

The challenge of protecting intellectual property rights, however, is even more daunting compared to physical property rights because theft of IPRs is facilitated by their own intrinsic qualities. Therefore, countries with weak IPRs require substantial resources to build an effective enforcement system of IPRs. While some countries may feel this investment is beyond their means, they need to realize that an effective IPR system is an important ingredient for long-term economic success. In addition to spurring domestic innovation, strong intellectual property rights can increase incentives for foreign direct investment (Branstetter & Saggi, 2009), which in turn also leads to economic growth (Saggi, 2002).

CHAPTER III: INDEX COMPOSITION AND COVERAGE

This chapter presents the concept behind the *International Property Rights Index*, the three core components, and the 10 variables used to compile it. It also includes detailed explanatory notes on the methodology employed and the country set of the IPRI 2010. Finally, it points out some of the limitations of this study and presents future considerations.

The Concept

The goal of any index is to develop a gauge by which one can compare countries or other jurisdictions. The IPRI develops such a measure for property rights. To conceptualize property rights for the purposes of this study, the authors reviewed a wide range of literature on property rights. Additionally, the authors sought suggestions from experts and practitioners in the field of property rights to finalize the set of core categories (hereto referred to as “components”) as well as variables (“sub-components”) that make up those components.

The following are the three core components of the IPRI:

- 1. Legal and Political Environment (LP)**
- 2. Physical Property Rights (PPR)**
- 3. Intellectual Property Rights (IPR)**

Harold Demsetz defined property rights in his seminal work on the theory of property rights in 1967 as follows:

Property rights are an instrument of society and derive their significance from the fact that they help a man form those expectations which he can reasonably hold in his dealings with others. These expectations find expression in the laws, customs, and mores of a society. An owner of property rights possesses the consent of fellowmen to allow him to act in particular ways. An owner expects the community to prevent others from interfering with his actions, provided that these actions are not prohibited in the specifications of his rights. (Demsetz, 1967)

Demsetz is among the many scholars to point out the role of laws and mores of society as crucial to understanding property rights. Therefore, the Legal and Political Environment (LP) was included as an essential part of any property rights system. The index includes several measures of the legal and political environment despite the fact that they measure much broader aspects than just property rights.

The other two components – physical and intellectual property rights – reflect the two forms of property rights, both of which are crucial to economic development. The variables included in these two categories account for both *de jure* rights and *de facto* outcomes of the countries considered.

Variables

The 2011 IPRI is comprised of a total of 10 variables, which are divided into the three main components: Legal and Political Environment (LP), Physical Property Rights (PPR), and Intellectual Property Rights (IPR). Despite a large number of property rights related variables considered by the authors, the final IPRI study focuses only on core factors that directly relate to the strength and protection of property rights. The final ranking is very similar to the alternative rankings calculated with other factors included. Finally, preference was given to the variables that were available for a greater number of countries and were updated on a regular basis to ensure that the resulting scores were comparable across countries and years.

Of the 10 variables incorporated into the index, the *Registering Property* variable is made up of two sub-variables. In sum, the IPRI comprises 11 data points for each country.

Figure 1: Structure of the IPRI

1. Legal and Political Environment (LP)

- Judicial Independence
- Rule of Law
- Political Stability
- Control of Corruption

2. Physical Property Rights (PPR)

- Protection of Physical Property Rights
- Registering Property
- Access to Loans

3. Intellectual Property Rights (IPR)

- Protection of Intellectual Property Rights
- Patent Protection
- Copyright Piracy

Legal and Political Environment (LP)

Even the most comprehensive *de jure* property rights cannot be enforced unless a strong rule of law and independent judiciary are present to enforce them. Furthermore, political stability and lack of corruption allow for a property rights regime that does not discourage economic transactions related to property. Therefore, these four sub-components constitute the Legal and Political Environment (LP) component.

Judicial Independence

This variable examines the judiciary's freedom from influence by political and business groups. The independence of the judiciary is a central underpinning for the sound protection and sovereign support of the court system with respect to private property.

Source: *World Economic Forum's 2010-2011 Global Competitiveness Index*

Rule of Law

This variable measures the extent to which agents have confidence in and abide by the rules of society. In particular, it measures the quality of contract enforcement, police, and courts, as well as the likelihood of crime and violence. The variable combines several indicators, including fairness, honesty, enforcement, speed, and affordability of the court system, protection of private property rights, and judicial and executive accountability. This variable complements the judicial independence variable.

Source: *World Bank Institute's 2010 Governance Matters*

Political Stability

The degree of political stability crucially influences one's incentive to obtain or to extend ownership and/or management of property. The higher the likelihood of government instability, the less likely people will be to obtain property and to develop trust in the validity of the rights attached.

Source: *World Bank Institute's 2010 Governance Matters*

Corruption

This variable combines several indicators that measure the extent to which public power is exercised for private gain. This includes petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests. Similarly to the other variables in the LP component, corruption influences people's confidence in the existence of sound implementation and enforcement of property rights. Corruption reflects the degree of informality in the economy, which is a distracting factor to the expansion of respect for legal private property.

Source: *World Bank Institute's 2010 Governance Matters*

Physical Property Rights (PPR)

A strong property rights regime commands the confidence of people in its effectiveness to protect private property rights. It also provides for seamless transactions related to registering property. Finally, it allows access to credit necessary to convert property into capital. For these reasons, the following variables are used to measure private physical property rights protection (PPR).

Protection of Physical Property Rights

This variable directly relates to the strength of a country's property rights system as it reflects experts' views on the quality of judicial protection of private property, including financial assets. Additionally, it encompasses professionals' opinions on the clarity of the legal definition of property rights.

Source: *World Economic Forum's 2010-2011 Global Competitiveness Index*

Registering Property

This variable reflects businesses' point of view on how difficult it is to register property in terms of the number of days and procedures necessary. According to the source of this information, the variable records the full sequence of procedures necessary to transfer the property title from seller to buyer when a business purchases land and a building. This information is critical because the more difficult property registration is, the more likely it is that assets stay in the informal sector, thus restricting the development of the broader public's understanding and support for a strong legal and sound property rights system. Moreover, registration barriers discourage the movement of assets from lower to higher valued uses. This variable reflects one of the main economic arguments set forth by Hernando de Soto.

Source: *The World Bank Group's 2010 Doing Business Report*

Access to Loans

This variable is included in the IPRI because access to a bank loan without collateral serves as a proxy for the level of development of financial institutions in a country. Financial institutions play a complementary role, along with a strong property rights system, to bring economic assets into the formal economy.

Source: *World Economic Forum's 2010-2011 Global Competitiveness Index*

Intellectual Property Rights (IPR)

The IPR component evaluates the protection of intellectual property. In addition to an opinion-based measure of the protection of IP, it assesses protection of two major forms of intellectual property rights (patents and copyrights) from *de jure* and *de facto* perspectives, respectively.

Protection of Intellectual Property Rights

This variable contains opinion survey outcomes reflecting a nation's protection of intellectual property; therefore, it is a crucial aspect of the IPR component. Expert participants in each country were asked to rate their nation's IP protection, scoring it from "weak and not enforced" to "strong and enforced."

Source: *World Economic Forum's 2010-2011 Global Competitiveness Index*

Patent Protection

This variable reflects the strength of a country's patent laws based on five extensive criteria: coverage, membership in international treaties, restrictions on patent rights, enforcement, and duration of protection.

Source: *Ginarte-Park Index of Patent Rights (2005)*

Copyright Piracy

The level of piracy in the IP sector is an important indicator of the effectiveness of the intellectual property rights enforcement in a country. Information for this variable was collected from the International Intellectual Property Alliance's (IIPA) submission to the *Special 301 Report*, prepared by the U.S. Trade Representative in the context of its annual review of countries' intellectual property practices. It contains information on the piracy level for copyright-protected industries, including Business Software and Records & Music. Because this variable reflects *de facto* outcomes based on 'hard data,' it rates a country according to its effectiveness in protecting IPR. Data from the IIPA was supplemented with the most updated available statistics from the Business Software Alliance.

Source: *International Intellectual Property Alliance's 2010 Special 301 Report, Seventh Annual BSA and IDC Global Software Piracy Study (2009)*

Explanatory Notes on Methodology

The overall grading scale of the IPRI ranges from 0 to 10, with 10 representing the strongest level of property rights protection and 0 reflecting the non-existence of secure property rights in a country. Similarly, each component and variable is placed on the same 0 to 10 scale.

For the calculation of the final index score, the variables within each component are averaged to derive the score for each of the three components. The final overall IPRI score is itself the average of the component scores. During construction of the index, a number of weighting methods for the components were tried. These were based on the authors' subjective views as well as to account for the different variances within each variable. However, the choice of the weighting method had little impact on the final rating and ranking of the countries. Thus, for reasons of simplicity and objectivity, the final numbers presented in this report are the result of a simple average calculation. It combines available variables into the three component area ratings, which in turn are averaged into the final IPRI score. However, the authors do not wish to imply that all components and areas in the index are of equal importance. Thus, readers who prefer to weight the variables in a different manner are invited to do so.

The 10 variables included in the IPRI stem from different sources. Most of them can be easily normalized to the IPRI's 0-10 scale. To combine variables that did not come in an indexed form, we applied the following standardization formula:

$$\left\{ \frac{X_{max} - X_i}{X_{max} - X_{min}} \right\} * 10$$

X_i represents the individual country's value (either number of steps or number of days to register property) from the raw data. X_{max} and X_{min} are the highest and lowest values from the original sample of countries in 2007. This method was used to standardize the *Registering Property* variables in the PPR component.

This rescaling procedure, while similar, is slightly different than that which was employed in the previous years. Previously, the maximum value for each of the factors was allowed to change with changes in the sample of countries. This year, it was anchored to the benchmark value in the sample of countries in the 2007 IPRI report. This change allows for a more objective comparison of countries from year to year. Previous years' data were rescaled, and scores were recalculated to account for this change. It is important to note that the recalculation of previous years' scores for PPR as well as IPRI had a very minor effect on rankings for those years.

The Countries

The 2011 *International Property Rights Index* ranks a total of 129 countries from around the world. Five new countries were ranked while one country (The Kyrgyz Republic) dropped out due to a lack of data. The selection of countries was determined by the constraint of available data only. Covering 97 percent of the world's Gross Domestic Product, these countries differ substantially in economic performance and market structure. For means of comparison, the economies included in the IPRI were assigned to seven geographic regions, which include the following: Latin America and Caribbean, Western Europe, Central/Eastern Europe and Central Asia, Middle East/North Africa, Africa, Asia and Oceania, and North America.

It is important to note that the number of countries covered by the IPRI's different data sources varied significantly. Therefore, the authors were provided with significant variation in the number of potential countries to be included in the IPRI. To be considered for the final IPRI ranking, a country's data needed to be represented in a minimum of one half of the included variables per category, although in most cases countries exceeded this threshold. Consequently, there are some countries that do not enter any of the final country sets of the index's three components and some that met the threshold of only one or two of the components. The countries that qualified for all three categories are the 129 included in this report.

Limitations and Future Considerations

Several things must be kept in mind when understanding the conceptualization and outcomes of the IPRI. First, the IPRI ranking covers a relatively large number of nations from greatly varying economic, political, and cultural backgrounds. Consequently, many of the countries' idiosyncratic characteristics with respect to property rights protection and strength cannot be considered here.

None of the data used for the construction of the IPRI is generated by the authors themselves but was instead collected from third-party sources such as the World Bank, World Economic Forum, and trade groups. While this allows the study to refrain from any potential bias, it limits the ability of the authors to reconstruct any missing data. The problem of missing data becomes serious when the variable that is missing is not highly correlated with the ones that are available. In those cases, a country's score can be not as representative as those countries with all data available. Moreover, changing data availability from year to year can result in changes

in scores that are not related to the actual changes in the situation with property rights. The authors tried their best to point out any such cases throughout the report and particularly in the country profiles (Appendix I).

As in the past, this study remains constrained by the availability of intellectual property rights data, especially by the lack of data on trademarks. In 2009, trademarks were dropped as one of the sub-components because of the lack of updated data, a situation that persists. However, the authors remain confident that in future years reliable data will be available because of development of new databases by authoritative sources. Additionally, the IPR data can significantly benefit from better measures of enforcement efforts in the area of intellectual property rights. Similarly, the PPR component could also be improved by including more 'hard data' on the security of property rights. These remain the areas with the most potential for further improvement of the data underlying the IPRI.

Finally, as the index enters its fifth year the authors were able to start using time-series aspects of the IPRI data. However, the nature of institutions is such that effects of their changes might not be felt in the outcomes of interest for many years. Additionally, lack of updated data on economic outcomes significantly interferes with this analysis. The authors hope that these constraints will be overcome in the future and that the theoretical relationship between property rights institutions and economic well-being can be tested empirically using more robust methods.