

Exploring the Connection Between Economic Conditions and Societal Stability

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ABSTRACT

This study delves into the nuanced interplay between economic conditions and societal stability on a global scale. Utilizing panel data analysis spanning diverse nations and temporal contexts, our research endeavours to furnish a comprehensive understanding of how economic factors shape pivotal indicators of societal equilibrium. A spectrum of economic metrics, encompassing GDP per capita, inflation, unemployment, poverty, inequality and trade openness, is scrutinized. The analysis focalizes on dependent variable, the rule of law. Employing a Fixed Effect instrumental variable model on an unbalanced panel dataset, our findings underscore several significant revelations. Notably, the study discerns that government effectiveness, anti-corruption measures, and political stability exert a positive influence on the rule of law, whereas GDP per capita, unemployment and trade openness significantly exhibit adverse effects. This study thus contributes valuable insights into the intricate dynamics between economic phenomena and societal cohesion, offering implications for policymakers and scholars alike in fostering sustainable development and stability.

Keywords: Societal Stability, Rule of Law, Panel Data Analysis, Fixed Effect Instrumental Variable Model, Economic Conditions.

JEL: C50, K38 .

Introduction

In recent decades, the world economy has undergone notable shifts, with the Global Financial Crisis (GFC) in 2008 leaving a lasting imprint on global economic discussions. Beyond the confines of financial markets, there exists a dynamic interplay between economic forces and broader aspects of societal welfare. This interaction extends its influence to crucial domain the overall state of the rule of law.

The interplay between societal stability and economic indicators is profound, with each domain exerting a substantial influence on the other. Societal stability, defined by low crime rates, robust legal and political institutions, and cohesive social frameworks, creates an optimal environment for economic growth and sustainability. Such conditions bolster investor confidence, attract foreign direct investment, and facilitate the efficient functioning of markets. For instance, low crime rates and reliable legal systems mitigate the risks and costs of conducting business, thereby encouraging both domestic and international enterprises to invest and

expand their operations. Furthermore, societal stability supports the formulation and implementation of consistent and effective government policies, which in turn enhances economic performance by providing a predictable economic environment essential for long-term planning and development.

Conversely, economic indicators such as employment rates, GDP growth, and income distribution are pivotal in maintaining societal stability. High levels of unemployment, economic downturns, and pronounced income inequality can precipitate social unrest, elevated crime rates, and political instability. Economic recessions, for example, often lead to job losses and reductions in public services, undermining public trust in institutions and potentially sparking protests or violent conflicts. Conversely, favourable economic indicators rising employment, equitable income distribution, and sustained economic growth foster a sense of security and well-being among the populace, thereby reinforcing societal stability. Hence, the relationship between societal stability and economic indicators is inherently symbiotic, with each element reinforcing and perpetuating the other.

This research endeavours to examine the correlation between economic conditions and indicators of societal stability, aiming to provide a thorough perspective on the matter. The foundation of this study lies in existing literature that has investigated the interconnections between various economic factors and societal stability. Previous seminal works have explored the intricate influence of economic conditions, drawing insights from the principles of behavioural theory. Through a meticulous blend of qualitative and quantitative dimensions via robust panel data analysis, these studies embark on a thorough exploration. Their principal goal is not only to address gaps in current research but also to reveal nuanced insights into the intricate interplay between economic fluctuations and societal stability. In doing so, these studies contribute valuable perspectives that expand our comprehension of how socio-economic factors shape the dynamics of stability in the face of economic changes. Understanding the complexities of this relationship is crucial in today's global context, particularly for advancing improvements in public safety strategies. This study aims to extend this exploration by conducting a comprehensive analysis using a dataset spanning multiple countries and years.

Through an examination of data points encompassing the rule of law, the research seeks to offer an insightful perspective on the potential consequences of economic fluctuations on societal stability. Crucial variables, such as GDP per capita reflecting a nation's economic well-being, and the poverty rate indicating the proportion of individuals below the poverty line, have been scrutinized to discern trends and comprehend the influence of economic factors on societal stability. Additionally, the analysis considers factors like inflation, income and wealth inequality, and employment levels. By investigating these elements, the aim is to construct a model that enhances our comprehension of how economic variables interact with societal stability.

The selected methodology adopts a panel data analysis approach, consolidating data from specific variables across various countries in distinct time periods. Utilizing a dataset obtained from reputable sources like the World Bank, UNODC, OECD, and Macro Trends, this study aims to establish meaningful correlations and provide insightful findings. Consequently, the primary inquiry addressed by this research is:

What is the character and magnitude of the association between economic conditions and rule of law as an indicator of societal stability?

I. Literature Review

One of the ground breaking studies that laid the foundation for investigating the connection between economic circumstances and criminal rates was carried out by Wilson and Herrnstein in 1985. They utilized a behavioural theory framework, employing observational techniques and longitudinal data to reach their findings. Wilson and Herrnstein asserted that personal predispositions played a more crucial role in influencing criminal conduct than economic conditions. Nevertheless, this claim has sparked discussions and prompted further research concentrating on economic indicators (Wilson & Herrnstein, 1985).

In 2000, Barata and Ribeiro conducted a study for the year 1996 centered on São Paulo, Brazil, utilizing multiple regression analyses that considered factors such as income inequality and urbanization (Barata & Ribeiro, 2000). Their findings contradicted Wilson and Herrnstein's individual-focused theory, revealing that economic factors, particularly income inequality, played a significant role in influencing homicide rates. Employing robust statistical methods, their research underscored that larger, wealthier urban areas with higher income inequality were more prone to experiencing homicides. This underscored the importance of incorporating economic variables in criminological studies, particularly within the framework of developing

economies.

Following the 2008 global financial crisis, the 2012 UNODC report by S. Malby and P. Davis gained considerable significance (Malby & Davis, 2012). This comprehensive report utilized statistical approaches to analyse crime data recorded by the police in eleven countries. The findings revealed an increase in crime rates during periods of economic adversity in eight out of the eleven countries, thereby strengthening the association between economic conditions and crime rates.

Janko and Popli's study introduced complexity by utilizing time-series analysis to investigate the connections between economic conditions, particularly unemployment, and crimes in Canada over both short-term and long-term periods. While they identified a robust short-term relationship, they noted that the long-term relationship was less apparent. This discovery implied that additional mediating factors might play a role in shaping the long-term association between economic conditions and crime (Janko & Popli, 2015).

Thapa's research introduced novel viewpoints by utilizing panel data models to examine rates across Indian states from 2001 to 2019. By considering a diverse array of economic indicators such as poverty and education levels, Thapa identified these factors as more influential than unemployment alone in influencing crime. Her study highlights the intricate interplay of various economic variables in shaping crime rates (Thapa, 2022). Similarly, Perez's study delved into the historical context of crime rates in the U.S. spanning from 1961 to 2019. In contrast to studies focusing solely on contemporary data, Perez's research provided a longitudinal perspective, emphasizing the enduring significance of economic conditions in impacting crime rates. His work advocated for policy frameworks to recognize economic conditions as a continuous and evolving factor in criminal activities (Perez, 2022). These studies reinforce the necessity of adopting a multi-dimensional approach to comprehend the relationship between economic conditions and crime rates.

The connection between economic conditions and suicide rates has attracted significant academic attention. In 2013, Lopez Bernal et al. established a precedent by using an interrupted time-series design to investigate the influence of the financial crisis on suicide rates in Spain. Their results indicated an 8% rise in suicide rates following the crisis, underscoring the urgent requirement for policy interventions during economic downturns (Bernal, A, Gasparrini, Artundo, & McKee, 2013). Huikari et al. (2019) extended the discussion by adopting a long-term view and examining 21 developed countries spanning from 1970 to 2011. Through time-series analysis, they identified a noteworthy surge in male suicide rates during and up to one year following major economic crises. Their research not only affirmed prior discoveries but also introduced the notion of a 'time-lag' effect in the association between economic conditions and suicide rates (Huikari S, 2019).

In 2016, Fountoulakis et al. broadened the investigation to encompass 29 European countries. Through a cross-sectional study supported by multiple regression techniques, they disclosed that economic conditions had the potential to explain as much as 26.9% of the variability in male suicide rates. This extensive research not only underscored the substantial influence of economic factors but also brought attention to the gender-specific impacts on mental health (Fountoulakis, et al., 2016).

Pejovich's research adopted a comparative approach, contending that both formal and informal institutions play a significant role in contributing to social stability and economic development. Utilizing qualitative methods, the study initiated discussions on the multifaceted aspects of economic conditions and societal stability that extend beyond crime and suicide rates (Pejovich, 2006). Similarly, Strauss-Kahn emphasized the role of economic exclusion in nurturing social discontent and political upheaval. Although primarily qualitative, his work introduced a new dimension to consider, particularly in the context of economic crises leading to social unrest (Strauss-Kahn, 2009).

Hussain's study in 2014 introduced governance quality as a variable that could mediate the relationship between economic conditions and societal stability. The case-study-based approach provided a nuanced understanding of how governance can differentially impact economic development (Hussain, 2014).

In a more recent contribution, Ye et al.'s paper in 2022 utilized a multi-variable regression model. Their study proposed the integration of environmental considerations into economic policies, arguing for the inclusion of environmental variables in any discussion concerning economic conditions and societal stability (Ye, Ge, Xu, & Ma, 2022).

The literature offers a nuanced and intricate understanding of how economic conditions affect societal stability, encompassing factors such as crime rates and suicide rates. While there is agreement that economic conditions

play a role, the details are intricate and vary across various contexts and demographic groups. Existing research highlights gaps such as limited focus on specific countries, inadequate longitudinal data in certain instances, and insufficient exploration of alternative variables.

In line with this, the objective of this paper is to offer a more comprehensive insight into how economic variables impact various indicators of societal stability. This will be achieved through panel data analysis encompassing multiple countries across different time periods.

II. Econometrics Model

The generalized fixed effect instrument model used in the study is explained as:

$$y_{it} = Y_{it}\gamma + X_{it}\beta + \mu_i + \varepsilon_{it} = Z_{it}\delta + \mu_i + \varepsilon_{it} \quad (1)$$

Where

y_{it} is the dependent variable

Y_{it} is an $1 \times g_1$ vector of observations on g_1 endogenous variables included covariates, and these variables are allowed to be correlated with ε_{it}

X_{1it} is an $1 \times k_1$ vector of observations on k_1 exogenous variables included covariates

$Z_{it} = [Y_{it} \ X_{1it}]$;

γ is a $g_1 \times 1$ vector of coefficients;

β is a $k_1 \times 1$ vector of coefficients;

δ is a $K \times 1$ vector of coefficients, where $K = g_1 + k_1$

It is assumed that there exist a $1 \times k_2$ vector of observations on the k_2 instruments in X_{2it} . The order condition satisfied $k_2 \geq g_1$. Additionally, μ_i may be correlated with the variables in X_{it} , making within estimator most efficient within a class of limited information estimators¹.

Within transformation is explained for d as:

$$\tilde{d}_i = d_{it} - \bar{d}_i + \bar{d} \quad (2)$$

Where

$$\bar{d}_i = \frac{1}{n} \sum_{t=1}^{T_i} d_{it} \quad (3)$$

$$\bar{d} = \frac{1}{N} \sum_{i=1}^n \sum_{t=1}^{T_i} d_{it} \quad (4)$$

and n is the number of groups and N is the number of observations on the variable

Within transformation of equation (1)

$$\tilde{y}_{it} = \tilde{Z}_{it} + \tilde{\varepsilon}_{it}$$

This transformation removed μ_i from the model. We can obtain 2SLS estimator from two-stage least squares regression $\tilde{y}_{it}$ on $\tilde{Z}_{it}$ with instruments $\tilde{X}_{it}$

III. Description of selected variables and Data

The study incorporates unbalanced panel data with 44 countries² and 11 years (2010-2020). The list of variables used and their details are given below in the table 1.

Table 1: Details of the selected variables³

Dependent Variables	Description		Units	Source

¹ $X_{it} = [X_{1it} \ X_{2it}]$

² Armenia, Austria, Belgium, Bulgaria, Chile, Colombia, Costa Rica, Cyprus, Czechia, Germany, Denmark, Ecuador, Spain, Estonia, Finland, France, Greece, Guatemala, Croatia, Hungary, Ireland, Iceland, Italy, Sri Lanka, Lithuania, Luxembourg, Latvia, Mexico, North Macedonia, Malta, Netherlands, Norway, Panama, Poland, Paraguay, Romania, Rwanda, El Salvador, Serbia, Slovak, Republic Slovenia, Sweden, Thailand, Turkey.

³ See Appendix I for the summary of the variables

Rule of Law	The Rule of Law index assesses how much trust and compliance individuals have towards societal rules, including the quality of enforcing contracts, upholding property rights, the effectiveness of law enforcement, the judiciary system, and the prevalence of crime and violence.	Range: -2.5 to 2.5 - 2.5=W eak 2.5=Str ong	The Worldwide Governance Indicators
Independent Variables	Description	Units Expect ed Relatio ns with the Depen dent Variabl es	Source

Gross Domestic Product per Capita (gdp_pc)	Data is in constant 2015\$USD.	\$U.S. dollars Sign= Ambiguous Reason : A higher GDP per capita serves as an indicator of a sizable economy. The presence of abundant resources in larger economies could be seen as a positive aspect. However, the challenge of managing and handling the complexities of large economies may introduce negative	World Bank national accounts data, and OECD National Accounts data files
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		e elemen ts.	
erty (Multidimensional poverty headcount ratio) (poverty_hc)	The percentage of people who are multidimensionally poor	Percent age Sign= Negati ve Reason : Povert y exacer bate vulnera bilities and challen ges to uphold the princip les of justice, fairnes s and legal accoun tability within a society .	Government statistical agencies. Data for EU countries are from the EUROSTAT

Inequality (gini_index)	The Gini index measures the extent to which the distribution of income or consumption among individuals or households within an economy deviates from a equal distribution.	0(Perfect equality) to 100 (Perfect Inequality)	Sign= Negative Reason : Societies with high level of inequality may have disparities in how law is applied and enforced.	World Bank, Poverty and Inequality Platform.
Inflation	The yearly percentage variation in the expense incurred by the average consumer to purchase a set of goods and services, which may remain constant or alter periodically, such as annually.	Percentage	Sign= Negative Reason : Inflation can destabilize economies, leading to uncertainty and undermining confidence in the rule of law.	International Monetary Fund, International Financial Statistics and data files.

Unemployment Rate	It is a percentage of unemployed individuals in relation to the total labour force (seasonal adjustment figures). The information is derived from labour force surveys (LFS).	Percent age	Sign= Negati ve Reason : if unempl oyment is high, we expect weak ROL	International Labour Organisation
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Trade Openness	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.	Percent age	Sign= Ambig uous Reason : Trade openne ss can lead to enhanc e rule of law by directl y improv ing the econo mic growth , which can provid e more resourc es to improv e legal infrastr ucture. Howev er, it can bring in regulat ory challen ges like increas e inequal ity among foreign and domest ic entities ,	World Bank national accounts data, and OECD National Accounts data files.
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		without t regulat ory frame works can lead to econo mic disrupt ions.	
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Government Effectiveness	It captures the perception of the quality of public services, civil services and the credibility of the government commitments	Range: -2.5 to 2.5 Low credibility to High credibility	Sign= Positive Reason : Government with high credibility to fulfil its commitments regarding public and civil services positively enhance the rule of law by building trust in legal institutions, by effectively implementing policies.	The Worldwide Governance Indicators (WGI)
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Corruption Control	It captures the perception of the extent to which public power is exercised for private gain	Range: -2.5 to 2.5 Low credibility to High credibility	Sign= Positive Reason : If the corruption is under control it can increase the public trust in government and legal institutions.	The Worldwide Governance Indicators (WGI)
Political Stability	It captures the perception of the extent to which public power is exercised for private gain	Range: -2.5 to 2.5 Low credibility to High credibility	Sign= Positive Reason : If a country is politically, stable it can enhance the public confidence in government and legal system.	The Worldwide Governance Indicators (WGI)

Dependent Variable	rule_of_law
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<i>Independent Variables</i>	<i>Coefficients</i>	<i>Std. Err.</i>	<i>Z</i>	<i>P value</i>				
gdp_pc	-0.000008	0.000002	-3.714	0.000				
poverty_hc	0.001348	0.001643	0.820	0.412				
gini_index	0.002955	0.004040	0.732	0.464				
inflation	-0.001897	0.003131	-0.606	0.544				
unemployment	-0.004468	0.002460	-1.816	0.069				
trade_openness	-0.001027	0.000551	-1.864	0.062				
govt_effectiveness	0.263628	0.042967	6.136	0.000				
corruption_control	0.229294	0.042877	5.348	0.000				
political_stability	0.059690	0.031948	1.868	0.062				
constant	0.677061	0.165934	4.080	0.000				
R-square	<i>Within</i>	0.3988						
	<i>Between</i>	0.7507						
	<i>Overall</i>	0.6899						
Number of Obs	377							
Number of groups	44							
Wald chi2	37344.09							
P-valu(Wald)	0.000							
sigma_u	0.647703							
sigma_e	0.647703							
rho	0.983008							
Intrumented:	gdp_pc poverty_hc gini_index inflation unemployment							
Instruments (Ivs):	gdp_pc poverty_hc gini_index inflation unemployment trade_openness govt_effectiveness corruption_control political_stability rd_exp health_exp pop above 65age urban pop natural reserouces rents social contributions							

The results in the table indicate that an increase in GDP per capita (whether due to economic growth, a declining population, or both) significantly corresponds to a reduction in the rule of law index by 0.000008. This relationship might be explained by factors such as worsening economic inequality, the resource curse, increased corruption, and disruption of traditional social and legal structures.

The findings show that unemployment significantly reduces the rule of law by 0.004468. This can be attributed to increased social unrest, higher crime rates, greater demand for social services, and heightened economic disparity, all of which strain legal and social institutions and undermine their effectiveness.

An increase in trade openness is associated with a decrease in the rule of law index by 0.001027. This may be due to the negative impacts of heightened trade openness, such as deindustrialization and job losses in certain sectors, which can lead to populist backlash and reduced confidence in legal and political institutions.

Government effectiveness, which measures the reliability of public service delivery, civil service management, and policy implementation, is found to significantly improve the rule of law by 0.263628.

Improved corruption control and political stability also significantly enhance the rule of law by 0.229294 and 0.059690, respectively. Reducing corruption and achieving political stability boost public trust, ensure fair legal systems, foster economic stability, protect individual rights, and enhance accountability.

According to the chosen model, macro-variables such as poverty, inequality, and inflation did not show any significant impact on the rule of law. Model as a whole is statistically significant. A very high proportion of

the total variance is due to differences across entities (countries), highlighting the importance of controlling for these differences with fixed effects.

Use of instrument variables, Research & Development expenditure (% of GDP), Health expenditure (% of GDP), Population above 65(% of total population), Urban Population (% of total population), Total natural resources rent (% of GDP), Social Contribution (% of Revenue) helped to address potential endogeneity issues, providing more reliable estimates of the effects of the independent variables on the rule of law.

IV. Conclusion

This study explores the complex interplay between economic conditions and the rule of law across different countries and time periods using panel data analysis. The findings, derived from a Fixed Effect instrumental variable model, uncover several key relationships. Increased GDP per capita correlates with a slight reduction in the rule of law index, possibly due to rising economic inequality and corruption. Unemployment exacerbates this decline, while government effectiveness significantly enhances the rule of law, emphasizing the importance of reliable public services and policy implementation. Improved corruption control and political stability also bolster the rule of law by fostering public trust and accountability. Interestingly, variables like poverty, inequality, and inflation show no significant impact. Instrumental variables like R&D and health expenditure help address potential endogeneity issues, offering robust estimates. These insights hold significance for policymakers and scholars striving for sustainable development and societal stability.

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Appendix I

Table 3: Summary of the variables

Variable	Obs	Mean	Std. dev.	Min	Max
rule_of_law	4,873	-0.02514	0.996165	-2.59088	2.12478
gdp_pc	4,710	14463.37	21983.06	221.303	228668
poverty_hc	494	26.94406	11.23084	2.37	74.2
gini_index	1,582	37.33894	8.373763	23.2	64.8
inflation	4,219	7.900841	67.00521	-16.8597	4145.11
unemployment	4,392	8.096845	5.993878	0.1	38.8
trade_openness	4,130	90.11056	59.18053	0.026888	863.195
govt_effectiveness	4,759	-.027629	.9952039	-2.43996	2.46966
corruption_control	4,782	-.024707	1.000086	-1.93671	2.45912
political_stability	4,818	-0.02468	1.000013	-3.31295	1.96421