

Economic Complexity, Institutions, and Property Rights

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Abstract

Objectives/Background: Property rights play a fundamental role in economics through rights to asset and resource owners, thereby enhancing their economic efficiency. The study investigates the relationship between property rights and economic complexity across countries classified by income levels, including high, middle, and low-income nations.

Methods: The study utilized Robust Least Square (RLS) to obtain results from a secondary data set.

Results: Our analysis reveals a positive relation between economic complexity and property rights across all income groups. It is suggested to have potential developmental paths for countries based on their income status such as those of low income and middle income groups. More specifically, it is proposed that low-income countries could benefit from the institutional improvements observed in high middle-income countries group. Whereas, high middle-income countries may find help in modeling their institutions after those of high-income countries. The approaches may help sustain and enhance institutions and foster an environment conducive to economic complexity.

Conclusion: This research contributes valuable insights into the interplay between economic complexity and property rights across diverse income contexts, offering potential strategies for policymakers to enhance property rights and drive inclusive economic development.

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Keywords: Property rights, Institutions, Robust Least Square, Economic Theory.

JEL: O10, O25, O44, O50

Złożoność gospodarcza, instytucje i prawa własności

Streszczenie

Cele: prawa własności odgrywają fundamentalną rolę w ekonomii poprzez prawa właścicieli aktywów i zasobów, zwiększając tym samym ich efektywność ekonomiczną. W badaniu poddano analizie związek między prawami własności a złożonością gospodarczą w krajach sklasyfikowanych według poziomu dochodów, w tym w krajach o wysokich, średnich i niskich dochodach.

Metody: w badaniu wykorzystano metodę Robust Least Square (RLS) w celu uzyskania wyników ze zbioru danych wtórnych.

Wyniki: analiza ujawnia pozytywny związek między złożonością gospodarczą a prawami własności we wszystkich grupach dochodowych. Sugeruje się, że istnieją potencjalne ścieżki rozwoju dla krajów w oparciu o ich status dochodowy, jak te z grup o niskich i średnich dochodach. Zaproponowano, aby kraje o niskich dochodach mogły skorzystać z ulepszeń instytucjonalnych zaobserwowanych w grupie krajów o średnim dochodzie. Natomiast kraje o średnim dochodzie mogą znaleźć pomoc w modelowaniu swoich instytucji na wzór krajów o wysokim dochodzie. Podejścia te mogą pomóc w utrzymaniu i wzmocnieniu instytucji oraz wspierać środowiska sprzyjające złożoności gospodarczej.

Wnioski: badania wnoszą cenny wkład w interakcję między złożonością gospodarczą a prawami własności w różnych kontekstach dochodowych, oferując potencjalne strategie dla decydentów politycznych w celu wzmocnienia praw własności i stymulowania rozwoju gospodarczego sprzyjającego włączeniu społecznemu.

Słowa kluczowe: prawa własności, instytucje, Robust Least Square, teoria ekonomii.

1. Introduction

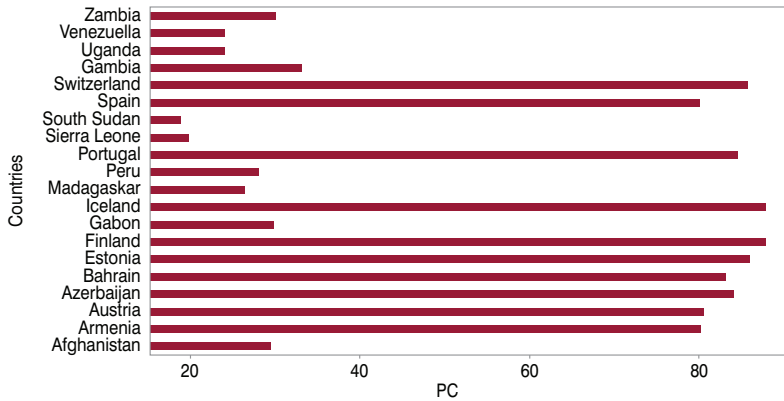
Property rights are the owner's exclusive legal right to use tangible and intangible goods or assets for income earnings or consumption purposes. They may include the use of rights, which allow an owner to utilize their assets, and transfer rights, which permit an owner to transfer the assets to another group or individual (Acemoglu & Robinson, 2008; Acosta & Suresh, 2016; Arabiyat, Mdanat, Haffar, Ghoneim & Arabiyat, 2019; Aslam, 2020; Ayres, 1951, 1967; Coase, 1984; Commons, 1931, 1936; Davidson & Chismar, 2007; Ghouse, Aslam & Bhatti, 2022; Javadov, Rustamov, Aliyev, Bahmanov & Yarmammadli, 2022; Menger, 1996; Mitchell, 1935; North, 1989, 1991, 2000, 2016; Platteau, 2015; Przeworski & Curvale, 2006; Valeriani & Peluso, 2011; Veblen, 2005; von Hayek, 1970, 1971, 1976; Williamson, 1985, 1998, 2000, 2007). Property rights grant an owner exclusive legal use of their goods or assets (Besley & Ghatak, 2008). Institutional Economics relies greatly on the importance of property rights, they act as a legal right, granted to an individual or group, allowing them exclusive use of tangible and intangible goods or assets in a lawful manner (Aslam, 2020; Aslam & Farooq, 2019; Aslam, Naveed & Shabbir, 2021; Aslam, Sultana & Yasin, 2017). The rights are protected by law (which adds to their worth) and enable owners to utilize

their assets for income or consumption purposes, and may also allow for the transfer of the assets to others (Aslam, Ghouse & Khan, 2023). In true essence, property rights grant groups the legal rights to use their assets in a manner they see fit as per the laws of the country (Black's Law Dictionary). Property rights have become a part of human history from Abrahamic law to the modern universal declaration of human rights (Aaron et al., 2008). The study of economics highlights that property rights refer to the intricate network of legal frameworks governing the ownership and mobilization of economic resources, which can be privately or publicly owned by individuals, government entities, associations, or collectives (Farooq, Hamid, Aslam & Shabbir, 2019; Ghouse et al., 2022; Qamar, Ashraf, Ghouse & Aslam, 2020). The rights grant individuals the self-sufficiency or independence to utilize their resources for income generation and to transfer them from one form to another within the purview of relevant laws and regulations. The multifaceted nature of property rights and their intricate legal and economic interplay underscores the significance of the topic in the economic domain. Property rights have been defined by Alchian and Demsetz (1973), in such a way that they mean exclusive rights of individuals to use and exchange their own resources for further production and for further earnings. Gwartney, Lawson and Hall (2012) proposed a comprehensive Property Rights Index comprising of nine critical factors that influence property rights. The factors include: (i) the degree of autonomy of the judiciary system from political pressures, (ii) the effectiveness of courts, (iii) the protection of property rights, (iv) the degree of military intervention in the rule of law, (v) the integrity of the legal system, (vi) the legitimacy of property deals, (vii) the administrative costs associated with authentic property deals, (viii) the authenticity of the police, and (viii) the business damage caused by criminal activities. The Property Rights Index (which is a composite of above mentioned 9 factors) offers a comprehensive understanding of the various dimensions that affect property rights, thereby providing crucial insights to policymakers.

Efficient property rights serve as a catalyst for stimulating business, innovation environment, trade, and investment, thereby enhancing market efficiency and productivity. The Global Economy survey shows the property right index value. The index depicts ranking of countries on the property rights and is measured on a scale of 0 to 100, where a value of 0 or close to 0 implies the prevalence of inefficient property rights, while a value of 100 or close to 100 signifies the existence of efficient property rights in countries. The violation of property rights is commonly referred to as property crime as is punished with legal prosecutions, which is defined by the National Institute of Justice (NIJ) as the theft or embezzlement of property without the use of force or threats against the victims (Aslam, 2020).

Figure 1

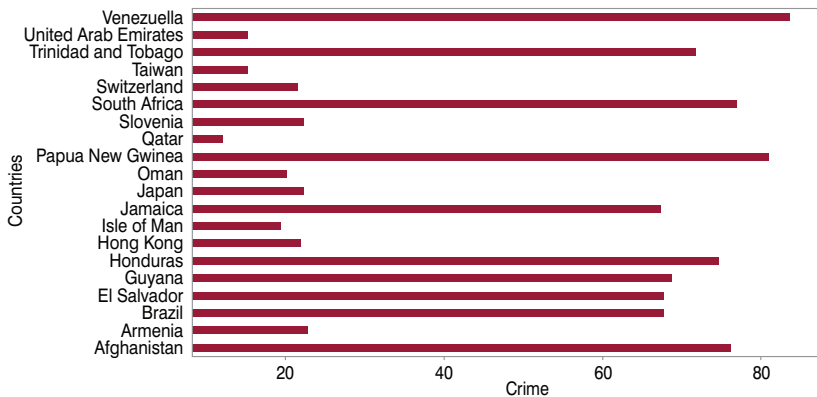
Top countries with highest property crime and lowest property crime scores



Source: Developed by the authors after collection of data from the Global Economy, 2022.

Figure 2

Top countries with highest total crime and lowest total crime rate



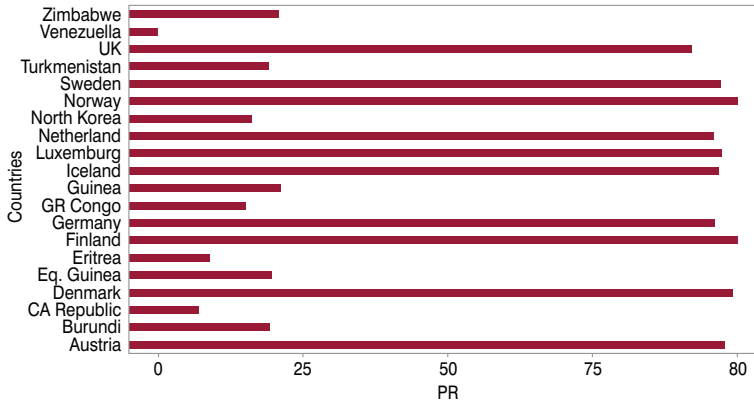
Source: Developed by the authors after collection of data from the Global Economy, 2022.

The use of private property rights is highly encouraged in the field of economics, they formally allow owners to exclude others from using tangible or intangible resources to increase their value (Besley & Ghatak, 2008). However, it is quite understandable that property rights may vary across countries or regions, with high-income countries group typically having higher property rights index values than low-income countries due to their more efficient institutional structures. Here, the key is that institutional structure plays a vital role in deciding the property rights and their firmness. Efficient institutions such as those in open access economics

provide protection to citizens and further create a smooth environment for interaction (North, 1990). Whereas, institutions are humanly self-devised constraints with an enforcing mechanism to ensure smooth interactions as indicated by Acemoglu and Robinson (2006).

Figure 3

Top countries with highest property rights and lowest property rights



Source: Developed by the authors after collection of data from the Global Economy, 2022.

In a nutshell, the above discussion focusses on efficient institutions, particularly through one of its major element i.e. property rights. Property rights are interlinked with different elements of institutions and play a significant role in promoting economic growth and achieving sustainable economic development. Efficient institutional structure (open access social order) reduces transaction costs and accelerates the implementation of property rights. The inclusive growth facilitated by efficient institutions leads to economic freedom and positive impact on property rights (Aslam & Farooq, 2019; Aslam et al., 2021; Aslam & Shabbir, 2019). Therefore, countries (like those of the developing world) should focus on developing efficient institutions and safeguarding property rights for achieving sustainable and inclusive economic growth. Economic complexity can also play a crucial role in property rights. Diversity of a country's economy, as well as the technical and technological progress towards its productive sector, are important factors that contribute to economic growth and development. Countries with high economic complexity tend to have highly skilled labor force, leading to low unemployment and increased employment opportunities. It can help reduce property crimes, as people are less likely to engage in criminal activities when they have access to legitimate and profitable means of earning a living. Therefore, promoting economic complexity can be an effective strategy to enhance property rights and achieve sustainable inclusive economic growth.

The study aims at investigating the factors that determine property rights in low, middle, and high-income countries groups, with a focus on economic complexity and institutional frameworks. Additionally, the study aims at providing policy implications based on empirical findings to enhance property rights across all income categories. The second part of the study presents a review of the relevant literature. The third section provides a description of the data and methodology employed in the study. The fourth section presents empirical findings and an analysis of them, while the fifth section discusses the conclusions and policy implications drawn from the study.

2. Literature Review

In recent years, the term “institutional economics” has been used to describe various economic approaches and schools of thought, leading to a broader interpretation. Initially, “institutional economics” or “American institutional economics” referred to the economic tradition associated with Veblen (2005), Commons (1931, 1936), Mitchell (1935), and Ayres (1951, 1967). However, a more recent development is the recognition of “new institutional economics” which stems primarily from the transactions cost approach of scholars like Coase (1998, 1984, 2005), Williamson (1985, 1998, 2000, 2007) and North (1989, 1991, 2000, 2016). Adding to the complexity, the label “new institutional economics” is often extended to encompass game theoretic approaches to the evolution of social conventions and, at times, Austrian approaches to institutions and institutional change rooted in the works of Menger (1996) and von Hayek (1970, 1971, 1976). Furthermore, some scholars are merging elements from the “old” institutional economics into the “new”, blurring the boundaries.

The paper aims at focusing on the original sense of institutional economics, tracing it back to its emergence as a distinct movement in American economics. The term “institutional economics” was first introduced to the economics profession’s attention by Hamilton in a paper presented at the American Economic Association conference in 1919. Institutionalism gained prominence in American economics during the interwar period. In addition to the historical perspective, it is essential to note that property rights have played a significant role in the development of institutional economics. Scholars such as Veblen (2005) and Commons (1931, 1936), who were central figures in the “old” institutional economics, emphasized the importance of property rights as a fundamental aspect of an economic and a social organization. Their work laid the groundwork for understanding how property rights, both formal and informal, shape economic behavior and institutions. The term “institutional economics” has evolved over time, encompassing various approaches and interpretations. Property rights have remained a central theme within institutional economics, and their study

has contributed significantly to our understanding of economic behavior and institutions. The paper seeks to provide a historical perspective on institutional economics while recognizing the enduring importance of property rights within the field.

Previous studies have established a nonlinear relationship between property rights and economic growth. Hudson and Minea (2013) argue that the relationship depends on the initial levels of GDP per capita and property rights. Samuel, Iroham and Caleb (2011) found a negative relationship between property rights and economic growth in Sub-Saharan Africa due to the prevalence of imitative and adaptive innovations. The importance of strong property rights in the countries forms the benefit of domestic firms. Valeriani and Peluso (2011) have investigated the impact of institutions on economic growth by using the panel data of 181 countries from 1950 to 2009 as a sample. They found that institutions in developed countries are more effective than the institutions of developing countries leading for higher economic growth.

Several studies have investigated the relationship between property rights and economic growth. Chauffour and Maur (2011) found that institutions play a significant role in achieving sustainable economic growth and that economic growth can be sustainable for some countries while unsustainable for others due to differences in civil and political liberties and economic freedom. Jacoby, Li and Rozelle (2002) found a positive relationship between property rights and land investment in Chinese villages. Meanwhile, Mahmoudinia, Salimi Soderjani and Pourshahabi (2011) found that economic freedom can directly and indirectly accelerate economic growth by providing incentives to businesses to use their resources efficiently, promoting productive effort, and improving the effectiveness of resource use, thereby making economic growth more sustainable.

In the context of property rights, literature is extensive and diverse. It has been argued that property rights have a significant impact on the economic fabric of a country. Bonadies (2016) has emphasized the importance of property rights in the development of exports, which can be achieved through the proper use of endowments and power exchange within the productive structure of the economy of a country. Costinot and Komunjer (2007) found that quality of contract enforcement is a very important factor influencing production technologies, it can in turn enhance labor productivity. Moreover, Varian (2006, p. 323) suggests that a country's property rights framework can limit production possibilities, meaning the set of all combinations of inputs and outputs that comprise a technologically feasible way to produce. Furthermore, Berkowitz, Moenius and Pistor (2006) elaborate that countries with efficient institutional structures tend to export more complex products while importing goods from industries with less complex products.

Institutions, comprising formal rules and informal norms, and enforcement mechanisms such as organizations governing societies and economies, hold immense significance, too. Efficient institutions exhibit characteristics such as

clear, enforceable rules, transparency, accountability, and effective governance structures. Upholding the rule of law, protecting property rights, and ensuring fair contract enforcement are central to their functionality. Furthermore, low corruption levels, accessible justice systems, and the ability to safeguard property rights are essential. Measuring institutional efficiency relies on indices such as the Corruption Perceptions Index, Ease of Doing Business Index, Rule of Law Index, and Human Development Index, which collectively contribute to economic development, social justice, and political stability. Policymakers prioritize improving institutional efficiency to enhance citizens' quality of life.

Based on the literature reviewed in the section, it can be inferred that the existing research has focused on analyzing the impact of property rights on various socio-economic indicators. However, the reverse relationship of how socio-economic indicators can affect property rights within the institutional framework of justice and governance has not been extensively studied. The research aims at bridging the gap by exploring the determinants of property rights in low, middle, and high-income countries in the context of economic complexity and institutions. The study will provide novel insights into the complex relationship between property rights, justice, governance, and socio-economic indicators, making it a unique contribution to the existing literature on the same subject.

3. Data Description and Methodology

The section of the study provides a comprehensive description of the data used and the methodology employed for empirical findings. The study employed secondary longitudinal (panel data) for empirical inferences, which is considered more informative than time series and cross-sectional data. The study utilized the data of three sets of countries, i.e. lower income, middle income, and higher income, for the years spanning from 2012 to 2020. The sample size of the study is limited to the availability of the data. The study utilized Robust Least Square (RLS) to obtain the results.

Property rights are defined as the exclusive rights of individuals to use and exchange their own resources for further production and earnings, as described by Alchian and Demsetz (1973). Gwartney et al. (2012) presented the Property Rights Index comprising nine factors, including autonomy of the judiciary system from political stress, courts affinity, property rights safeguard, intrusion of the military in the rule of law, legal system rectitude, legitimate prosecution of deal, administrative costs for the deal of authentic property, authenticity of police, and the business damage of crime.

The World Global Economy has defined the property crime rate as including all those consciously and cold-bloodedly committed offenses that cause the loss of property of others. Institutions are self-construct restraints (informal norms and formal rules) that generate politically, economically, and socially effortless and creamy communications. The focus of the research

is the index of justice and governance made by Principle Component Analysis (PCA). This technique enables the transformation of the most correlated variables into a single uncorrelated variable with the help of orthogonal transformation. The used index has also been used by Madni and Khan (2019) as an explanatory variable.

The Economic Complexity Index is a barometer of the productive structure of an economy. This signal is a combination of the diversity of the economy, which means that the country produces various products, and the ubiquity of the product, which means that the product is made by a few countries. The Economic Complexity Index also elucidates the technical know-how embodied in the labor force of the country, as proposed by Hidalgo and Hausmann (2009). The Economic Complexity Index has also been used by Madni and Khan (2019) as an explanatory variable for their study.

The Economic Misery Index is a consolidation of annual inflation and annual unemployment discovered by Okun (1970). The indicator has also been used by Madni and Khan (2019) as an independent variable for their study. According to the World Bank, the total number of people occupying an area is called a population (Nolan III, 2004). This variable has also been used by Madni and Khan (2019) as an independent variable for their study.

4. Theoretical Framework

The concept of property rights and its relationship with economic efficiency has been a subject of debate for several decades. It all began with the groundbreaking work of Coase (1960), which was later expanded upon by Alchian and Demsetz (1973), Barzel, Haller and Wood (1989), Eggertsson, Eggertsson and Eggertsson (1990). They all contributed significantly to the understanding of property rights. In the early stages, Demsetz (1967) introduced the concept of property rights as it relates to economic efficiency, emphasizing three fundamental principles: (i) universality, (ii) exclusivity, and (iii) transferability. However, the early concept was later criticized by Libecap (1989) and North (1990), they argued that institutional evolution (property rights), economic and political organizations, play a more significant role in economic efficiency.

North's (1990) institutional evolution theory focused on the persistence and change of institutions, emphasizing how institutional progression can alter economic stagnation. The idea is so well accepted that the Nobel prize was given on the same subject. Hart (1995) further expanded upon North's ideas, highlighting the importance of control and contractual incompleteness in understanding economic arrangements and institutions. Hart's work focused on the financial formation of firms, ownership, boundaries, and the economic ramification of contractual incompleteness.

The study recognizes the transaction cost theory introduced by North (1990), it suggests that transaction costs can be reduced or even eliminated (in some contexts) in an efficient institutional framework. Transaction costs come in three types: (i) search cost, (ii) measurement cost, and (iii) enforcement cost. This means that efficient institutions can cause increased confidence of resource owners (property rights) to mobilize resources, leading to increased economic efficiency. However, efficient mobilization of resources requires a productive structure that utilizes skills and technical know-how, known as economic complexity. Therefore, both institutions and economic complexity have a positive relationship with property rights, which is the dependent variable in the study. The main focusing variables are economic complexity and institutions, while urban population, property crime rate, and economic misery index serve as control variables for the study.

$$PopR_{it} = \beta_{1i} + \beta_2 EcC_{it} - \beta_3 EMsy_{it} + \beta_4 INST_{it} - \beta_5 LPoP_{it} - \beta_6 PC + w \dots \quad (1)$$

Note that in the equation, $PopR$ = Property Rights, EcC = Economic Complexity, $EMsy$ = Economic Misery, $INST$ = Institutional index comprised on Governance and Justice, $LPoP$ = Log of Urban Population and PC = Property Crime.

Property rights refer to the legal rights to possess, use, and dispose of property, including both physical assets (like land and buildings) and intellectual property (patents and copyrights). Strong property rights are essential for economic development and investment, as they provide security and encourage individuals and businesses to invest in and protect their assets (Aslam et al., 2023). There is a positive relationship expected between $PopR$ and property rights. As property rights strengthen (i.e., when individuals and businesses have clear and enforceable rights over their property), it is likely to lead to increased economic development, investment, and overall prosperity. Therefore, an increase in $PopR$ is expected to have a positive effect on property rights.

Economic complexity measures the diversity and sophistication of a country's economy. A higher economic complexity suggests that a nation has a more developed and diversified economy with advanced industries and a broader range of products and services. There is a positive relationship expected between EcC_{it} and property rights. When a country has a more complex and diversified economy, it often indicates a higher level of economic development and a greater need for strong property rights to protect various assets and investments. Thus, an increase in EcC_{it} is likely to be associated with higher property rights.

Economic misery represents economic hardships and difficulties faced by individuals and households within a country. It may include factors like high inflation, unemployment, poverty rates, and economic instability. There is a negative relationship expected between $EMsy$ and property

rights. Economic misery is often associated with a lack of economic stability and security, which can lead to weaker property rights. In countries with high economic misery, property rights may be less protected and secure, negatively affecting *PopR*.

The institutional index combines measures of governance and justice from the six indicators of institutions of *ICRG* websites (control of corruption, rule of law and order, government effectiveness, voice accountability and political stability). It assesses the quality of a country's institutions, including the effectiveness of its government, rule of law, and overall governance. There is a positive relationship expected between *INST* and property rights. Strong institutions and effective governance are crucial for upholding property rights. When institutions are well-functioning and provide a fair and transparent legal system, property rights are more likely to be protected and upheld. Therefore, an increase in *INST* is expected to have a positive impact on *PopR*.

LPOP represents the logarithm of the urban population, which indicates the degree of urbanization within a country. The relationship between *LPOP* and property rights may vary. In some cases, higher urbanization may be associated with stronger property rights, as urban areas often have better infrastructure and governance. However, in rapidly urbanizing areas, property rights issues can arise due to land disputes and inadequate legal protections. Therefore, the relationship between *LPOP* and *PopR* may not have a clear direction and would depend on specific contexts. Property crime represents criminal activities such as theft, burglary, and vandalism that target individuals' property. There is a negative relationship expected between *PC* and property rights. Higher levels of property crime are likely to be associated with weaker property rights, as a higher prevalence of property crime can undermine individuals' confidence in the security of their property. Strengthening property rights can be a way to reduce property crime and enhance security. The benefit of using Robust least squares is that it uses a weighting scheme to down-weight the influence of outliers, allowing more accurate estimates of regression coefficients.

5. Empirical Findings and Their Description

The data's stationarity was assessed using the Levin, Lin and Chu test, it determines if the null hypothesis should be rejected or accepted (Ghouse, Khan & Rehman, 2018). If rejected, it indicates the data is stationary, while if accepted, it implies the data is non-stationary (See appendix for details).

The concept of economic complexity, as proposed by Hidalgo and Hausmann (2009), refers to the combination of total knowledge and technical know-how embodied in the labor force. They argue that if labor force has high skills and technical knowledge, they have a higher chance of employment. Furthermore, employed individuals are less likely to engage in

theft or property crime. Consistent with this view, Madni and Khan (2019) have shown that economic complexity has a negative relationship with crime rate. The positive relationship between economic complexity and property rights in high-income countries can be attributed to the advanced economic and legal systems in place. The countries typically have intricate economies with well-defined property rights, fostering innovation and investment. In middle-income nations, strong positive association suggests that as their economies develop and diversify, property rights become more crucial, making them a priority for policymakers. Low-income countries also show a positive relationship, though weaker, indicating that even in less developed contexts, economic complexity plays a role in shaping property rights by encouraging formalization of property ownership.

Table 1
Empirical Results of Robust Least Square for Income Groups

	(1)	(2)	(3)
VARIABLES	High Income	Middle Income	Low Income
Economic Complexity	1.470*** (0.516)	11.49*** (1.673)	4.274*** (0.785)
Economic Misery	-0.684*** (0.158)	0.0853 (0.0670)	-0.157** (0.0700)
Institutional Index	5.217*** (0.761)	5.227*** (0.778)	1.230* (0.704)
Log of Population	-0.939*** (0.318)	-5.921*** (0.916)	5.805*** (1.013)
Property Crime	-0.132* (0.0684)	0.0409 (0.0645)	0.0186 (0.0402)
C	109.6*** (9.301)	143.1*** (16.90)	4.579 (8.876)
Observations	90	90	90
R-squared	0.912	0.635	0.471

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Economic misery, defined as the combination of unemployment and inflation rates by Okun (1970), has also been shown to have a significant impact on property rights. Torruam and Abur (2014) and Madni and Khan

(2019) have predicted that economic misery has a positive relationship with crime rate. The negative relationship between economic misery and property rights in high-income countries may be due to a more established social safety net, which provides some protection even in economically challenging times. In middle-income countries, the weak positive relationship suggests that economic misery may not significantly affect property rights, as the countries often exhibit mixed economic conditions. In low-income countries, the negative relationship is consistent with the idea that economic distress hampers property rights by reducing the resources available for enforcement and protection.

The institutional index measures the efficiency of institutional structures in protecting property rights. The strong positive relationship between the institutional index and property rights in high and middle-income countries indicates that robust institutions, such as effective legal systems and governance structures, are essential for protecting property rights. In the countries, institutions play a pivotal role in safeguarding individuals' assets and fostering a conducive environment for businesses and investment. The weaker but still positive relationship in low-income countries suggests that while institutions are important, other factors may limit their impact, such as resource constraints and political instability. Thus, the results of the study are consistent with previous findings (Madni & Khan, 2019; Khan, Ahmed, Nawaz & Zaman, 2015).

The negative relationship between the log of population and property rights in high-income countries may stem from the established property rights systems that can accommodate demands of a larger population. In middle-income countries, the stronger negative association could reflect challenges of managing property rights in rapidly growing populations, leading to more complex legal and administrative structures. The positive relationship of low-income countries suggests that, as their populations grow, there is a greater need for property rights to facilitate economic development and investment. Neumayer (2003) and Madni and Khan (2019) have also shown that high population increases the crime rate, and the snatching of property rights is also a crime. Therefore, the results of the study are consistent with previous findings.

Finally, the impact of property crime on property rights has been analyzed in the study. The negative relationship between property crime and property rights in high-income countries is logical, as the nations typically have effective law enforcement systems to combat property crime. Middle and low-income countries exhibit positive but weaker relationships, which could be indicative of the challenges they face in managing and reducing property crimes. This result emphasizes the need for property rights protection to be closely aligned with crime prevention efforts in the income groups. This finding is in line with previous research that has shown a positive relationship between crime and property theft (Madni & Khan, 2019).

In conclusion, the study provides evidence on the significant impact of economic factors on property rights. Economic complexity, economic misery, institutional index, log of population, and property crime all have an impact on property rights, and the findings are consistent with previous research. The results can inform policymakers and stakeholders in designing and implementing policies to protect property rights in different economic contexts.

6. Conclusion and Policy Implications

The study examines the impact of economic complexity, economic misery, institutional index, population, and property crime on property rights in three income groups such as low, high middle, and high-income countries. In high-income countries, strong property rights are linked to economic complexity. The reason behind is their advanced legal systems, they may support innovation and investment. Economic misery has a weaker influence, owing to established safety nets. A strong institutional structure plays a pivotal role in preserving property rights in high and middle-income nations. Population size negatively affects property rights in high-income countries, while low-income nations have positive effects. It indicates the importance of property rights for development. Property crime affects high-income countries negatively, showcasing for alignment with crime prevention and policies. The findings highlight the need for structured and solution driven policies, which aim at protecting property rights and spur economic growth across different income groups. The study suggests that policies should focus on improving skills and knowledge of labor force, reducing economic misery, and improving institutional efficiency to enhance property rights.

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Declaration of Conflicting Interests

The authors declare that there is no conflict of interest related to the research paper. The study was conducted without any financial or personal relationships that could be perceived as potentially influencing the research or its outcomes.

Declaration

The authors used the AI tool ChatGPT to help check grammar (only) in the preparation of this article.

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Appendix

Table A1.

Levin, Lin, Chu Stationarity Result for Low-Income Countries

Variables	S. Values	P. Values	Levels
Property Rights	-2.23816	0.0126	*
Economic Complexity	-2.12545	0.0231	*
Economic Misery	-2.53959	0.0055	**
Institutional Index	-8.75182	0.0000	***
Log of Population	-20.1548	0.0000	***
Property Crime	-5.21342	0.0000	***

Note: ***, **, * indicate stationarity at the level, at 5% level, and at 10% level of significance.

Table A2.

Levin, Lin, Chu Stationarity Result for Middle-Income Countries

Variables	S. Values	P. Values	Levels
Property Rights	-4.14784	0.0000	***
Economic Complexity	-1.99589	0.0230	*
Economic Misery	-2.79238	0.0026	**
Institutional Index	-5.48911	0.0000	***
Log of Population	-4.82941	0.0000	*
Property Crime	-1.65835	0.0486	***

Note: ***, **, * indicate stationarity at the level, at 5% level, and at 10% level of significance.

Table A3.

Levin, Lin, Chu Stationarity Result for High-Income Countries

Variables	S. Values	P. Values	Levels
Property Rights	-9.37580	0.0000	***
Economic Complexity	-3.62514	0.0000	*
Economic Misery	-2.55780	0.0053	**
Institutional Index	-4.98687	0.0000	***
Log of Population	-2.9392	0.0016	**
Property Crime	-4.21530	0.0000	***

Note: ***, **, * indicate stationarity at the level, at 5% level, and at 10% level of significance.

Robust Least Square (RLS) has been used for empirical findings after the checking of stationarity of data. Property rights are the regress and while economic complexity, economic misery, institutional index, log of population and property crime rate are the regressors for the study.