär, 2011, Avdagic and Salardi, 2013.

The findings of the present study would contribute to the literature on the role of institutional quality in shaping labor market outcomes for two reasons. First, the analysis was conducted using an extensive dataset of OECD countries for the pre-pandemic period. Second, the effect of the legal system and property rights institutional variable, which reflects a broader framework compared to the labor market institutions, has not been investigated previously, as evident in the literature.

In order to ensure economic stability and growth, it is crucial to improve the legal system and protect property rights. A strong and reliable system attracts businesses that invest and create jobs, resulting in a lower unemployment rate. The following are a few specific ways in which better legal systems and property rights could reduce unemployment:

- Encouragement of investment and economic growth: An effective legal system and property rights regime would provide businesses with security and protection. The investment of businesses is based on the presence of reliable legal systems and strong property rights in the nation, which ensure the safety and security of these investments. Legal systems and property rights are also important factors in attracting foreign investment. The increased investment then results in job creation and a reduction in unemployment (Acemoglu et al., 2005; Kaufmann et al., 2011).
- Increased access to capital: A reliable legal system ensures that individuals and businesses can use their property as collateral to secure loans. The commencement and expansion of a business require access to credit and loans, and a better legal system would facilitate this (La Porta et al., 1998).
- Encouragement of entrepreneurship and innovation: Individuals are more likely to invest in their businesses or pursue innovative ideas when they are confident that their property rights are secure. Therefore, a strong legal system would ensure the protection of investments, thereby facilitating the flourishing of new businesses, ultimately creating jobs and reducing the unemployment rate (Glaeser et al., 2004).
- Improved labor market regulations and protection of workers: A better legal system would improve labor market regulations and ensure that the workers are treated fairly and protected from exploitation. This would create a better efficient labor market. Consequently, worker productivity and satisfaction would be increased, rendering it convenient for employers to hire workers and for workers to find employment, ultimately reducing the unemployment rate (Botero et al., 2004; Acemoglu & Shimer, 1999).
- Contract enforcement and reduced transaction costs: A reliable legal system would ensure that contracts are enforced further efficiently, and transaction costs are reduced. This would imply convenient and rapid negotiation deals with other companies or individuals, which would increase economic activity and, ultimately, job creation (Deakin et al., 2014).

Therefore, a better legal system and property rights regime would increase investments and economic growth while improving labor regulations and contract enforcement and reducing transaction costs. These factors would collectively contribute to a lower unemployment rate. In addition, this would improve living standards through higher wages, leading to overall economic stability in the nation. Developing nations with inadequate legal systems that hinder economic growth could particularly benefit from this.

### 3. Data and Methodology

#### 3.1. Data

The causality relationship between institution quality and the unemployment rate was analyzed in the present study using the Fraser Institute (FI) and OECD data<sup>2</sup> of OECD countries for the 2000–2018 period. All 38 nations in the OECD were investigated using the model, which utilized the unemployment rates from OECD and the institution quality represented by the FI's "legal system and property rights" (LP). The LP index included the following sub-components:

- Judicial independence: This subcomponent describes a judiciary independent of political influence by citizens, government officials, and firms.
- Impartial courts: This subcomponent aims to determine whether the legal framework is capable of resolving disputes arising due to business practices and regulations.
- Protection of property rights: This subcomponent aims to reveal whether property rights are clearly defined by the law and are well protected.
- Military interference in the rule of law and politics: Since the military is not elected, this subcomponent illustrates the problem of the involvement of the military in politics. Military governance would deteriorate the investment climates and reduce government effectiveness in the long run.
- Integrity of the legal system: This subcomponent comprises two aspects: "law" and "order." The "law" aspect measures the strength and impartiality of the legal system, while the "order" aspect measures public compliance with the law.
- Legal enforcement of contracts: This subcomponent also has two aspects: "time" and "money". The "time" aspect involves the measurement of easy-to-do business estimates over time. The "money" aspect involves monetary costs.
- Regulatory costs of the sale of real property: This subcomponent also has two aspects. The first is the time cost to transfer ownership, which is measured by the number of calendar days involved, and the second is the monetary cost.
- Reliability of police and business costs of crime: This subcomponent measures the reliability of the police in terms of enforcing law and order in the nation.

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<sup>2</sup> The unemployment rates of 38 OECD countries achieved from <https://www.oecd.org/sdd/labour-stats/> (Accessed Date: 28.12.2022)

The above subcomponents were assigned equal weights when calculating the LP index<sup>3</sup>. The LP index indicates that the protection of persons and their rightfully acquired property is a central element of both economic freedom and civil society. This is because such protection encourages individuals to invest and undertake risks, which leads to economic growth and development. Property rights protection and economic growth are closely associated, as secure property rights create incentives for individuals to invest and engage in productive activities, which leads to economic growth. In order for a legal system to be consistent with economic freedom, it must include the rule of law, security of property rights, unbiased and independent judiciaries, and effective enforcement of laws, which is accomplished when the LP index values are higher in order. The LP index is calculated using a ten-point scale. An LP index approaching zero indicates the weakening of property rights and the legal system. In summary, the LP index provides an overview of a nation's economic, political, and legal development, enabling comparisons between nations and the evaluation of their progress over time.

Descriptive statistics are provided in Table 1. The average unemployment rate for the evaluated period of 19 years was determined to be 7.802%. However, the minimum and maximum values obtained for different nations varied from 1.81% to 27.47% during this period. The average value of the LP variable was determined to be 7.231. The lowest LP value was recorded for Colombia in 2003, while the highest value was recorded for Denmark in 2007. Greece had the highest unemployment rate in 2013, while Luxembourg had the lowest rate in 2001. The difference between the minimum and maximum values of LP was negligible. Since Kurtosis was positive in terms of unemployment rates, the series had a sharp distribution, while the LP variable was negative and flattened. In addition, according to the Skewness values, the unemployment rate was skewed to the left, while the LP variable was skewed to the right.

Table 1: Descriptive statistics

Statistics	Unemployment Rate (%)	LP
Mean	7.802	7.231
Median	6.760	7.306
Standard Deviation	4.393	1.127
Kurtosis	3.314	-0.670
Skewness	1.664	-0.433
Maximum	27.47	8.998
Minimum	1.81	4.458

The correlation matrix values for different periods are provided in Table 2. The correlation between unemployment and LP was negative for all periods, and the correlation values were close. In addition, in the

<sup>3</sup> <https://www.fraserinstitute.org/sites/default/files/human-freedom-index-2022.pdf> (Accessed Date: 18.04.2023)

global crisis period, the correlation value was  $-0.324$ . Consequently, the relationship between the two variables was not affected by the crisis and remained constant.

Table 2: Correlation matrix

	2000–2004	2005–2009	2010–2014	2015–2018	2000–2018
Correlation	-0.327	-0.326	-0.323	-0.322	-0.329

Substantial differences were observed in the unemployment rates among different OECD nations. While the average unemployment rate of the 38 nations investigated in the present study was 8.14% in 2000, the value increased to 9.41% during the global crisis period and then decreased to 5.93% in 2018 prior to the pandemic. In the post-crisis period, unemployment rates above 25% were observed in Spain, Greece, and Estonia. In 2018, besides the above nations, Italy, Colombia, and Turkey could not reduce their unemployment rates to single digits. Table 3 lists the 5-year average values of unemployment rates along with the standard errors for the OECD nations during the 2000–2018 period. Accordingly, with the global crisis, the NAIRU value of the OECD nations increased from 7.836% to 7.856%, and this unemployment rate level continued in the following years. On the other hand, only minor differences were observed in the 5-year standard deviation values, with the highest standard deviation recorded during 2005–2009.

Table 3: Unemployment rates (%)

	Mean	Standard Deviation
2000–2004	7.836	4.418
2005–2009	7.834	4.421
2010–2014	7.856	4.415
2015–2018	7.854	4.420

The year 2019, which marks the emergence of the pandemic, was not included in the analysis. However, it is noteworthy that the average unemployment rate increased to 7.861% in 2019. While the unemployment rates in certain countries decreased in 2019 compared to the previous year, the unemployment rates in Colombia, Iceland, Mexico, Sweden, and Turkey increased significantly during this year.

Figure 1 presents the unemployment rates according to the income levels in the OECD nations. The OECD statistics indicated that 34 of 38 nations were high-income countries, while four were upper-middle-income countries<sup>4</sup>. In the high-income nations, the average unemployment rate was 7.78% between 2000 and

<sup>4</sup> (High Income Countries): Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Rep., Latvia, Lithuania, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States. (Upper Middle Income Countries): Colombia, Costa Rica, Mexico, Turkey.

2018. In the aftermath of the global recession, the unemployment rates increased. Prior to the pandemic, the unemployment rates declined during 2015–2018. On the other hand, the upper-middle-income nations presented a long-term average unemployment rate of 7.88%. These nations, despite having higher unemployment rates prior to the global crisis, had lower unemployment rates after the crisis.

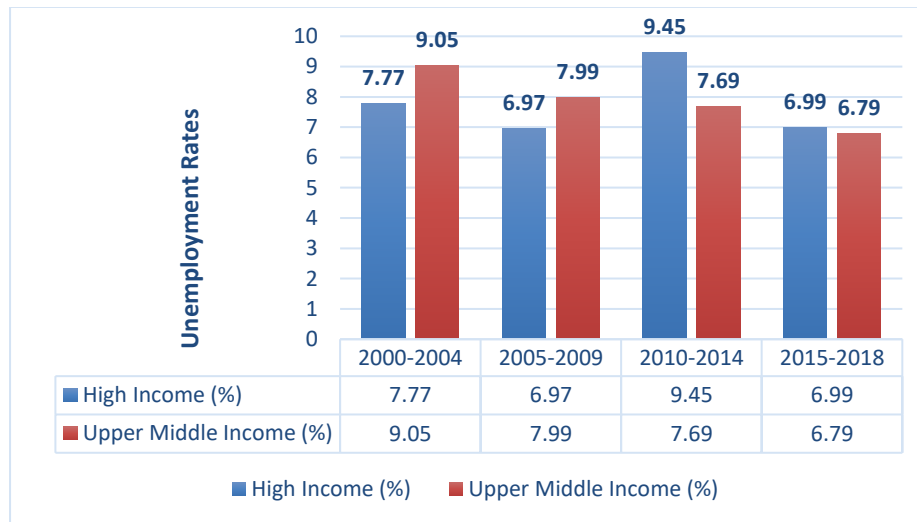


Figure 1: Unemployment rates based on the income level of the nations

The unemployment rate data for the 2000–2004 period revealed that Colombia, Poland, Slovak Republic, and Lithuania had the highest unemployment rates of 20.52%, 19.90%, 19.38%, and 16.84%, respectively. In the 2005–2009 period, Estonia and Spain had the highest unemployment rate of 17.86%, followed by Poland with 17.75%, Latvia with 17.52%, and the Slovak Republic with 16.26% unemployment rates. In the 2010–2014 period, Greece had the highest unemployment rate of 27.47%, followed by Estonia and Spain had the highest unemployment rate of 26.09%, Latvia with 19.48% and Lithuania with 17.81%. According to the statistics for 2014–2018, the highest unemployment rates were recorded for Estonia (22.06%), Greece (23.54%), and Spain (22.06%). In the global crisis period and afterward, Estonia, Greece, Latvia, Lithuania, and Spain had high unemployment rates, which contributed to a rise in the average unemployment rate in high-income nations.

Furthermore, besides Figure 1, unemployment rates were studied in different intervals to better understand the change in unemployment rates. For instance, Figure 2 presents the case of the 2000–2004 period, and the countries are grouped based on their employment rates, as follows: (0–5)%, (5–10)%, and 10% and above<sup>5</sup>. Subsequently, for the country groups with these unemployment rates, the unemployment rates for the other periods were also calculated. Accordingly, in the 2000–2004 period, the country group with the lowest

<sup>5</sup> (0–5)?: Austria Denmark Iceland Ireland Korea Luxembourg Mexico Netherlands Norway Portugal Switzerland United Kingdom. (5–10)?: Australia, Belgium, Canada, Costa Rica, Czech Republic, France, Germany, Hungary, Italy, Japan, New Zealand, Slovenia, Sweden, Turkey, United States. (10+)?: Chile, Colombia, Estonia, Finland, Greece, Israel, Latvia, Lithuania, Poland, Slovak Republic, Spain.



unemployment rates had an average unemployment rate of 3.83%, and an increasing trend of unemployment rates was observed. In this group, the unemployment rate surpassed 5% after 2010. The nations with an unemployment rate of (5–10)% exhibited a steady trend, and the volatility of this group was relatively low compared to the other groups. In nations with unemployment rates of 10% or above, a decline was observed in the unemployment rates prior to the global financial crisis. After the crisis, the average unemployment rate of these nations increased to 14.11% and further to 10% in the following period. The average unemployment rate of 12.04% determined for the entire period was less than the average unemployment rate of the first period.

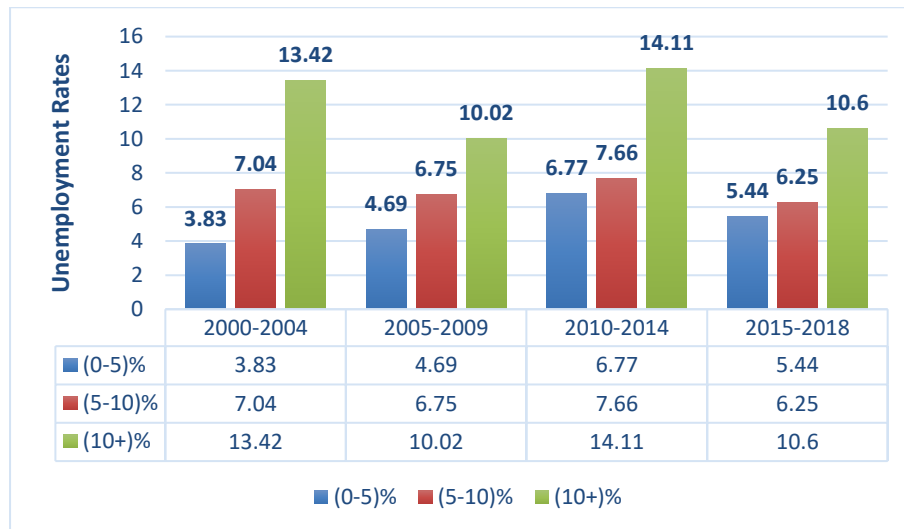


Figure 2: Unemployment rates in different intervals

Statistics and the figures demonstrate that the unemployment rates have changed over time in different nations. Therefore, it was necessary to further investigate the institutional structures of the nations to reveal the source of these changes. This would enable the decision-makers to create an environment that encourages employment growth. In addition, understanding the unemployment dynamics would provide valuable insights into economic development. In order to achieve this objective, econometric analysis was conducted in the present study.

### 3.2. Econometric Methodology

The causality test developed by Toda and Yamamoto (1995), as well as the panel causality test developed by Dumitrescu and Hurlin (2012), is performed without considering the structural breaks in the variables. In this regard, Emirmahmutoglu and Kose (2011) proposed a panel causality test which is based on the Toda-Yamamoto causality test, robust to the cointegration properties of variables. Fisher test (1932) was referred to for obtaining the panel test statistics as the panel test statistics fit the chi-squared distribution. According to his study, if the model has cross-section dependence, bootstrap simulations should be used for obtaining the critical values of Fisher's test statistics.

Nazlioglu et al. (2016) improved the Toda-Yamamoto procedure and developed a causality test with the Fourier function. This test could successfully capture the internal structural breaks. Moreover, Yilanci and Gorus (2020) proposed a panel version of the Fourier Toda-Yamamoto test to test the null hypothesis of no causality and estimate a bivariate panel VAR model, which is expressed as follows:

$$\begin{aligned} y_{i,t} &= \mu_i + \sum_{j=1}^{k_i + d_{\max_i}} A_{11} y_{i,t-j} + \sum_{j=1}^{k_i + d_{\max_i}} A_{12} y_{i,t-j} + A_{13} \sin\left(\frac{2\pi t f_i}{T}\right) + A_{14} \cos\left(\frac{2\pi t f_i}{T}\right) + u_{i,t} \\ x_{i,t} &= \mu_i + \sum_{j=1}^{k_i + d_{\max_i}} A_{21} y_{i,t-j} + \sum_{j=1}^{k_i + d_{\max_i}} A_{22} y_{i,t-j} + A_{23} \sin\left(\frac{2\pi t f_i}{T}\right) + A_{24} \cos\left(\frac{2\pi t f_i}{T}\right) + u_{i,t} \end{aligned}$$

The equations are estimated separately for each country, and the constraints of the first 'k-lags' for the relevant variable are applied when performing the Wald test. Afterward, the bootstrap p-value is calculated. The study by Emirmahmutoglu and Kose (2011) is referred to when using Fisher's test statistics.

This analysis could have been conducted using a different method. Toda-Yamamoto and Dumitrescu-Hurlin are two tests reported commonly in the literature in this regard. These tests, however, do not consider structural breaks and, therefore, produce incorrect results. Furthermore, these tests have the limitation of investigating causality across all nations. The Yilanci and Gorus (2020) test, on the other hand, calculates the causality of both individual nations and all nations in the panel. Another important aspect of the Yilanci and Gorus (2020) test is that it determines the number, location, and form of breaks internally. In the present study, 39 causality analyses were performed (for 38 nations and 1 Panel Fisher) using the Yilanci and Gorus (2020) test which does not require stationary variables. Since 38 countries and 19 years were included in the analysis, stabilizing two variables (by considering their differences) would lead to the loss of important information. The Yilanci and Gorus (2020) test would prevent this issue. Moreover, Fourier analysis is extremely effective at capturing soft breaks as it includes trigonometric terms. In addition to considering cross-sectional dependence, this test yields robust results. Therefore, the Yilanci and Gorus (2020) test was used in the present study.

#### 4. Empirical Results

The present study revealed the relationship between LP and unemployment rates, and the results are presented in Table 4. The causality from LP to unemployment rates was revealed for Costa Rica, France, Germany, Hungary, Ireland, Korea Republic, Latvia, Lithuania, Luxemburg, Slovak Republic, Switzerland, and the United States. In addition, causality from unemployment rates to LP was revealed for Canada, the Czech Republic, Germany, Slovenia, and the United States. Therefore, these empirical results of the PFTY test provided robust evidence of bidirectional causality from LP to unemployment rates in the relevant period.

The causal relationship between unemployment rates and LP varied among different nations based on various factors. First, the effectiveness and the quality of LP could differ from one nation to another. With a well-functioning LP, a nation could attract greater domestic and foreign investment, creating numerous jobs and thereby lowering unemployment (Djankov et al., 2002). A second factor that could affect causality between LP and unemployment rates was the difference in the economic structures and industrial composition across

nations. A nation with a strong manufacturing sector and high technology investments would require greater protection for intellectual property rights, while a nation with a strong service sector would prioritize contract enforcement and dispute resolution (Maskus, 2000). As a third factor, different nations could have different labor market policies and regulations that would affect the causal relationship. The nations with flexible labor market policies would have lower unemployment rates while having weaker property rights protection, resulting in a weaker causal relationship between LP and unemployment rates (Bassanini & Duval, 2006).

Table 4: The causal relationship between unemployment rates and the legal system and property rights

LP does not cause the unemployment rate				The unemployment rate does not cause LP				Results
Country	Frequency	Test Stat.	p-value	Country	Frequency	Test Stat.	p-value	
Australia	1	3.4249	0.7250	Australia	1	0.001	0.9745	LP→UR
Austria	1	6.4083	0.5525	Austria	1	3.4006	0.2445	LP→UR
Belgium	1	3.5876	0.2465	Belgium	1	2.818	0.1165	LP→UR
Canada	2	3.1512	0.8245	Canada	2	4.8683	0.044**	LP←UR
Chile	1	3.5610	0.8425	Chile	1	0.6751	0.394	LP→UR
Colombia	2	6.7412	0.4040	Colombia	2	2.1154	0.4025	LP→UR
Costa Rica	1	6.6554	0.0005***	Costa Rica	1	0.7738	0.668	LP→UR
Czech Republic	2	6.6028	0.1225	Czech Republic	2	7.9084	0.0745***	LP←UR
Denmark	1	3.4305	0.4265	Denmark	1	0.5635	0.4845	LP→UR
Estonia	1	6.4728	0.2975	Estonia	1	0.9956	0.6145	LP→UR
Finland	2	3.4698	0.7040	Finland	2	2.8606	0.12	LP→UR
France	2	6.2957	0.0285**	France	2	3.2406	0.2575	LP→UR
Germany	1	6.3866	0.0285**	Germany	1	42.1458	0.0015*	LP↔UR
Greece	1	3.1696	0.3785	Greece	1	3.6109	0.0895	LP→UR
Hungary	1	3.2272	0.047**	Hungary	1	0.7853	0.3915	LP→UR
Iceland	3	3.1232	0.4275	Iceland	3	0.2357	0.662	LP→UR
Ireland	2	6.5321	0.004*	Ireland	2	0.7461	0.6905	LP→UR
Israel	3	6.6594	0.7925	Israel	3	0.359	0.855	LP→UR
Italy	1	6.1038	0.6310	Italy	1	1.0391	0.6105	LP←UR
Japan	2	3.4573	0.4875	Japan	2	1.4218	0.2685	LP→UR
Korea, Rep.	2	3.2365	0.088***	Korea, Rep.	2	1.7796	0.2225	LP→UR
Latvia	1	6.6814	0.018**	Latvia	1	1.2101	0.58	LP→UR
Lithuania	1	6.5691	0.0075*	Lithuania	1	1.6198	0.4575	LP→UR
Luxembourg	2	6.1054	0.0675***	Luxembourg	2	0.0221	0.991	LP→UR
Mexico	1	3.2263	0.3320	Mexico	1	0.416	0.5185	LP→UR
Netherlands	1	6.6312	0.2785	Netherlands	1	5.3197	0.134	LP→UR
New Zealand	1	3.2858	0.5835	New Zealand	1	0.1608	0.693	LP→UR
Norway	1	6.7471	0.8955	Norway	1	0.7456	0.711	LP→UR

LP does not cause the unemployment rate				The unemployment rate does not cause LP				Results
Country	Frequency	Test Stat.	p-value	Country	Frequency	Test Stat.	p-value	
Poland	1	6.2125	0.3320	Poland	1	4.5344	0.176	LP→UR
Portugal	1	6.6076	0.2005	Portugal	1	0.0892	0.956	LP→UR
Slovak Republic	1	6.6296	0.0015*	Slovak Republic	1	0.7275	0.7095	LP→UR
Slovenia	2	3.5657	0.3850	Slovenia	2	3.4279	0.097***	LP←UR
Spain	1	6.1676	0.9550	Spain	1	2.4442	0.345	LP→UR
Sweden	1	3.5286	0.1590	Sweden	1	0.3794	0.572	LP→UR
Switzerland	2	3.4242	0.007*	Switzerland	2	0.5892	0.473	LP→UR
Turkey	3	3.4102	0.5695	Turkey	3	1.22	0.304	LP→UR
United Kingdom	1	3.2208	0.3365	United Kingdom	1	0.0523	0.8255	LP→UR
United States	1	6.7192	0.097***	United States	1	7.7929	0.069***	LP↔UR
Panel Fisher	-	145.3884	0.000003*	Panel Fisher	-	91.8779	0.1037	LP→UR

Note: \*, \*\*, and \*\*\* show statistical significance at 1%, 5%, and 10%, respectively. "→" and "←" denote unidirectional causality, and "↔" shows bidirectional causality while "—" states no causal link between variables

## 5. Conclusion

Unemployment is one of the most serious economic issues in several nations. Governments usually use micro solutions along with monetary and fiscal policies to resolve this issue. In order to establish effective national policies, it is necessary to investigate the institutional structure of the nation. The quality of a nation's institutional structure could exert a significant positive or negative impact on the economic indicators of the nation.

In this context, the causality relationship between institutional quality and unemployment rates in OECD nations was investigated in the present study. The findings revealed that institutional quality influences a nation's unemployment rate. Accordingly, a causality relationship exists between the legal system and property rights of a nation and its unemployment rates. Furthermore, different nations have different causal relationships. Improving the quality of institutions in the nation would lower the unemployment rates. The present study confirms the findings reported in the literature regarding the relationship between a nation's institutions and its unemployment rates, as well as the findings reported by Belot and Van Ours (2001), Belot and Van Ours (2004), Nickell (2003), Bassanini and Duval (2006), and Griffith, Harrison, and Macartney (2007) for OECD nations.

Improvements in institutional quality would generate better outcomes, particularly in developing nations with high unemployment rates. Therefore, it is essential to recognize the impact of a nation's institutional structure on unemployment, to ensure that this impact is minimized through the implementation of appropriate solutions. These solutions include analyzing the legal framework, the accountability mechanisms, and the

implementation of policies. An effective institutional structure is transparent, efficient, and sufficiently flexible to adapt to changing circumstances. In addition, it is important to assess the quality of public services and the level of trust between the citizens and the government of a nation.

Therefore, future research should focus on country-based studies to provide further detailed information on institutional structures. It is also important to measure the impact of institutional structures on economic outcomes, such as economic growth, poverty reduction, and inequality, which would assist in identifying the potential areas for improvement and policy interventions. Finally, understanding the effects of institutional structures on citizens' welfare is essential for facilitating informed decisions regarding public policy.

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