> Private property is the most important guarantee of freedom.
>
> ***Friedrich A. Hayek***

> Nobody spends somebody else's money as carefully as he spends his own.
> Nobody uses somebody else's resources as carefully as he uses his own.
> So if you want efficiency and effectiveness, if you want knowledge to be properly utilized,
> you have to do it through the means of private property.
>
> ***Milton Friedman***

> And what we have to do is make sure that [capitalism] works for the majority,
> which it does not. What we see in the West, which is the reason why it works,
> is that capitalism is essentially all about property rights,
> rights that can be transacted in a market to further the distribution of work,
> the division of labor. And what occurs in at least 80% to 85% of a population
> of the third world and former communist nations is that
> part of the population has assets. They do have assets, as a matter of fact,
> trillions of dollars, but they're not paper rights in a property rights system,
> so their value cannot travel and actually insert itself into a diversified market.
>
> ***Hernando de Soto***

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PROPERTY RIGHTS ALLIANCE

INTERNATIONAL PROPERTY RIGHTS INDEX

2008 REPORT

Study conducted by Satya Thallam, 2007 Hernando de Soto Fellow

with contributions by: Karol Boudreaux, Richard Epstein, Sebastian Galiani, and Ernesto Schargrodsky

PROPERTY RIGHTS ALLIANCE

A Project of the Property Rights Alliance

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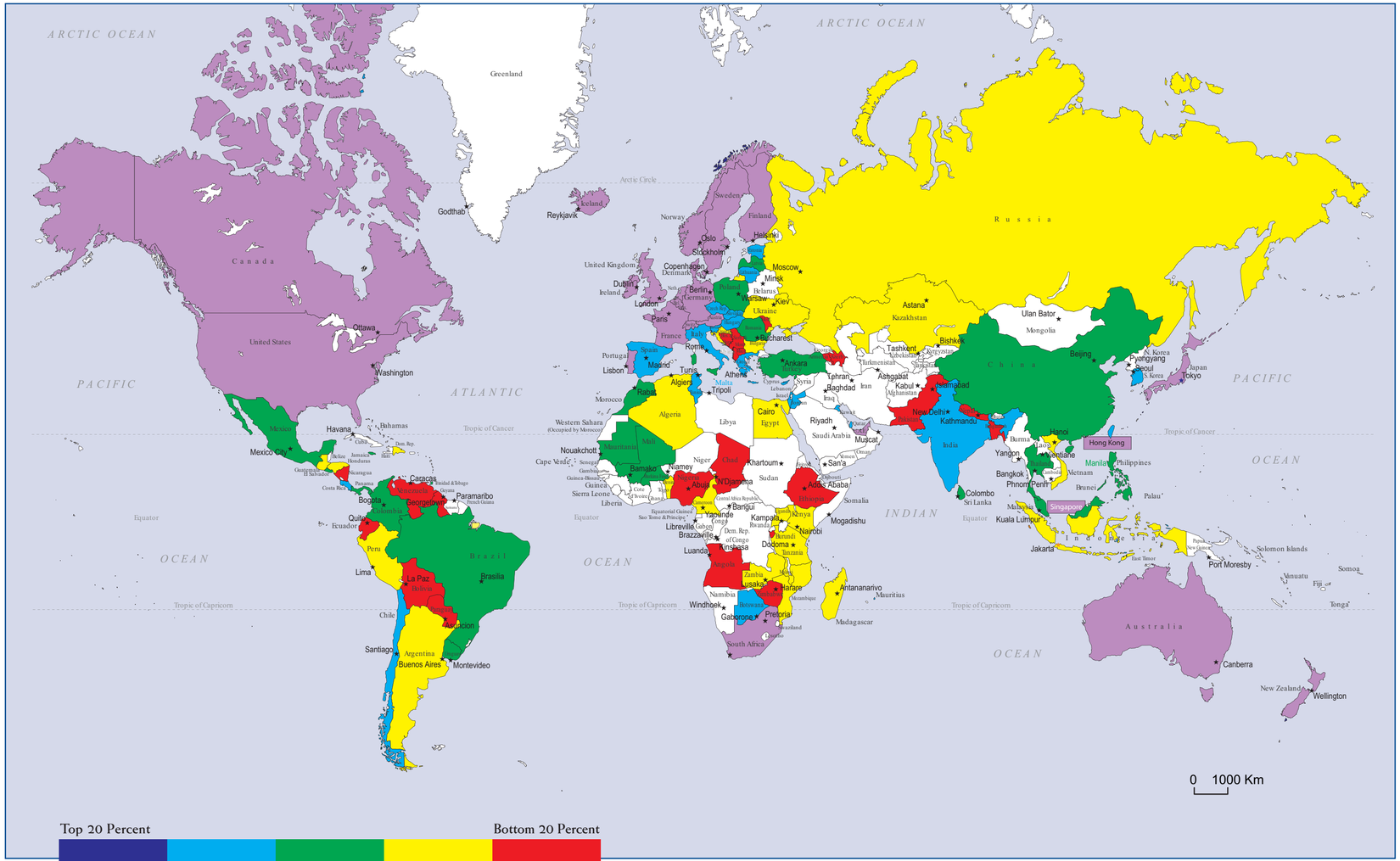
2008 INTERNATIONAL PROPERTY RIGHTS INDEX RANKING BY QUINTILE



INTERNATIONAL PROPERTY RIGHTS INDEX (IPRI)

2008 REPORT

Study conducted by Satya Thallam, 2007 Hernando de Soto Fellow
with contributions by: Karol Boudreaux, Richard Epstein, Sebastian Galiani, and Ernesto Schargrodsky

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I was most honored when the Property Rights Alliance (PRA) announced in 2006 the creation of the Hernando de Soto Fellowship, a research fund with the core aim of producing the International Property Rights Index (IPRI), the most comprehensive effort at creating a nuanced gauge of the status of private property rights throughout the world. The first de Soto Fellow prepared the maiden edition of the International Property Rights Index (IPRI) for 2007, comparing property rights protection for 70 countries. I am pleased to introduce the 2008 index, covering 115 countries, and I take this opportunity to congratulate the second de Soto Fellow, Satya Thallam, for his work developing and researching this project.

You are now reading the only available annual international index dedicated exclusively to property right issues – and the only to integrate both the intellectual and physical aspects of property. In order to provide a more nuanced picture of property rights regimes throughout the world, this year's IPRI includes cases studies from South Africa and Argentina, showing that extending property rights to the poor gives them the incentive to invest in and maintain their property; the Argentinean case has already achieved a certain amount of fame in the literature. In future editions, policymakers, academics, business leaders, think tanks, and other specialists will be analyzing and discussing developments in the property rights regimes of specific selected countries.

This year's IPRI provides further proof of the relationship between the robustness of a country's property rights system and its economic development, revealing that much still needs to be done to extend property rights to more people, especially the poor. The average property rights index of the 115 economies sampled is down from the previous year, and even in the countries that score best for protecting property rights, there is room for improvement. Missing, for example, in most of the countries examined are the legal tools essential for giving every citizen, not just the wealthy and well-connected, easy access to the market and thus pull themselves out of poverty: inclusive property systems to hold and leverage their assets, legal forms to organize their businesses, and devices to identify themselves and operate in expanded markets.

Warmest regards,

Hernando de Soto
President of the Institute for Liberty and Democracy (ILD)
Lima, Peru

The Property Rights Alliance (PRA), along with our global partners, is proud to bring to you the second edition of the International Property Rights Index (IPRI). The inaugural 2007 IPRI sought to lay the groundwork for establishing the first international comparative study that measures the significance of both physical and intellectual property rights and their protection for a countries economic well-being. With the 2008 IPRI, we have been able to greatly expand the scope of variables measured as well as the countries studied.

With regard to private property rights, PRA has and continues to subscribe to the notion that the protection of both physical and intellectual property is equally important in nature. Property rights contribute to increased levels of stability and provide people with the knowledge and comfort that their property will remain theirs. Patents and copyrights provide inventors and great thinkers with the ability to be rightly rewarded for their innovations. Likewise, land rights provide empowerment through ownership, allowing citizens to utilize and prosper from their investment.

By that same token, the ability for states to create and maintain the necessary institutions that work to uphold these protections is equally essential. A system that allows for the free exchange of goods and ideas, without the threat of expropriation, increases the level of confidence that encourages economic development through trade and investment.

As property rights continue to face challenges around the world, we hope this study will be a useful tool for policymakers, think tanks, academics, and investors by highlighting the importance of property rights as a key building block for economic growth.

We would like to thank all of the partners and contributors for their effort in helping with the development of the 2008 IPRI. I would also like to thank the author of this year's index, Satya Thallam, for his time and dedication to creating a remarkable tool that property rights advocates around the world can use for years to come.

Finally, a special thank you to Hernando de Soto for lending his name and support to the Hernando de Soto Fellowship program. His commitment and passion to the area of property rights helped make our work possible.

Best regards,

Kelsey Zahourek
Executive Director of the Property Rights Alliance
Washington, DC

ACKNOWLEDGEMENTS

First and foremost the authors would like to thank Hernando de Soto (ILD) whose tireless efforts in the area of property rights, even at significant personal risk, serves as an inspiration to those who seek to improve the lot of the world's poor through improvements in this fundamental institution. Additionally, the fellowship program which bears his name owes more than can ever be repaid. We look forward to continuing our work with him and ILD in the future.

We are particularly grateful to the intellectual and financial assistance of Grover Norquist and the American for Tax Reform Foundation, without which the Hernando de Soto Fellowship program would be without a home. Much is owed to the staff at Americans for Tax Reform (ATR) whose research and administrative support made the program possible.

Also special thanks go to Brian Johnson of ATR whose untiring research assistance greatly improved the final report and Scott LaGanga, whose conceptualization of the program and continual encouragement were instrumental.

Warm thanks to the contributors to the 2008 International Property Rights Index: Karol Boudreaux (Mercatus Center, George Mason University), Richard Epstein (University of Chicago), Sebastian Galiani (Washington University in St. Louis), Bertrand Moullier (Creative and Innovative Economy Center, George Washington University), Michael Ryan (Creative and Innovative Economy Center, George Washington University), and Ernesto Schargrodsky (Universidad Torcuato Di Tella).

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Our sincerest thanks to anyone left out from above – your support has not gone unappreciated.

Satya Thallam, 2007 Hernando De Soto Fellow, Property Rights Alliance
Kelsey Zahourek, Executive Director, Property Rights Alliance

ABOUT THE AUTHOR

Mr. Satya Thallam is pursuing a doctorate degree in economics at Emory University. He received his B.A., *cum laude*, in economics from Arizona State University. He was most recently a 2006 Koch Fellow and a Research Associate in the Regulatory Studies Department at the Mercatus Center at George Mason University. Before pursuing graduate studies, he was for several years a policy analyst and later acting director of economic policy at the Goldwater Institute, a policy research organization in Phoenix, Arizona, where he authored studies and commented in local and national media on topics ranging from regulation, urban growth, transportation, and fiscal policy issues. While in graduate school, Mr. Thallam discovered an interest in the formation and durability of social institutions, especially property rights.

FOREWARD BY RICHARD A. EPSTEIN
The Role of Property Rights and Voluntary Exchange for Economic Development

One of the great challenges to any society is to develop a strong system of private property rights that will allow for economic growth and development. The obstacles that stand in the path of this enterprise are considerable and need close attention. The initial puzzle is conceptual in nature. Property rights are defined as those rights that one individual possesses over a thing to the exclusion of everyone else in the world.

The first question is, how do we come to create any property rights, and on this point there is a genuine puzzle. If property rights must be good against the world, why are they created simply by allowing one person to have the exclusive right to his labor or the exclusive right to things that are taken out of the state of nature? The answer cannot be by universal consent, for there are always individuals who would refuse to give their consent if they could not capture the lion's share of gain from the activities of others.

It is for this reason that we need to develop a strong utilitarian foundation for property rights which explains why their social recognition and protection works to the long-term advantage to us all. Two reasons quickly go to the head of the list: The need for long term investments and the need to facilitate voluntary cooperation.

Productive human engagement requires the addition of human resources to natural ones. But who will decide to add his or her labor to any natural resource if the products that result must be shared with other individuals who did not participate in their creation? The iron law of human self-interest has strong exceptions for family and friends, but we can confidently predict that few people will make this effort, because they would instead prefer to free ride off the efforts of others. Without a system of property rights, therefore, human productive activity will be limited. Persons will only create what they can immediately consume, which means that they will not make extensive investments today because of their inability to reap their gains tomorrow. The creation of a workable system of property rights allows human labor to take the long view. It is just for that reason that, historically, rights in land only developed after agriculture became technically feasible. The painful cost of clearing land and planting crops would never be undertaken by individuals who had no expectation to gather the harvest. The "keep off" sign underwritten by society stops external aggression, and provides the first missing element for social and economic advancement.

A system of property rights has a second advantage that is equal to that of the first.Once one person has the exclusive right to control a particular resource, cooperation across individuals becomes possible through voluntary exchange that works to the benefit of all parties. The rights of property start with exclusion, but they also embrace the ability to use and dispose of property. It is the use right that makes property valuable. And the exchange right allows for two important types

of activities. The first is the exchange of commodities, first through barter and then through sale, which allows for the specialization of labor. No individual has to be a jack-of-all-trades – each person can become the master of one. The second is that the creation of property rights permits for the organization of long term relationships such as partnerships and firms. Two people are often able to cut down trees and build structures that no person could build alone. Joint labor can be synergistic even without specialization.But specialization makes a huge difference for it allows two or more people to combine their labor and their capital in innovative ways that increase the variety and value of the products that they make available to outsiders through the medium of voluntary exchange.

This simple pattern of development works equally well in primitive and modern societies. First we allow individuals to have exclusive domains against the rest of the world, and then we allow them to exchange and cooperate with those individuals in whom they place their trust. It is sometimes said that this system of property rights works only in certain limited conditions, so that the model does not work in modern societies with huge populations and high levels of technical sophistication. But this objection against the classical theory of property rights confuses matters greatly. To be sure, the forms of productive activity will vary enormously with time and technology. But in most instances, the differences in the forms of production will be reflected in the type of the agreements that people make for the production and dissemination of goods within the traditional framework of property and contract rights. Only in limited circumstances is it necessary to modify the underlying rights structure so as to take into account the possibility of creating property rights in airspace and the broadcast spectrum to allow for the useful exploitation of technologies that have no historical antecedents. But in most cases the usual forms of voluntary interaction from secure property rights will do the job.

There are of course variations in how these rights are protected and exchanged across cultures. But this too does nothing to undermine the profound economic logic of a property rights system. As early as Roman times, commentators recognized that the formalities by which property was acquired or transformed could differ across cultures. But these variations in how deeds are recorded or contracts are witnessed only show the widespread utility of the underlying rights across time and place, for otherwise why would so many societies create so many means to implement these central features of social progress?

The study of comparative social institutions will reveal the power of these truths. Quite simply, only those societies that develop rules of exclusion and cooperation will succeed. The paths taken to reach this objective may vary, but the objective must always be there.

To be sure, the creation of rights of property and contract are far from the only tasks that a successful society must undertake. Public regimes for the enforcement of these rights must be developed through open and transparent processes of law enforcement. And social expenditures are needed for development of the highways and other infrastructure that link together separate productive units within society. But at no point should we lose sight of the universality of the basic truth of human nature, which rests on the twin functions of private property. Exclusive property

rights prevent aggression and expropriation while facilitating productive voluntary exchange. The success of any society, ancient or modern, depends critically on its ability to internalize and act on this central truth.

The country that exhibits a fidelity to respecting and vigilantly guarding the institutions of private property are also those that benefit from higher levels of average wealth. The variables employed in this index exhibit the many facets of these institutions, and how difficult it can be to institute an ideal property rights regime. Indeed, as the case studies in this volume will show, upon closer inspection, the problem of securing these rights becomes further entangled in the complexities of local customs and constraints. Nevertheless, this report will hopefully inform the reader of the importance of this policy pursuit and its necessity for any society hoping to become better off in the future.

INTRODUCTION

"Property rights are human rights."
—Armen Alchian

"Private property is the most important guarantee of freedom."
—Friedrich A. Hayek

The importance of property is difficult to overstate. The basic unit of economics is the individual, and one of the basic mediums of economic activity is exchange between individuals. Within the nexus that occurs between exchanging individuals is a presumption of an institution which delineates who owns what with regard to the exchanged goods and services, in other words a property right. But for many years the existence of such an institution remained overlooked or at best ignored by economists attempting to understand economic behavior.

So tacit remained the understanding of property rights in economics that it wasn't largely until the New Institutional Economics revolution (led by Harold Demsetz, Douglass North and others) shined a bright light onto them that social scientists began to take notice. As Demsetz put it in 1966, "The role of property rights is not explicitly dealt with in [neoclassical economics]."[1] He goes on to write, "there must be assumed a set of social arrangements which define ownership."

But the growing interest in institutions such as property rights also brought with it the predictable complications of a closer inspection. Property rights, or as most people think of it "ownership," is not a binary concept wherein a person either owns something or not. In fact it may not refer to a single person at all, but rather may involve collective ownership of something. And what does it mean to "own" something (alternatively to have a property right in something)? At its most basic, we can think of a property right as the ability to exclude others.

But how far does that exclusion go?

Say I own a house. In practice, most people would agree that ownership allows me to keep people from coming inside – that is, my property right gives me the right to exclude others from also using my house. But does it include keeping people off my front lawn? What if the neighbor's Frisbee ends up in my yard? To whom does it belong? Can I keep people from looking at my house and yard? Can my neighbor erect a basketball hoop which casts a shadow onto my lawn? Should a jumbo jet be allowed to fly overhead?

These kinds of questions motivate a deep literature in legal academia that helps us define the institution of property rights on a micro level, as thorny and difficult to understand a concept as exists in social science. Indeed, "the definition, allocation, and protection of property rights is one of the most complex and difficult set of issues that any society has to resolve, but it is one that must

be resolved in some fashion."[2] On this point, property rights, as concern policymakers and those interested in economic development, have less to do with "who owns what?" and more to do with the local norms, customs, conventions, and laws that determine ownership.

This report, however, is motivated by a macro understanding of property rights across countries. That is, we understand certain universal characteristics of property rights to be necessary for the proper (read: efficient) ordering of economic activity and the higher standards of living that follow. With that in mind, it necessary for the reader to understand the limitations of such a study to account for the innumerable variations on the theme of property rights. Using data that is both available and credible, the minutiae of ownership must be somewhat overlooked in favor of broad and definable measures. The decision to use the measures employed in this study was the result of extensive consultation with academics, policymakers, and practitioners who are familiar with property rights on both purely theoretical and practical grounds.

PROPERTY RIGHTS AND ECONOMIC DEVELOPMENT

Clearly delineated property rights help lead to an efficient ordering of economic activity through several channels: creating security beyond the short-term which incentivizes investment over long-term horizons (dynamic efficiency); as a coordination device[3]; creating an element of clarity in ownership which facilitates trade; as a first condition to an efficient allocation of resources[4]; as a precondition for first-stage investment by outsiders.[5]

In the study of economic development, property rights have recently taken their proper place as a necessary condition for a working market economy and efficient allocation of resources.

In the United States, the latest iteration of foreign development aid, manifest in the several billion dollars a year budget for the Millennium Challenge Corporation, places property rights as a crucial development target for many of its donor countries. Peruvian economist Hernando de Soto's work on the empowering effect of giving land titles to the world's poor has become de rigueur reading for heads of states and policy practitioners alike. The United Nation's Commission on Legal Empowerment of the Poor has an entire working group, staffed by eminent scholars, focused exclusively on property rights.

As report contributor Karol Boudreaux has written elsewhere, "After years of overlooking the central role that property rights play in economic development and growth, scholars and policy makers are beginning to recognize that property is a key building block of a prosperous society and must be part of any sustainable development program." But she goes on to reveal the difficulty in enacting property rights-enhancing policies in such a way that they will be most effective and lead to desirable outcomes.[6]

While forgoing much of the "ground level" technical detail necessary to implement specific reforms, the results of this report highlight the broader relationship between property rights and prosperity. The difference in income between the world's poorest and richest countries exceeds a factor of 100, and the authors of this report feel differences in the establishment and protection of property rights can explain a great deal of this disparity. Indeed, **the countries in the top quintile of the general IPRI score have a GDP per capita that is more than nine times their counterparts in the lowest quintile,** an empirical reality that underlies the theoretical relationship between property rights and economic growth found in the economic development literature.

PREMISE FOR THE HERNANDO DE SOTO FELLOWSHIP PROGRAM

Property Rights Alliance (PRA) and the Hernando de Soto Fellowship

The premise and development of an international index of property rights (PR) is due to the efforts of the Washington, DC-based Property Rights Alliance (PRA), dedicated to the protection of property rights (physical and intellectual) in the U.S. and around the world. PRA is an affiliate of the taxpayer advocacy organization, Americans for Tax Reform (ATR).

Despite the growing accessibility of international data and research in the property rights arena, existing indices and studies traditionally focus on either the physical or intellectual aspects of property rights. Additionally, most global indices are dedicated to broader topic areas than a more exclusive and nuanced debate on property rights, although it should be noted that indices such as the Heritage Foundation/Wall Street Journal *Index of Economic Freedom* and the Fraser Institute *Economic Freedom of the World* do address property rights although in the context of assembling a larger snapshot of each country. To overcome the consequent lack of a more broadly defined PR gauge, PRA introduced the *Hernando de Soto Fellowship* in 2006, with the core aim of the annually offered fellowship to provide continuous data development and concept improvement for the annual publication of the International Property Rights Index, presented here in its second edition.[7]

International Property Rights Index

With the inaugural publication of the International Property Rights Index (IPRI) in 2007, PRA accounted for the interest of a variety of domestic and international organizations for the development of an innovative gauge which ranks countries according to their strengths and efforts to protect both physical and intellectual property. Given the positive affect of a country's strong *legal framework, adequate physical property rights enforcement*, and *respect for intellectual property* as critical aspects to nation's economic development, the 2007 IPRI included all three variables as core components.

In this 2008 edition of the IPRI, case studies on select aspects of property rights in different countries have been included in order to present a richer picture of property rights and their effects around the world, in conjunction with the index scores themselves. The reader should note that the case studies are presented as *an addition to* and not a part of the quantitative scoring and ranking of the countries by their index scores.

The long-term purpose of the IPRI is to amplify the role that private property plays in increasing a nation's economic well-being. The publication of the IPRI will continue on an annual basis and thereby allow researchers, business leaders and government officials to regularly compare one nation to another through time, constantly evaluating the strength of its PR regime. With this in mind, the

authors maintained a strong fidelity to the initial sources that composed the 2007 index so that comparisons between years will remain as consistent as possible.

However, some changes to the data sources and calculations were made. Some factors included in 2007 were substituted for reasons owing to both timeliness (how old was the data?) and coverage (how many countries were included?). A different method for re-scaling original data into the 0 – 10 scale was also employed, with the previous year's rescaled results included here.

The reader is reminded that the 2008 IPRI is now in only its second year of publication. While acknowledging the limitations of the report as it exists, those involved in its publication remain confident that these shortcomings will become fewer and fewer with each subsequent edition. The ongoing Hernando de Soto Fellowship program will be the vehicle through which continual improvement of the Index will continue.

Also, PRA would like to emphasize its appreciation for the collaboration of organizations and institutions around the world that have provided tremendous knowledge and effort towards this report. The network of partner organizations included in this year's report will continue to improve global communications of property rights issues and maximize the future value of the IPRI.

INDEX COMPOSITION AND COVERAGE

This chapter highlights the concept behind the International Property Rights Index, presents the categories and factors included in its 2007 publication, and provides a detailed explanation on the Index's methodology and country set.

The Concept

Many questions arise when conceptualizing a measure which calibrates a nation's strength and effectiveness in defending property rights. Critical questions such as: *"Which factors should be included in such an index?"* and of great importance, *"What factors are feasible to include given data constraints, especially for developing countries?"*

The concept of the International Property Rights Index is based on the definition of private property rights presented below. The Index was then shaped by expert responses to a basic opinion survey and personal communications with academic and business specialists in the property rights field. The starting point for the study is that a more effective protection of private property contributes to stronger economic growth.

Economist Armen Alchian, a contributor of some of the field's most important works on property, offers this definition of private property rights:

> *A property right is the exclusive authority to determine how a resource is used. . . .*
>
> *Private property rights have two other attributes in addition to determining the use of a resource. One is the exclusive right to the services of the resource. . . .*
>
> *Finally, a private property right includes the right to delegate, rent, or sell any portion of the rights by exchange or gift at whatever price the owner determines (provided someone is willing to pay that price).*[8]

Based on this definition of private property, the study's assumptive starting point and results derived from the opinion survey, the IPRI is comprised of three core categories (heretofore "components") essential to the strength and protection of a country's private property system:

1) Legal and Political Environment (LP)

2) Physical Property Rights (PPR)

3) Intellectual Property Rights (IPR)

The Legal and Political Environment (LP) component represents the foundational environment in which individuals can benefit from the existence of private property rights. Judicial independence and the protection of property rights through the court system, as well as a transparent and stable legal and political system are vital for individual rights to flourish. Variables two and three emphasize essential aspects of regarding the protection of physical and intellectual property rights. The variables included in these two categories account for important *de jure* rights and *de facto* outcomes of the countries considered.

Limitations and Future Considerations

Several things must be kept in mind when understanding the conceptualization and the outcomes of the IPRI. First, the IPRI ranking covers a relatively high 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. Second, 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. In the future, the IPRI will likely incorporate original survey data gathered from and with the help of the program's partner groups.

Additionally, a future emphasis on hard data (like those found in the piracy rates data) would go far to eliminate the subjectivity of survey results. Additionally, combining survey results from different sources which were conducted with different protocols, may lead to a "loss in conceptual precision" when aggregated.[9]

From the beginning of the IPRI program, there was a desire to see a robust structural model of property rights and economic growth come out of the index results. In the near future, we hope that this idea may come to fruition such that the resulting and extant index data may find a better fit with the corresponding growth data, and the theoretical relationship between the property rights institutions and growth may find a formal expression that can be tested empirically and expanded upon by other scholars.

Finally, beginning in the third year of the index, we hope that analysis can begin to exploit the time-series nature of the index: as each year is itself a snapshot in time of property rights around the world, three or more of these snapshots can be used to understand the time-path of property rights. That said, inconsistency of data sources, uneven updating of sources from year to year, and other data anomalies will no doubt interfere in this pursuit, but we hope such constraints may be overcome.

Variables

The 2008 IPRI comprises a total of eleven 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 private property rights. The final ranking is very similar to the alternative rankings calculated with other factors included, and was preferred as it suffers less from the problems of dilution and remains parsimonious.

Of the eleven variables incorporated into the index, the "Registering Property" variable is made up of two sub-variables. Thus, in sum the IPRI comprises twelve elements of data for each country.[10]

EXHIBIT 1: Structure of the IPRI

1) **Legal and Political Environment (LP)**
   - Judicial Independence
   - Confidence in Courts
   - 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
   - Trademark Protection

Legal and Political Environment (LP)

The soundness of a country's legal and political systems AND its viewpoints toward the importance and protection of property rights represent crucial preconditions for the effective implementation and public support for private property rights. Therefore, the following four factors are considered in the LP category:

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 and is therefore considered in the IPRI.
Source: *World Economic Forum's 2006-07 Global Competitiveness Index*

Confidence in Courts

This variable examines the extent to which business managers are confident in the court system to uphold their property rights. The variable is seen as complementary to the previous variable as it specifically rates the judiciary's way of implementing property rights in business matters. This is important as it reflects the degree of trust that economically active individuals have in their legal system, which then influences their engagement in business activities and investment choices.
Sources: *The World Bank Group's 2007 World Development Indicators*

Political Stability

The degree of political stability crucially influences one's incentive to obtain or extend ownership and/or management of property. The higher the likelihood of government overthrow, the less likely people will be to obtain property and develop a trust in the validity of the rights attached.
Source: *World Bank Institute's 2007 Governance Matters*

Corruption

Corruption in the public sector is drawn from the World Bank Institute's 2007 Governance Matters report, which combines several indicators which 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. Similar to the other variables in the LP component, corruption influences the 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 2007 Governance Matters*

Physical Property Rights (PPR)

The PPR component encompasses three variables of high importance in private property rights protection. It covers experts' opinions on the definition and protection of property rights, a business' difficulty in registering property and the ease of access to banking loans.

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 the 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 2006-07 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 when a business purchases land and a building to transfer the property title from the seller to the buyer." 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. It also discourages assets from moving from lower to higher valued uses. This variable is a core component in the economic arguments set forth by Hernando de Soto.
Source: *The World Bank Group's 2007 Doing Business Report*

Access to Loans

The authors decided to include this variable in the IPRI dataset because accessibility to a bank loan represents the opportunity for an individual to subsequently obtain property. Consequently, the easier it is to become a property owner, the stronger society's support for a strong formalized property rights system and the investment in property.
Source: *World Economic Forum's 2006-07 Global Competitiveness Index*

Intellectual Property Rights (IPR)

The IPR component considers four aspects of intellectual property. More generally it evaluates the protection of intellectual property, and additionally it reviews a country's policies and their effectiveness in enforcing patents, trademarks, and copyrights.

Protection of Intellectual Property Rights

This variable contains opinion survey outcomes reflecting a nation's protection of intellectual property, and is therefore a crucial component of the IPR component. Expert participants in each country were asked to rate their nations' IP protection from "weak/non-existent" to "equal to the world's most stringent."
Source: *World Economic Forum's 2206-07 Global Competitiveness Index*

Patent Protection

The IPRI's variable on patent protection strength replicates the information provided by the 2000 Ginarte-Park Index of Patent Rights, updated using 2005 data thanks to the helpful cooperation of Walter Park. These data reflect a country's rank in patent strength which is based on five extensive criteria: coverage, membership in international treaties, restrictions on patent rights, enforcement, and duration of protection.
Source: *Ginatre-Park Index of Patent Rights (2005)*

Copyright Piracy

The level of piracy in the IP sector is an important indicator of the performance and execution of protecting intellectual property rights in a country. The information for this variable was collected from the 2007 U.S. Trade Representative's 301 Watch List Report and contains information of the piracy level of four separate industries including Business Software, Records & Music, Motion Pictures, and Entertainment Software. As this variable reflects de facto outcomes based on hard data, it rates a country according to its effectiveness of protecting IPR. The Watch List Report data was supplemented with the most updated available data from the various reporting industry groups and the International Intellectual Property Alliance.
Source: *US Trade Representative's 2007 301 Watch List Report*

Trademark Protection

This variable reflects the opinion of experts regarding a country's trademark protection. The issues covered by this sub-variable cover the registration, maintenance, and enforcement of trademark rights. The data stems from the International Trademark Association's Report of 1998 on trademark counterfeiting and infringement.
Source: *International Trademark Association's 1998 Report*

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, 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 the simple average which 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 11 variables included in the IPRI stem from seven different sources. In order to combine variables that did not come in an indexed form and therefore could not be easily normalized to the IPRI's 0-10 scale, 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 of the factor involved, while X_{max} and X_{min} were set at the maximum value within original data set and zero, respectively. Specific notes on how original data was rescaled for the IPRI are given later in the report along with further information on each source. This rescaling procedure, while similar, is slightly different than that which was employed in the initial 2007 report. As a result, using this method results in some countries' scores being either higher or lower (higher in most cases) and rankings resulting in a different ordering (mostly at the top). For this reason, rescaled scores for 2007 are referred to in this report so that countries may be directly compared between years.

The Countries

The 2008 International Property Rights Index ranks a total of 115 countries from around the world. The selection of the countries was determined by the constraint of available data only. Covering 96 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 nine geographic regions, which include: Latin America, Western Europe, Central and Eastern Europe, Asia, Middle East/North Africa, Africa, Russia, Oceania and North America.

It is important to note that the number of countries covered by the IPRI's different data sources ranged from 40 to just over 200. Therefore the authors were provided with significant variation in the number of potential countries to be included in the IPRI. In order 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 which do not enter any of the final country sets of the Index's three components, and some which met the threshold of only one or two of the components. The countries that qualified for all three categories are the 115 included in this report.

RESULTS

The final results of the IPRI are presented here. After a short overview of data and outcomes, the complete 2008 IPRI scores and rankings are presented according to various criteria. In addition, the results for individual countries are highlighted. Finally, the relationship between scores on the index and countries economic well-being is presented.

Data and Outcome Characteristics

The IPRI's 2008 outcomes are mainly based on data obtained from opinion surveys within the countries rated. Generally, experts in their respective field participated in these surveys and the resulting rating, in the form of a numeric factor, is based on their judgment. Thus, it must be emphasized that, based on these sources, the country ranked worst or best in the IPRI is not necessarily the one with the weakest property rights per se, but rather the one perceived to be the worst or best. Nevertheless, the authors view the expert surveys to be a good and reliable source of judgment related to a country's de facto characteristics, rather than some measure of what laws and practices may exist in statute only. Therefore, we hope that – with the help of partner institutions around the world – we will be able to obtain greater data in the future based on opinion surveys suited to our specific needs.

There are a few variables based on "hard data." For example, the numbers of procedures to register property, or estimations of the level of piracy, were included. However, for the future development of the Index we plan to obtain more data based on this kind of solid information. For example, it would be valuable to include some measure of the strength of constitutional anchors of private property protection, or the extent of land expropriation and judicial attitudes toward compensation. Also, each year's De Soto fellow will concentrate on seeking and including the most up-to-date sources. The 2008 IPRI is quite nearly a one year update of the 2007 report, with some exceptions where updated data or suitable substitutions were unavailable.

In analyzing the final outcome of the scoring process, the reader is presented with two related but ultimately different measures of property rights protection throughout the sample: ordinal and cardinal. The scores are presented in such a way that the reader can easily compare countries according to how they rank relative to each other, as well as how well they score compared to each other (and relative to the 0-10 scale). The authors hope that while the relative ranking proves useful, it is the score itself which provides the most useful measure of how well a country protects property rights.

EXHIBIT 2: By IPRI Ranking

Rank	Country	IPRI	LP	PPR	IPR
1	Finland	8.6	8.9	8.5	8.5
2	Norway	8.3	8.5	8.7	7.8
	Denmark	8.3	8.4	8.5	8.1
	Netherlands	8.3	8.2	8.6	8.0
	Germany	8.3	8.3	8.1	8.4
6	Switzerland	8.2	8.6	8.1	8.0
	New Zealand	8.2	8.7	8.1	7.9
	United Kingdom	8.2	7.7	8.7	8.2
	Sweden	8.2	8.3	8.6	7.6
10	Iceland	8.1	8.8	8.8	6.7
11	Australia	8.0	8.1	8.1	7.9
	Luxembourg	8.0	8.1	7.8	8.1
13	Austria	7.9	8.0	7.8	7.9
	Singapore	7.9	8.0	8.2	7.5
	Ireland	7.9	7.8	8.2	7.6
16	Japan	7.7	7.5	7.5	8.2
	Hong Kong	7.7	7.9	7.9	7.2
	Canada	7.7	7.8	7.4	7.8
19	United States	7.5	6.6	8.0	7.9
20	Belgium	7.4	7.1	7.1	7.9
21	France	7.1	6.8	6.5	8.1
22	Portugal	7.0	6.7	7.3	7.1
23	United Arab Emirates	6.9	6.6	7.7	6.4
	South Africa	6.9	6.6	7.1	7.0
25	Spain	6.7	6.4	7.3	6.4
	Chile	6.7	6.7	7.2	6.1
27	Estonia	6.6	6.9	7.4	5.4
28	Malta	6.5	7.3	6.3	5.9
29	Israel	6.5	6.0	7.2	6.3
	Taiwan	6.5	5.7	7.3	6.4
31	Qatar	6.4	7.0	7.0	5.3
	Cyprus	6.4	6.5	6.7	6.0
	Slovakia	6.4	5.6	7.2	6.3
	Malaysia	6.4	6.2	7.1	5.8
35	Hungary	6.3	5.7	6.9	6.2
36	Korea (South)	6.2	5.7	6.2	6.7
	India	6.2	5.9	7.4	5.2
38	Greece	6.1	6.4	6.3	5.7
39	Mauritius	6.0	6.4	6.6	4.9
40	Botswana	5.9	7.0	6.5	4.3
	Tunisia	5.9	5.9	6.9	4.9
	Slovenia	5.9	6.6	5.6	5.5
	Italy	5.9	5.1	6.1	6.5
	Costa Rica	5.9	6.6	6.1	4.9
45	Jordan	5.7	5.4	6.3	5.4
	Lithuania	5.7	5.2	6.9	4.9
	Kuwait	5.7	6.3	6.9	3.8
	Czech Republic	5.7	5.4	5.8	5.8
49	Uruguay	5.6	6.4	5.6	4.9
	Thailand	5.6	5.1	7.0	4.6
51	Jamaica	5.5	5.3	5.8	5.5
	Turkey	5.5	5.3	6.0	5.1
53	Morocco	5.4	5.2	6.0	5.0
54	Trinidad and Tobago	5.3	4.9	5.4	5.7
	Panama	5.3	4.2	6.9	4.9
	Latvia	5.3	5.5	6.3	4.2
	Poland	5.3	5.1	5.1	5.7
58	Colombia	5.2	4.2	6.0	5.5
59	Sri Lanka	5.1	4.3	6.0	5.1
	Mali	5.1	5.0	5.3	4.9
	Burkina Faso	5.1	4.8	5.1	5.3
62	Mauritania	5.0	4.8	5.1	5.2
	El Salvador	5.0	4.4	6.2	4.4
	Romania	5.0	4.6	5.4	5.0
	China	5.0	5.1	5.5	4.4
	Brazil	5.0	4.5	5.4	5.1
	Bahrain	5.0	4.7	5.7	4.6
	Mexico	5.0	4.1	5.8	5.1
	Philippines	5.0	4.2	5.7	5.0
70	Croatia	4.9	5.5	4.8	4.5
	Bulgaria	4.9	4.3	5.5	4.9
	Indonesia	4.9	3.7	6.8	4.2
73	Malawi	4.8	5.4	5.4	3.6
	Tanzania	4.8	5.0	4.8	4.5
	Egypt	4.8	4.6	5.3	4.4
76	Vietnam	4.7	5.3	5.7	3.2
77	Benin	4.6	4.3	4.9	4.7
	Dominican Republic	4.6	4.4	5.3	4.1
79	Algeria	4.5	4.8	4.8	3.9
	Madagascar	4.5	4.6	4.6	4.2
81	Guatemala	4.4	3.4	5.8	4.0
	Argentina	4.4	3.6	4.7	4.8
83	Ukraine	4.3	3.9	4.8	4.3
	Kenya	4.3	3.5	5.5	3.9
85	Mozambique	4.2	4.1	4.8	3.8
	Uganda	4.2	4.3	4.1	4.2
	Kazakhstan	4.2	4.2	5.6	2.7
88	Cameroon	4.1	3.6	5.0	3.8
	Peru	4.1	2.9	5.7	3.7
	Honduras	4.1	4.0	4.4	3.9
	Zambia	4.1	4.5	5.0	2.7
92	Russia	4.0	3.2	4.9	3.9
93	Nepal	3.9	3.0	5.5	3.3
	Ecuador	3.9	2.9	4.9	4.0
	Pakistan	3.9	3.0	5.8	2.8
96	Ethiopia	3.8	3.8	4.3	3.4
	Macedonia	3.8	3.7	4.9	2.8
	Bosnia-Herzegovina	3.8	4.4	4.1	2.8
	Armenia	3.8	3.9	5.6	1.8
100	Nicaragua	3.7	3.1	4.4	3.6
	Montenegro	3.7	3.9	5.2	2.0
	Bolivia	3.7	3.2	4.4	3.4
103	Guyana	3.6	3.5	5.0	2.4
	Serbia	3.6	3.5	5.2	2.2
	Albania	3.6	4.0	4.8	2.0
	Azerbaijan	3.6	3.8	5.1	1.9
107	Nigeria	3.5	2.4	4.4	3.8
	Burundi	3.5	3.2	4.3	3.0
109	Paraguay	3.4	2.6	4.7	2.9
	Moldova	3.4	3.3	5.0	1.9
	Angola	3.4	3.6	4.0	2.5
112	Venezuela	3.3	1.9	4.6	3.4
	Chad	3.3	1.8	4.2	3.8
114	Zimbabwe	3.1	2.0	4.3	3.1
115	Bangladesh	2.9	2.1	3.7	2.9

EXHIBIT 3: By Country

Country	IPRI	LP	PPR	IPR
Albania	3.6	4.0	4.8	2.0
Algeria	4.5	4.8	4.8	3.9
Angola	3.4	3.6	4.0	2.5
Argentina	4.4	3.6	4.7	4.8
Armenia	3.8	3.9	5.6	1.8
Australia	8.0	8.1	8.1	7.9
Austria	7.9	8.0	7.8	7.9
Azerbaijan	3.6	3.8	5.1	1.9
Bahrain	5.0	4.7	5.7	4.6
Bangladesh	2.9	2.1	3.7	2.9
Belgium	7.4	7.1	7.1	7.9
Benin	4.6	4.3	4.9	4.7
Bolivia	3.7	3.2	4.4	3.4
Bosnia-Herzegovina	3.8	4.4	4.1	2.8
Botswana	5.9	7.0	6.5	4.3
Brazil	5.0	4.5	5.4	5.1
Bulgaria	4.9	4.3	5.5	4.9
Burkina Faso	5.1	4.8	5.1	5.3
Burundi	3.5	3.2	4.3	3.0
Cameroon	4.1	3.6	5.0	3.8
Canada	7.7	7.8	7.4	7.8
Chad	3.3	1.8	4.2	3.8
Chile	6.7	6.7	7.2	6.1
China	5.0	5.1	5.5	4.4
Colombia	5.2	4.2	6.0	5.5
Costa Rica	5.9	6.6	6.1	4.9
Croatia	4.9	5.5	4.8	4.5
Cyprus	6.4	6.5	6.7	6.0
Czech Republic	5.7	5.4	5.8	5.8
Denmark	8.3	8.4	8.5	8.1
Dominican Republic	4.6	4.4	5.3	4.1
Ecuador	3.9	2.9	4.9	4.0
Egypt	4.8	4.6	5.3	4.4
El Salvador	5.0	4.4	6.2	4.4
Estonia	6.6	6.9	7.4	5.4
Ethiopia	3.8	3.8	4.3	3.4
Finland	8.6	8.9	8.5	8.5
France	7.1	6.8	6.5	8.1
Germany	8.3	8.3	8.1	8.4
Greece	6.1	6.4	6.3	5.7
Guatemala	4.4	3.4	5.8	4.0
Guyana	3.6	3.5	5.0	2.4
Honduras	4.1	4.0	4.4	3.9
Hong Kong	7.7	7.9	7.9	7.2
Hungary	6.3	5.7	6.9	6.2
Iceland	8.1	8.8	8.8	6.7
India	6.2	5.9	7.4	5.2
Indonesia	4.9	3.7	6.8	4.2
Ireland	7.9	7.8	8.2	7.6
Israel	6.5	6.0	7.2	6.3
Italy	5.9	5.1	6.1	6.5
Jamaica	5.5	5.3	5.8	5.5
Japan	7.7	7.5	7.5	8.2
Jordan	5.7	5.4	6.3	5.4
Kazakhstan	4.2	4.2	5.6	2.7
Kenya	4.3	3.5	5.5	3.9
Korea (South)	6.2	5.7	6.2	6.7
Kuwait	5.7	6.3	6.9	3.8

Country	IPRI	LP	PPR	IPR
Latvia	5.3	5.5	6.3	4.2
Lithuania	5.7	5.2	6.9	4.9
Luxembourg	8.0	8.1	7.8	8.1
Macedonia	3.8	3.7	4.9	2.8
Madagascar	4.5	4.6	4.6	4.2
Malawi	4.8	5.4	5.4	3.6
Malaysia	6.4	6.2	7.1	5.8
Mali	5.1	5.0	5.3	4.9
Malta	6.5	7.3	6.3	5.9
Mauritania	5.0	4.8	5.1	5.2
Mauritius	6.0	6.4	6.6	4.9
Mexico	5.0	4.1	5.8	5.1
Moldova	3.4	3.3	5.0	1.9
Montenegro	3.7	3.9	5.2	2.0
Morocco	5.4	5.2	6.0	5.0
Mozambique	4.2	4.1	4.8	3.8
Nepal	3.9	3.0	5.5	3.3
Netherlands	8.3	8.2	8.6	8.0
New Zealand	8.2	8.7	8.1	7.9
Nicaragua	3.7	3.1	4.4	3.6
Nigeria	3.5	2.4	4.4	3.8
Norway	8.3	8.5	8.7	7.8
Pakistan	3.9	3.0	5.8	2.8
Panama	5.3	4.2	6.9	4.9
Paraguay	3.4	2.6	4.7	2.9
Peru	4.1	2.9	5.7	3.7
Philippines	5.0	4.2	5.7	5.0
Poland	5.3	5.1	5.1	5.7
Portugal	7.0	6.7	7.3	7.1
Qatar	6.4	7.0	7.0	5.3
Romania	5.0	4.6	5.4	5.0
Russia	4.0	3.2	4.9	3.9
Serbia	3.6	3.5	5.2	2.2
Singapore	7.9	8.0	8.2	7.5
Slovakia	6.4	5.6	7.2	6.3
Slovenia	5.9	6.6	5.6	5.5
South Africa	6.9	6.6	7.1	7.0
Spain	6.7	6.4	7.3	6.4
Sri Lanka	5.1	4.3	6.0	5.1
Sweden	8.2	8.3	8.6	7.6
Switzerland	8.2	8.6	8.1	8.0
Taiwan	6.5	5.7	7.3	6.4
Tanzania	4.8	5.0	4.8	4.5
Thailand	5.6	5.1	7.0	4.6
Trinidad and Tobago	5.3	4.9	5.4	5.7
Tunisia	5.9	5.9	6.9	4.9
Turkey	5.5	5.3	6.0	5.1
Uganda	4.2	4.3	4.1	4.2
Ukraine	4.3	3.9	4.8	4.3
United Arab Emirates	6.9	6.6	7.7	6.4
United Kingdom	8.2	7.7	8.7	8.2
United States	7.5	6.6	8.0	7.9
Uruguay	5.6	6.4	5.6	4.9
Venezuela	3.3	1.9	4.6	3.4
Vietnam	4.7	5.3	5.7	3.2
Zambia	4.1	4.5	5.0	2.7
Zimbabwe	3.1	2.0	4.3	3.1

IPRI Ranking[11]

Exhibits 2 and 3 present the 2008 International Property Rights Index ranking of the 115 economies included in the country set, which represents 96 percent of world GDP. Finland leads the country list with a score of 8.6 out of the possible 10. This is a second year honor for the Scandinavian country when using rescaled scores for 2007 to conform to 2008 methodology. Indeed, Finland scored 8.6 in 2007 according to the rescaled scores (although if one refers to the original report, Finland scored 7.9 resulting in a rank of 11). The second position is occupied by four countries: Norway, Denmark, Germany and the Netherlands all with a score of 8.3. Norway is the only one of these countries to have moved up into this rank (from 5), the others already having placed at second in 2007. Rounding out the top 10 countries are Switzerland, New Zealand, United Kingdom, and Sweden (all with 8.2) and Iceland (8.1).

At the bottom of the scores, are Azerbaijan (3.6), Nigeria (3.5), Burundi (3.5), Moldova (3.4), Paraguay (3.4), Angola (3.4), Venezuela (3.3), Chad (3.3), Zimbabwe (3.1), and Bangladesh (2.9, up from 2.6) once again scoring the lowest of the country set.

The average of the entire sample is 5.5, down from 5.7 the previous year. With no change in the top score, the range decreased slightly with the bottom score having increased to 2.9 from 2.6. Still, this range illuminates the striking disparity in property rights regimes throughout the world, as measured by the IPRI criteria. The authors would argue that while those countries at the very bottom of the index scoring certainly demonstrate a severe deficiency in property rights protection, they are not alone in representing regimes with a clear need to improve. Indeed, even the top score of 8.6 shows there is room for improvement. A logical rejoinder to the fact that a country may score low in this index, is that different countries have different priorities, and thus improvements in other aspects of a country's institutional environment are unfairly ignored in this report. We would respond that, as mentioned at the beginning, the starting assumption for this report is that a stronger, more stringent, comprehensive private property rights regime is desirable to one that is less, and further that this belief is reflected in the criteria used to score and rank the various countries.

Exhibit 4 presents the IPRI rankings by quintile. The color prism relates the quartiles to a specified color: purple for the top quintile, blue for the second quintile, green for the third, yellow for the fourth, and red for the bottom quintile. Accordingly, the map on IPRI's distribution, displayed in the inside cover of this report, indicates which country belongs to which quintile.

Exhibit 5 presents the summary statistics for the overall IPRI and components, as well as statistics for 2007.

EXHIBIT 4: IPRI Ranking by Quintile

strongest ↓ weakest

Top 20%	2nd Quartile	3rd Quartile	4th Quartile	Bottom 20%
Finland	Chile	Uruguay	Croatia	Nepal
Norway	Estonia	Thailand	Bulgaria	Ecuador
Denmark	Malta	Jamaica	Indonesia	Pakistan
Netherlands	Israel	Turkey	Malawi	Ethiopia
Germany	Taiwan	Morocco	Tanzania	Macedonia
Switzerland	Qatar	Trinidad and Tobago	Egypt	Bosnia-Herzegovina
New Zealand	Cyprus	Panama	Vietnam	Armenia
United Kingdom	Slovakia	Latvia	Benin	Nicaragua
Sweden	Malaysia	Poland	Dominican Republic	Montenegro
Iceland	Hungary	Colombia	Algeria	Bolivia
Australia	Korea (South)	Sri Lanka	Madagascar	Guyana
Luxembourg	India	Mali	Guatemala	Serbia
Austria	Greece	Burkina Faso	Argentina	Albania
Singapore	Mauritius	Mauritania	Ukraine	Azerbaijan
Ireland	Botswana	El Salvador	Kenya	Nigeria
Japan	Tunisia	Romania	Mozambique	Burundi
Hong Kong	Slovenia	China	Uganda	Paraguay
Canada	Italy	Brazil	Kazakhstan	Moldova
United States	Costa Rica	Bahrain	Cameroon	Angola
Belgium	Jordan	Mexico	Peru	Venezuela
France	Lithuania	Philippines	Honduras	Chad
Portugal	Kuwait		Zambia	Zimbabwe
United Arab Emirates	Czech Republic		Russia	Bangladesh
South Africa				
Spain				

EXHIBIT 5: Summary Statistics

Indicator	Mean	Median	Deviation	Minimum	Maximum
IPRI	**5.5**	**5.3**	**1.5**	**2.9**	**8.6**
LP	5.3	5.1	1.8	1.8	8.9
PPR	6.1	5.8	1.3	3.7	8.8
IPR	5.1	4.9	1.8	1.8	8.5
IPRI (2007) - *original*	5.3	4.9	1.8	2.2	8.3
IPRI (2007) - *rescaled*	5.7	5.5	1.7	2.6	8.6

Ranking by Index Category

The highest score overall in any component is 8.9 for Finland in Legal and Political Environment (LP). In 2007, the highest score overall was 8.8 for Germany in Intellectual Property Rights (IPR). The lowest score overall in any component is a tie at 1.8 between Chad in LP and Armenia in IPR. The highest mean score component is Physical Property Rights (PPR).

Exhibit 6 more specifically identifies the top and bottom ten countries of the IPRI and each of its three components (the rank listed in parentheses refer to the country's rank within that component). And Exhibits 7, 8 and 9 give a complete rank ordering of the entire 115 country set according to the various components. Finland ranks first in LP (8.9), Iceland first in PPR (8.8), and Finland ranks first in IPR (8.5). At the bottom end, Chad ranks last in LP (1.8), Bangladesh ranks last in PPR (3.7), and Armenia ranks last in IPR (1.8).

Among the top performing countries are northern European and Scandinavian countries which also were among top performers in 2007. For example, last year Sweden, Norway, Finland and the UK all scored among the top five in at least two out of three components. This year, the same countries appear among the top 10 in at least two out of three components, and this time are joined by Denmark, Netherlands, Germany, Switzerland, Iceland and non-regional New Zealand.

At the bottom end, Bangladesh, with the weakest overall score, is joined by Zimbabwe, Chad, and Angola as being among the lowest 10 scores in at least two out of three components.

EXHIBIT 6: Top 10 and Bottom 10 By Category (Number indicates rank)

IPRI	LP	PPR	IPR
Finland (1)	Finland (1)	Iceland (1)	Finland (1)
Norway (2)	Iceland (2)	Norway (2)	Germany (2)
Denmark (2)	New Zealand (3)	United Kingdom (2)	United Kingdom (3)
Netherlands (2)	Switzerland (4)	Sweden (4)	Japan (3)
Germany (2)	Norway (5)	Netherlands (4)	Denmark (5)
Switzerland (6)	Denmark (6)	Finland (6)	Luxembourg (5)
New Zealand (6)	Germany (7)	Denmark (6)	France (5)
United Kingdom (6)	Sweden (7)	Singapore (8)	Netherlands (8)
Sweden (6)	Netherlands (9)	Ireland (8)	Switzerland (8)
Iceland (10)	Australia (10)	New Zealand (10)	New Zealand (10)
	Luxembourg (10)	Switzerland (10)	Australia (10)
		Germany (10)	United States (10)
		Australia (10)	Austria (10)
			Belgium (10)
Guyana (103)	Nepal (106)	Bolivia (104)	Kazakhstan (106)
Serbia (103)	Pakistan (106)	Nicaragua (104)	Zambia (106)
Albania (103)	Peru (108)	Nigeria (104)	Angola (108)
Azerbaijan (103)	Ecuador (108)	Ethiopia (108)	Guyana (109)
Nigeria (107)	Paraguay (110)	Burundi (108)	Serbia (110)
Burundi (107)	Nigeria (111)	Zimbabwe (108)	Montenegro (111)
Paraguay (109)	Bangladesh (112)	Chad (111)	Albania (111)
Moldova (109)	Zimbabwe (113)	Bosnia-Herzegovina (112)	Azerbaijan (113)
Angola (109)	Venezuela (114)	Uganda (112)	Moldova (113)
Venezuela (112)	Chad (115)	Angola (114)	Armenia (115)
Chad (112)		Bangladesh (115)	
Zimbabwe (114)			
Bangladesh (115)			

EXHIBIT 7: Ranking by LP Score

Rank	Country	IPRI	LP	PPR	IPR
1	Finland	8.6	8.9	8.5	8.5
2	Iceland	8.1	8.8	8.8	6.7
3	New Zealand	8.2	8.7	8.1	7.9
4	Switzerland	8.2	8.6	8.1	8.0
5	Norway	8.3	8.5	8.7	7.8
6	Denmark	8.3	8.4	8.5	8.1
7	Germany	8.3	8.3	8.1	8.4
	Sweden	8.2	8.3	8.6	7.6
9	Netherlands	8.3	8.2	8.6	8.0
10	Australia	8.0	8.1	8.1	7.9
	Luxembourg	8.0	8.1	7.8	8.1
12	Austria	7.9	8.0	7.8	7.9
	Singapore	7.9	8.0	8.2	7.5
14	Hong Kong	7.7	7.9	7.9	7.2
15	Ireland	7.9	7.8	8.2	7.6
	Canada	7.7	7.8	7.4	7.8
17	United Kingdom	8.2	7.7	8.7	8.2
18	Japan	7.7	7.5	7.5	8.2
19	Malta	6.5	7.3	6.3	5.9
20	Belgium	7.4	7.1	7.1	7.9
21	Qatar	6.4	7.0	7.0	5.3
	Botswana	5.9	7.0	6.5	4.3
23	Estonia	6.6	6.9	7.4	5.4
24	France	7.1	6.8	6.5	8.1
25	Portugal	7.0	6.7	7.3	7.1
	Chile	6.7	6.7	7.2	6.1
27	United States	7.5	6.6	8.0	7.9
	United Arab Emirates	6.9	6.6	7.7	6.4
	South Africa	6.9	6.6	7.1	7.0
	Slovenia	5.9	6.6	5.6	5.5
	Costa Rica	5.9	6.6	6.1	4.9
32	Cyprus	6.4	6.5	6.7	6.0
33	Spain	6.7	6.4	7.3	6.4
	Greece	6.1	6.4	6.3	5.7
	Mauritius	6.0	6.4	6.6	4.9
	Uruguay	5.6	6.4	5.6	4.9
37	Kuwait	5.7	6.3	6.9	3.8
38	Malaysia	6.4	6.2	7.1	5.8
39	Israel	6.5	6.0	7.2	6.3
40	India	6.2	5.9	7.4	5.2
	Tunisia	5.9	5.9	6.9	4.9
42	Taiwan	6.5	5.7	7.3	6.4
	Hungary	6.3	5.7	6.9	6.2
	Korea (South)	6.2	5.7	6.2	6.7
45	Slovakia	6.4	5.6	7.2	6.3
46	Latvia	5.3	5.5	6.3	4.2
	Croatia	4.9	5.5	4.8	4.5
48	Jordan	5.7	5.4	6.3	5.4
	Czech Republic	5.7	5.4	5.8	5.8
	Malawi	4.8	5.4	5.4	3.6
51	Jamaica	5.5	5.3	5.8	5.5
	Turkey	5.5	5.3	6.0	5.1
	Vietnam	4.7	5.3	5.7	3.2
54	Lithuania	5.7	5.2	6.9	4.9
	Morocco	5.4	5.2	6.0	5.0
56	Italy	5.9	5.1	6.1	6.5
	Thailand	5.6	5.1	7.0	4.6
	Poland	5.3	5.1	5.1	5.7
	China	5.0	5.1	5.5	4.4
60	Mali	5.1	5.0	5.3	4.9
	Tanzania	4.8	5.0	4.8	4.5
62	Trinidad and Tobago	5.3	4.9	5.4	5.7
63	Burkina Faso	5.1	4.8	5.1	5.3
	Mauritania	5.0	4.8	5.1	5.2
	Algeria	4.5	4.8	4.8	3.9
66	Bahrain	5.0	4.7	5.7	4.6
67	Romania	5.0	4.6	5.4	5.0
	Egypt	4.8	4.6	5.3	4.4
	Madagascar	4.5	4.6	4.6	4.2
70	Brazil	5.0	4.5	5.4	5.1
	Zambia	4.1	4.5	5.0	2.7
72	El Salvador	5.0	4.4	6.2	4.4
	Dominican Republic	4.6	4.4	5.3	4.1
	Bosnia-Herzegovina	3.8	4.4	4.1	2.8
75	Sri Lanka	5.1	4.3	6.0	5.1
	Bulgaria	4.9	4.3	5.5	4.9
	Benin	4.6	4.3	4.9	4.7
	Uganda	4.2	4.3	4.1	4.2
79	Panama	5.3	4.2	6.9	4.9
	Colombia	5.2	4.2	6.0	5.5
	Philippines	5.0	4.2	5.7	5.0
	Kazakhstan	4.2	4.2	5.6	2.7
83	Mexico	5.0	4.1	5.8	5.1
	Mozambique	4.2	4.1	4.8	3.8
85	Honduras	4.1	4.0	4.4	3.9
	Albania	3.6	4.0	4.8	2.0
87	Ukraine	4.3	3.9	4.8	4.3
	Armenia	3.8	3.9	5.6	1.8
	Montenegro	3.7	3.9	5.2	2.0
90	Ethiopia	3.8	3.8	4.3	3.4
	Azerbaijan	3.6	3.8	5.1	1.9
92	Indonesia	4.9	3.7	6.8	4.2
	Macedonia	3.8	3.7	4.9	2.8
94	Argentina	4.4	3.6	4.7	4.8
	Cameroon	4.1	3.6	5.0	3.8
	Angola	3.4	3.6	4.0	2.5
97	Kenya	4.3	3.5	5.5	3.9
	Guyana	3.6	3.5	5.0	2.4
	Serbia	3.6	3.5	5.2	2.2
100	Guatemala	4.4	3.4	5.8	4.0
101	Moldova	3.4	3.3	5.0	1.9
102	Russia	4.0	3.2	4.9	3.9
	Bolivia	3.7	3.2	4.4	3.4
	Burundi	3.5	3.2	4.3	3.0
105	Nicaragua	3.7	3.1	4.4	3.6
106	Nepal	3.9	3.0	5.5	3.3
	Pakistan	3.9	3.0	5.8	2.8
108	Peru	4.1	2.9	5.7	3.7
	Ecuador	3.9	2.9	4.9	4.0
110	Paraguay	3.4	2.6	4.7	2.9
111	Nigeria	3.5	2.4	4.4	3.8
112	Bangladesh	2.9	2.1	3.7	2.9
113	Zimbabwe	3.1	2.0	4.3	3.1
114	Venezuela	3.3	1.9	4.6	3.4
115	Chad	3.3	1.8	4.2	3.8

EXHIBIT 8: Ranking by PPR Score

Rank	Country	IPRI	LP	PPR	IPR
1	Iceland	8.1	8.8	8.8	6.7
2	Norway	8.3	8.5	8.7	7.8
	United Kingdom	8.2	7.7	8.7	8.2
4	Sweden	8.2	8.3	8.6	7.6
	Netherlands	8.3	8.2	8.6	8.0
6	Finland	8.6	8.9	8.5	8.5
	Denmark	8.3	8.4	8.5	8.1
8	Singapore	7.9	8.0	8.2	7.5
	Ireland	7.9	7.8	8.2	7.6
10	New Zealand	8.2	8.7	8.1	7.9
	Switzerland	8.2	8.6	8.1	8.0
	Germany	8.3	8.3	8.1	8.4
	Australia	8.0	8.1	8.1	7.9
14	United States	7.5	6.6	8.0	7.9
15	Hong Kong	7.7	7.9	7.9	7.2
16	Luxembourg	8.0	8.1	7.8	8.1
	Austria	7.9	8.0	7.8	7.9
18	United Arab Emirates	6.9	6.6	7.7	6.4
19	Japan	7.7	7.5	7.5	8.2
20	Canada	7.7	7.8	7.4	7.8
	Estonia	6.6	6.9	7.4	5.4
	India	6.2	5.9	7.4	5.2
23	Portugal	7.0	6.7	7.3	7.1
	Spain	6.7	6.4	7.3	6.4
	Taiwan	6.5	5.7	7.3	6.4
26	Chile	6.7	6.7	7.2	6.1
	Israel	6.5	6.0	7.2	6.3
	Slovakia	6.4	5.6	7.2	6.3
29	Belgium	7.4	7.1	7.1	7.9
	South Africa	6.9	6.6	7.1	7.0
	Malaysia	6.4	6.2	7.1	5.8
32	Qatar	6.4	7.0	7.0	5.3
	Thailand	5.6	5.1	7.0	4.6
34	Kuwait	5.7	6.3	6.9	3.8
	Tunisia	5.9	5.9	6.9	4.9
	Hungary	6.3	5.7	6.9	6.2
	Lithuania	5.7	5.2	6.9	4.9
	Panama	5.3	4.2	6.9	4.9
39	Indonesia	4.9	3.7	6.8	4.2
40	Cyprus	6.4	6.5	6.7	6.0
41	Mauritius	6.0	6.4	6.6	4.9
42	Botswana	5.9	7.0	6.5	4.3
	France	7.1	6.8	6.5	8.1
44	Malta	6.5	7.3	6.3	5.9
	Greece	6.1	6.4	6.3	5.7
	Latvia	5.3	5.5	6.3	4.2
	Jordan	5.7	5.4	6.3	5.4
48	Korea (South)	6.2	5.7	6.2	6.7
	El Salvador	5.0	4.4	6.2	4.4
50	Costa Rica	5.9	6.6	6.1	4.9
	Italy	5.9	5.1	6.1	6.5
52	Turkey	5.5	5.3	6.0	5.1
	Morocco	5.4	5.2	6.0	5.0
	Sri Lanka	5.1	4.3	6.0	5.1
	Colombia	5.2	4.2	6.0	5.5
56	Czech Republic	5.7	5.4	5.8	5.8
	Jamaica	5.5	5.3	5.8	5.5
	Mexico	5.0	4.1	5.8	5.1
	Guatemala	4.4	3.4	5.8	4.0
	Pakistan	3.9	3.0	5.8	2.8
61	Vietnam	4.7	5.3	5.7	3.2
	Bahrain	5.0	4.7	5.7	4.6
	Philippines	5.0	4.2	5.7	5.0
	Peru	4.1	2.9	5.7	3.7
65	Slovenia	5.9	6.6	5.6	5.5
	Uruguay	5.6	6.4	5.6	4.9
	Kazakhstan	4.2	4.2	5.6	2.7
	Armenia	3.8	3.9	5.6	1.8
69	China	5.0	5.1	5.5	4.4
	Bulgaria	4.9	4.3	5.5	4.9
	Kenya	4.3	3.5	5.5	3.9
	Nepal	3.9	3.0	5.5	3.3
73	Malawi	4.8	5.4	5.4	3.6
	Trinidad and Tobago	5.3	4.9	5.4	5.7
	Romania	5.0	4.6	5.4	5.0
	Brazil	5.0	4.5	5.4	5.1
77	Mali	5.1	5.0	5.3	4.9
	Egypt	4.8	4.6	5.3	4.4
	Dominican Republic	4.6	4.4	5.3	4.1
80	Montenegro	3.7	3.9	5.2	2.0
	Serbia	3.6	3.5	5.2	2.2
82	Poland	5.3	5.1	5.1	5.7
	Burkina Faso	5.1	4.8	5.1	5.3
	Mauritania	5.0	4.8	5.1	5.2
	Azerbaijan	3.6	3.8	5.1	1.9
86	Zambia	4.1	4.5	5.0	2.7
	Cameroon	4.1	3.6	5.0	3.8
	Guyana	3.6	3.5	5.0	2.4
	Moldova	3.4	3.3	5.0	1.9
90	Benin	4.6	4.3	4.9	4.7
	Macedonia	3.8	3.7	4.9	2.8
	Russia	4.0	3.2	4.9	3.9
	Ecuador	3.9	2.9	4.9	4.0
94	Croatia	4.9	5.5	4.8	4.5
	Tanzania	4.8	5.0	4.8	4.5
	Algeria	4.5	4.8	4.8	3.9
	Mozambique	4.2	4.1	4.8	3.8
	Albania	3.6	4.0	4.8	2.0
	Ukraine	4.3	3.9	4.8	4.3
100	Argentina	4.4	3.6	4.7	4.8
	Paraguay	3.4	2.6	4.7	2.9
102	Madagascar	4.5	4.6	4.6	4.2
	Venezuela	3.3	1.9	4.6	3.4
104	Honduras	4.1	4.0	4.4	3.9
	Bolivia	3.7	3.2	4.4	3.4
	Nicaragua	3.7	3.1	4.4	3.6
	Nigeria	3.5	2.4	4.4	3.8
108	Ethiopia	3.8	3.8	4.3	3.4
	Burundi	3.5	3.2	4.3	3.0
	Zimbabwe	3.1	2.0	4.3	3.1
111	Chad	3.3	1.8	4.2	3.8
112	Bosnia-Herzegovina	3.8	4.4	4.1	2.8
	Uganda	4.2	4.3	4.1	4.2
114	Angola	3.4	3.6	4.0	2.5
115	Bangladesh	2.9	2.1	3.7	2.9

EXHIBIT 9: Ranking by IPR Score

Rank	Country	IPRI	LP	PPR	IPR
1	Finland	8.6	8.9	8.5	8.5
2	Germany	8.3	8.3	8.1	8.4
3	United Kingdom	8.2	7.7	8.7	8.2
	Japan	7.7	7.5	7.5	8.2
5	Denmark	8.3	8.4	8.5	8.1
	Luxembourg	8.0	8.1	7.8	8.1
	France	7.1	6.8	6.5	8.1
8	Netherlands	8.3	8.2	8.6	8.0
	Switzerland	8.2	8.6	8.1	8.0
10	New Zealand	8.2	8.7	8.1	7.9
	Australia	8.0	8.1	8.1	7.9
	United States	7.5	6.6	8.0	7.9
	Austria	7.9	8.0	7.8	7.9
	Belgium	7.4	7.1	7.1	7.9
15	Norway	8.3	8.5	8.7	7.8
	Canada	7.7	7.8	7.4	7.8
17	Sweden	8.2	8.3	8.6	7.6
	Ireland	7.9	7.8	8.2	7.6
19	Singapore	7.9	8.0	8.2	7.5
20	Hong Kong	7.7	7.9	7.9	7.2
21	Portugal	7.0	6.7	7.3	7.1
22	South Africa	6.9	6.6	7.1	7.0
23	Iceland	8.1	8.8	8.8	6.7
	Korea (South)	6.2	5.7	6.2	6.7
25	Italy	5.9	5.1	6.1	6.5
26	United Arab Emirates	6.9	6.6	7.7	6.4
	Spain	6.7	6.4	7.3	6.4
	Taiwan	6.5	5.7	7.3	6.4
29	Israel	6.5	6.0	7.2	6.3
	Slovakia	6.4	5.6	7.2	6.3
31	Hungary	6.3	5.7	6.9	6.2
32	Chile	6.7	6.7	7.2	6.1
33	Cyprus	6.4	6.5	6.7	6.0
34	Malta	6.5	7.3	6.3	5.9
35	Malaysia	6.4	6.2	7.1	5.8
	Czech Republic	5.7	5.4	5.8	5.8
37	Greece	6.1	6.4	6.3	5.7
	Trinidad and Tobago	5.3	4.9	5.4	5.7
	Poland	5.3	5.1	5.1	5.7
40	Colombia	5.2	4.2	6.0	5.5
	Jamaica	5.5	5.3	5.8	5.5
	Slovenia	5.9	6.6	5.6	5.5
43	Estonia	6.6	6.9	7.4	5.4
	Jordan	5.7	5.4	6.3	5.4
45	Qatar	6.4	7.0	7.0	5.3
	Burkina Faso	5.1	4.8	5.1	5.3
47	India	6.2	5.9	7.4	5.2
	Mauritania	5.0	4.8	5.1	5.2
49	Turkey	5.5	5.3	6.0	5.1
	Sri Lanka	5.1	4.3	6.0	5.1
	Mexico	5.0	4.1	5.8	5.1
	Brazil	5.0	4.5	5.4	5.1
53	Morocco	5.4	5.2	6.0	5.0
	Philippines	5.0	4.2	5.7	5.0
	Romania	5.0	4.6	5.4	5.0
56	Tunisia	5.9	5.9	6.9	4.9
	Lithuania	5.7	5.2	6.9	4.9
	Panama	5.3	4.2	6.9	4.9
	Mauritius	6.0	6.4	6.6	4.9
	Costa Rica	5.9	6.6	6.1	4.9
	Uruguay	5.6	6.4	5.6	4.9
	Bulgaria	4.9	4.3	5.5	4.9
	Mali	5.1	5.0	5.3	4.9
64	Argentina	4.4	3.6	4.7	4.8
65	Benin	4.6	4.3	4.9	4.7
66	Thailand	5.6	5.1	7.0	4.6
	Bahrain	5.0	4.7	5.7	4.6
68	Croatia	4.9	5.5	4.8	4.5
	Tanzania	4.8	5.0	4.8	4.5
70	El Salvador	5.0	4.4	6.2	4.4
	China	5.0	5.1	5.5	4.4
	Egypt	4.8	4.6	5.3	4.4
73	Botswana	5.9	7.0	6.5	4.3
	Ukraine	4.3	3.9	4.8	4.3
75	Indonesia	4.9	3.7	6.8	4.2
	Latvia	5.3	5.5	6.3	4.2
	Madagascar	4.5	4.6	4.6	4.2
	Uganda	4.2	4.3	4.1	4.2
79	Dominican Republic	4.6	4.4	5.3	4.1
80	Guatemala	4.4	3.4	5.8	4.0
	Ecuador	3.9	2.9	4.9	4.0
82	Kenya	4.3	3.5	5.5	3.9
	Russia	4.0	3.2	4.9	3.9
	Algeria	4.5	4.8	4.8	3.9
	Honduras	4.1	4.0	4.4	3.9
86	Kuwait	5.7	6.3	6.9	3.8
	Cameroon	4.1	3.6	5.0	3.8
	Mozambique	4.2	4.1	4.8	3.8
	Nigeria	3.5	2.4	4.4	3.8
	Chad	3.3	1.8	4.2	3.8
91	Peru	4.1	2.9	5.7	3.7
92	Malawi	4.8	5.4	5.4	3.6
	Nicaragua	3.7	3.1	4.4	3.6
94	Venezuela	3.3	1.9	4.6	3.4
	Bolivia	3.7	3.2	4.4	3.4
	Ethiopia	3.8	3.8	4.3	3.4
97	Nepal	3.9	3.0	5.5	3.3
98	Vietnam	4.7	5.3	5.7	3.2
99	Zimbabwe	3.1	2.0	4.3	3.1
100	Burundi	3.5	3.2	4.3	3.0
101	Paraguay	3.4	2.6	4.7	2.9
	Bangladesh	2.9	2.1	3.7	2.9
103	Pakistan	3.9	3.0	5.8	2.8
	Macedonia	3.8	3.7	4.9	2.8
	Bosnia-Herzegovina	3.8	4.4	4.1	2.8
106	Kazakhstan	4.2	4.2	5.6	2.7
	Zambia	4.1	4.5	5.0	2.7
108	Angola	3.4	3.6	4.0	2.5
109	Guyana	3.6	3.5	5.0	2.4
110	Serbia	3.6	3.5	5.2	2.2
111	Montenegro	3.7	3.9	5.2	2.0
	Albania	3.6	4.0	4.8	2.0
113	Azerbaijan	3.6	3.8	5.1	1.9
	Moldova	3.4	3.3	5.0	1.9
115	Armenia	3.8	3.9	5.6	1.8

Special Country Cases

Finland

This year's top performer in the IPRI overall ranking holds on to its highest overall score with a consistent 8.6, same as in 2007. Browsing Finland's scores within each component, one sees that its overall high score comes as no surprise, with the highest score in both LP (8.9) and IPR (8.5), as well as a tie for sixth with Denmark in PPR (8.5).

Among the specific variables, Finland had the second highest score for both Protection of Intellectual Property Rights and Patent Protection and within the top 20 in Copyright Protection. Within the PPR component, Finland ties for seventh in Property Rights Protection and Access to Loans, and ties for 13th in Registering Property. Finally, Finland ties for eighth in Judicial Independence, is third in Political Stability, and is first with a perfect 10.0 in Control of Corruption. All other variables are not available due to a lack of data.

Bangladesh

The country once again perceived to be the weakest protector of property rights is Bangladesh. With an overall score of 2.9, which is up from last year's lowest score of 2.6, Bangladesh as mentioned earlier is among the lowest five scores in two components (LP and PPR). In PPR, Bangladesh scored 4.7 in Property Rights Protection, 4.1 in Registering Property, and 2.3 in Access to Loans. In LP, the country scored 2.5 in Judicial Independence, 1.7 in Confidence in Courts, 1.8 in Political Stability, and 2.4 in Control of Corruption. Finally in IPR, Bangladesh scored 1.8 in Intellectual Property Rights Protection, 3.7 in Patent Protection, and 3.0 in Copyright Protection, with no available data in Trademark Protection.

These individual variable score paint the picture (as they did in 2007) of a country with a long way to go in order to secure the private property rights of its citizens in such a way that ensures strong economic growth and security.

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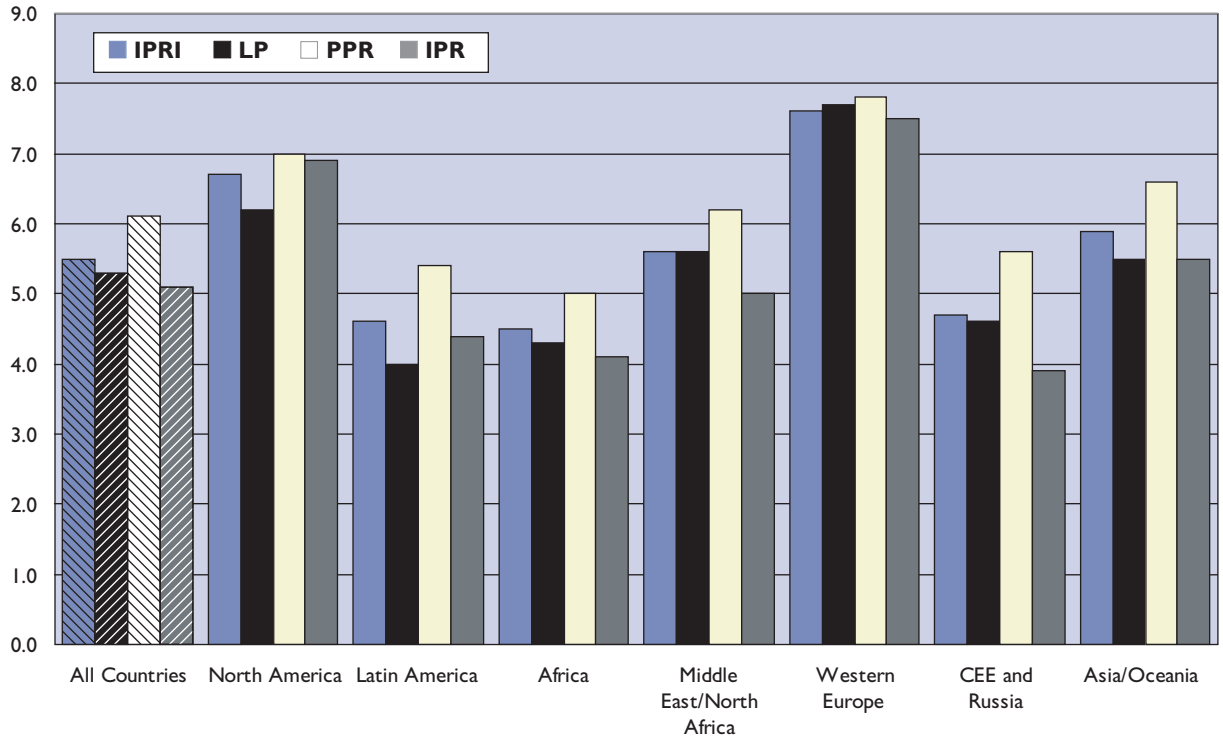
Regional Distribution of IPRI

EXHIBIT 10: Average Performance by Region and Component

REGION	IPRI	LP	PR	IPR
All Countries	5.5	5.3	6.1	5.1
North America	6.7	6.2	7.0	6.9
Latin America	4.6	4.0	5.4	4.4
Africa	4.5	4.3	5.0	4.1
Middle East/North Africa	5.6	5.6	6.2	5.0
Western Europe	7.6	7.7	7.8	7.5
CEE and Russia	4.7	4.6	5.6	3.9
Asia/Oceania	5.9	5.5	6.6	5.5

EXHIBIT 11: Average Performance by Region



IPRI and Economic Well-Being

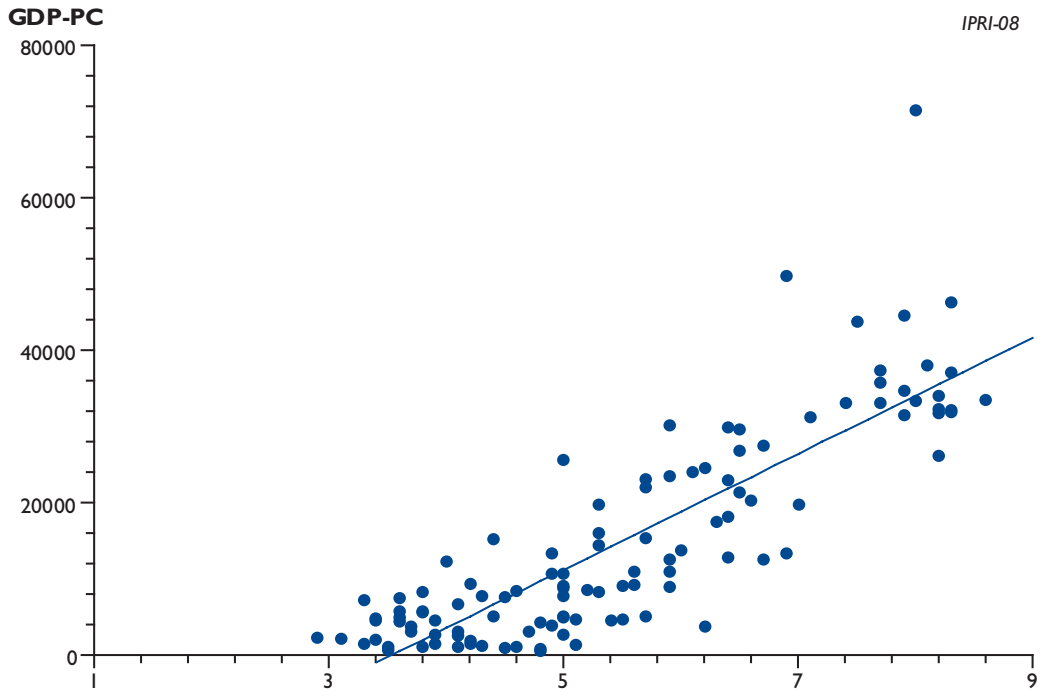
The relationship between effective property rights protection and economic performance is certainly of high interest to countries and policy makers. Exhibit 12 below provides a broad stroke picture of the increasing wealth of countries which more strongly protect private property.

EXHIBIT 12: Average Income by Quintile

IPRI QUARTILES	AV. GDP P.C.
Top 20 Percent	$35,638
2nd Quintile	$19,029
3rd Quintile	$8,924
4th Quintile	$5,309
Bottom 20 Percent	$3,817

In this case, the countries in the top quintile of IPRI scores enjoy a per capita income that is more than nine times that of their counterparts in the bottom quintile.

EXHIBIT 13: Relationship between IPRI and GDP Per Capita (with fitted line)



As seen in Exhibit 13, the IPRI score trends strongly with GDP per capita. In fact, using a simple regression to determine the relationship, the relationship exhibits a statistically significant positive relationship, with a correlation coefficient of 0.85 and an explanatory power (r-squared) of 0.71. According to the relationship fitted between the two data sets using the simple regression, a one point increase in the IPRI score predicts a $7,616 increase in per capita GDP.

This positive relationship also holds when using the individual component scores as the independent variable. For LP, the correlation coefficient is 0.80; for PPR, it is 0.79; and for IPR it is 0.81.

EXHIBIT 14: Relationship between LP and GDP Per Capita

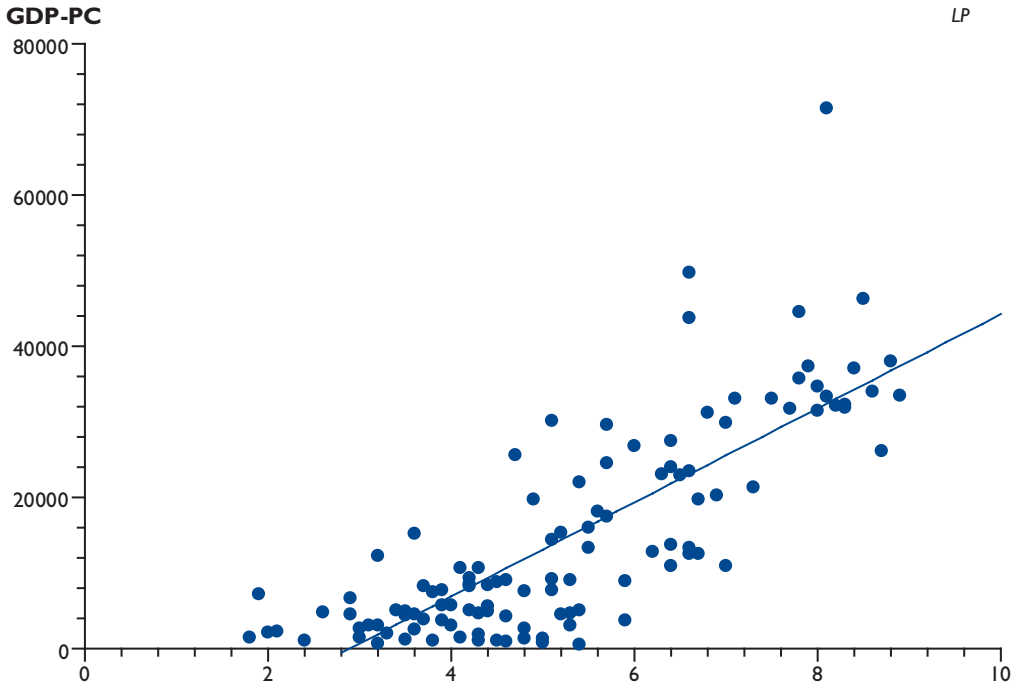


EXHIBIT 15: Relationship between PPR and GDP Per Capita

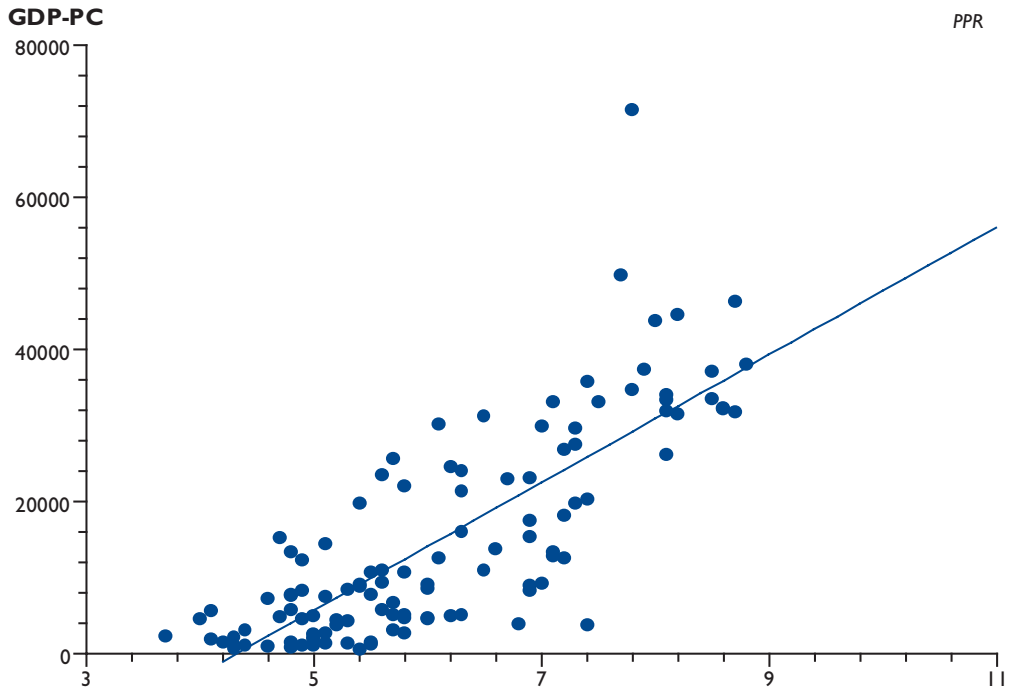
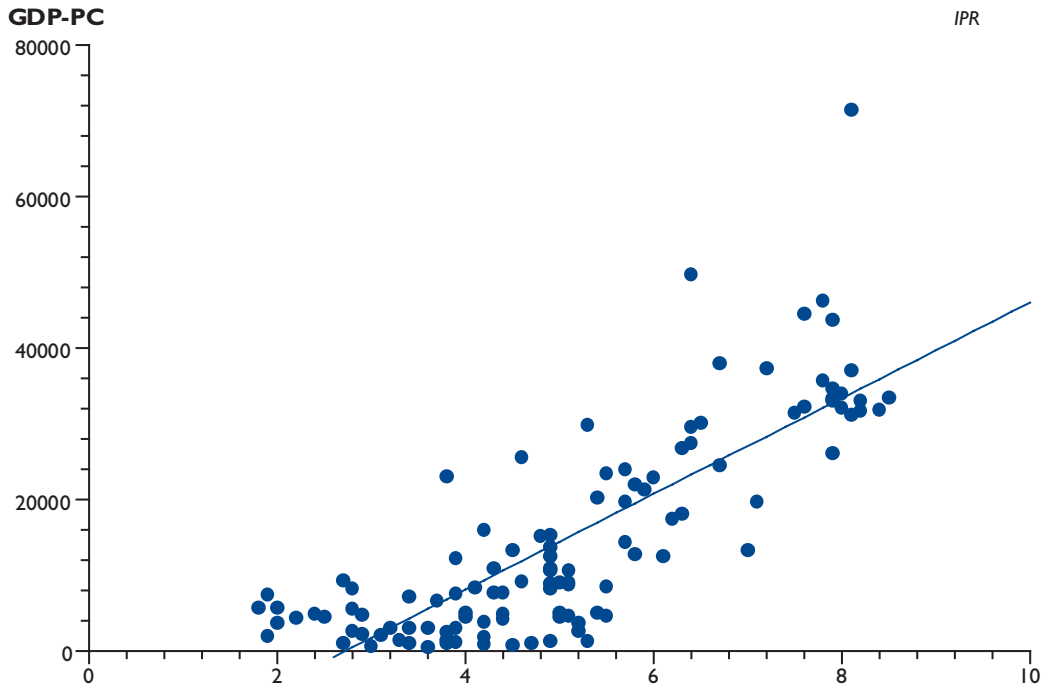


EXHIBIT 16: Relationship between IPR and GDP Per Capita



To take it one step further, using a multiple regression technique to fit all three components to GDP per capita results in the following relationship:

$$\text{GDP Per Capita} = 1832.93*LP + 2804.45*PPR + 3066.43*IPR - 27447.07$$

with the coefficients on the LP and PPR term both significant at the 95% level, and the IPR coefficient and intercept terms significant at the 99% level.

Overall it would appear the relationship between the IPRI score, as well as its component parts, and average income is unfailingly strong. Of note is the fact that in the multiple regression model, Intellectual Property Rights appears to have both the most significant correlation as well as the highest coefficient, predicting a higher return to income with improvement in this component. The intuition does comport with literature showing a higher return to investment in intellectual properties (technology, process improvement, etc.). However, one should be careful to draw this inference since only a correlation is shown here. Indeed, the causation might very well run the other way, with richer countries both more able and more willing to protect intellectual property since they have a larger share of their economy devoted to such pursuits.

CASE STUDIES

This section contains more in-depth analysis of the interaction between property rights and economic activity, among a handful of selected countries. The reader should keep in mind that these case studies are not to be viewed as extensions of the Index methodology or scoring themselves, but rather as related material meant to provide a richer picture of the complex subject of private property rights. As mentioned in the introduction of this report, the main purpose of the IPRI is to provide a macro view snapshot of the state of property rights around the world. In so doing, the authors are invariably limited in the amount of detail they can provide on the contours of specific policies and situations within each country – this is due to both the constraint of time and resources as well as the desire to provide a consistent comparison across countries.

With this in mind, the underlying motivation for the IPRI is to provide a greater understanding of property rights such that policymakers may hopefully devote more and more effort to improving them within their own countries. We hope these case studies will help in this pursuit, and taken together with the primary metric provided by the Index, will better inform the reader about the broader issue.

CASE STUDY #1: LANGA TOWNSHIP, SOUTH AFRICA

by Karol Boudreaux

Introduction

The idea of providing poor people with legal title to their property to improve security and increase investment is not new. In Africa, systematic title registration projects took place in Sudan and Buganda (present-day Uganda) before the Second World War[12]. In the post-war era, important land titling projects were implemented in Kenya in the 1950s and in Malawi in the 1970s. The list does not stop here; a dozen other African countries have experimented with private titling projects.[13]

Unfortunately, the results of these efforts have been disappointing. In Kenya, in particular, titling enriched politically well-connected individuals at the expense of the poor and also reduced women's control of land. In Somalia, scholars found no significant correlation between titling and investments in agriculture.[14]

The question that reformers and property-rights advocates face is this: can titling projects in the developing world live up to their promise? Perhaps, but if a country's rule of law is weak, if it has high transaction costs for property transfers, or if it erects barriers that limit entrepreneurship, then the benefits of titling will be muted. Property reform should always be considered in light of the broader legal, regulatory, and customary environment. A lack of detailed local knowledge will imperil any titling project.

The South African experiment

In South Africa, efforts to create a more secure form of tenure for black citizens have been underway for decades. The results of this experiment are visible in Langa Township, located just outside Cape Town.[15]

Langa is one of the country's oldest townships, created just after World War I. Black South Africans who came to Cape Town looking for work hoped to find shelter in one of Langa's residential hostels or in one of the few homes built to house black families. Properties in Langa were not available for sale, residents could only lease a home or a space in a hostel. Highly discriminatory legislation barred them from owning property in Langa.

Change began in the 1970s, under the apartheid-era National Party government, when long-term leases were approved for residents of black townships. In 1986, the government introduced legislation to allow black urban dwellers, such as the residents of Langa, to purchase freehold title to their homes.[16] The post-apartheid ANC government transferred significant numbers of titles to occupants.

Today, many of Langa's residents do have freehold title to their concrete houses. The government hoped that transferring title to occupants would stimulate economic growth and alleviate poverty. Government policy makers believed that once occupants had secure title to their houses, they would leverage this asset in economically creative ways and begin to pull themselves and their families out of poverty.[17]

What happened in Langa after citizens gained title to their property is instructive. Many residents have improved their homes.[18] Other residents use their house as a secure and cost-effective place to do businesses. However, there seems to be little use of titles as collateral for commercial loans.

A brief history

In response to the great influenza epidemic of 1918, Cape Town officials moved some of the city's black residents to an outlying area, away from whites. The area was named Langa. Laws predating this move prevented the black residents from buying land in Langa, and instead, the Cape Town city council, which owned all the land and buildings in the township, rented space to black residents.

Throughout the twentieth century black South Africans moved to cities, hoping to find work. Despite laws that made such movement very difficult and poor living conditions, rural residents continued to flow into urban areas. The white governments were unable, and unwilling, to supply adequate housing for these new residents. Supply did not increase to meet demand and the result was a substantial housing shortage, the growth of informal squatter settlements, and the extensive use of backyard shacks as homes. Langa, like other townships, suffered from all these problems and more.

In 1994, the ANC-led government of National Unity took office, and faced a tremendous housing problem: millions of people needed better housing, the existing housing stock was of a poor quality, and most black citizens lived far from city centers and faced long and costly commutes. High unemployment rates and widespread poverty compounded these problems. The Housing Act of 1997 attempted to address these problems, but to this day, the government continues to struggle with housing issues.

Despite continuing problems, there are signs that more secure tenure is promoting investment and generating opportunities for entrepreneurship in Langa and in other townships across South Africa.[19]

Homes as a place of business

Lelapa Restaurant sits on a quiet side street in Langa. It has worldwide reputation among travelers for good food and a friendly atmosphere, thanks to the hard work of Sheila Mahloane and her daughter Monica.

Sheila has lived in her home on Harlem Street since 1960. Whether by necessity or instinct (or both) she has developed into a successful entrepreneur, using her home as space for her business. Back in the 1960s, nine people shared the one-bedroom house. Today, up to 60 people share it for a meal.

Throughout her life Sheila faced and overcame adversity. Before opening Lelapa, Sheila held a number of jobs, often in the informal sector. She went to school at night and then full-time to complete her education. She learned food service at one of her jobs, running the food concession at a local high school. By 1996, she was looking for a change.

Happily for Sheila, change was all around her. The new South Africa was only two years old, and tourists wanted to see the townships. However, tour companies were unsure of the reception they would get from the local people, and simply drove the tourists through the townships in large, air-conditioned buses.

Alert to opportunity, Sheila decided to turn their home into a restaurant, with her daughter Monica, to take advantage of the growing tourist trade. However, converting their home into a restaurant required money, and Sheila could not get a commercial loan, as she had spent much of her life working in the informal sector. To overcome this common problem, she raised capital by selling clothing.

After three years of preparation, Shelia and Monica opened Lelapa. In the seven years since opening, the house has been progressively converted into a restaurant. Today, in addition to providing work for herself and Monica, she employs five women full-time and she hires high-school boys to play music and sing on some evenings.

Sheila's story of perseverance and entrepreneurial spirit provides one example of how secure tenure provides a basis for the creation and expansion of a strong business. Before 1994, Sheila would have faced serious obstacles to turning her home into a restaurant: by law, black residents had limited opportunities to open formal businesses in townships. Further, as a renter, Sheila had few incentives to improve her property.

However, with her secure title Sheila faces different incentives and has invested in her property. She now reaps the benefits of using her property in a profitable way. Sheila went from being an employee to being an employer. She provides steady work for five people and part-time work and experience for several more. Sheila's efforts, and the efforts of other home-based entrepreneurs, are helping to relieve poverty in Langa.

House improvement spurs economic activity

By providing Langa's residents with a secure title to their property, government officials gave people like Sheila incentives to invest money to improve their homes. Throughout Langa, a wide variety of house improvements are underway. Some of these are small-scale upgrades to windows and doors. Some involve the addition of wrought iron fencing to the front of a house. Other residents undertake more substantial upgrades that involve adding a room or rooms and upgrading the interior space.

Exterior improvements are clearly visible throughout Langa, but interior changes are also taking place, though they may escape a visitor's eyes. Homeowners who renovate their kitchen often hire cabinet-makers, electricians, and tile layers. They buy appliances, paint, and wallpaper, to the benefit of the local hardware stores. When Langa residents are unable do renovations themselves they tend to hire other Langa residents, keeping work in the township and signaling artisan-entrepreneurs to develop or improve their skills. The demand for artisans, bricklayers, carpenters, and masons means that more people have incentives to acquire these skills and set up shop (typically in their homes) to meet the demand of Langa residents.

Incremental change is the norm

Ronald Mhlongo is one resident who has used local artisans to improve his home. Mr. Mhlongo has lived in his home in Langa since 1984. Initially, laws forced him to rent his four-room home from the city government. The city did a poor job of maintaining rental housing for black residents and Mr. Mhlongo's house had a host of problems. Nonetheless, in the late 1980s, when new legislation gave black urban residents an opportunity to buy their homes, Mr. Mhlongo took advantage of the legal change and became a homeowner.

Over the years, he has made extensive improvements to his house. He saved a little money to pay for replastering. Then, he saved a bit more and added a ventilator. He added two more rooms (a sitting area/living room and another bedroom) and also a "granny flat" in the backyard that serves as bedrooms for two of his sons and for a grandson.

Mr. Mhlongo never thought of going to a bank for a loan to pay for the work on his house because he did not want to pay interest. Without a permanent job, he believed that it would be very difficult to repay a commercial loan. Instead, he prefers to save and then make improvements.

Mr. Mhlongo's approach to house improvement is typical of Langa. In the late 1980s and in the 1990s, residents acquired title to run-down properties in desperate need of improvement. New homeowners had an incentive to improve their property because improvements would increase the value of their new asset.

However, because Langa's residents often work in the informal sector and have irregular incomes, qualifying for a commercial loan is difficult. Instead of seeking larger commercial loans, they rely on savings clubs and their small personal savings to fund improvements. To date, relatively few alternatives to commercial lending have sprung up in the townships. The availability of micro-lending in South Africa is rather limited and, regardless, people expressed a preference for using personal savings and working with familiar savings clubs instead of working with unknown bank officials.[20]

For these reasons, among others, traditional banks play little part in the typical Langa home-improvement project. Instead, homeowners slowly improve their properties using personal savings and pay-outs from savings clubs. These improvements, however incremental, increase the value of the property and the homeowners' wealth—wealth that most homeowners expect to hand down to their children.

Homeownership is a path towards wealth creation insofar as it creates incentives to invest in and improve an asset: one's house. Investing in human capital or in a business can also create wealth. It is possible that people might use title to a house as collateral for a loan that would allow them to invest in human or other capital, but in Langa this seems to happen infrequently. Instead, wealth tends to be created by investing using personal savings.

Why people don't use titles to secure loans

Freehold titles can, in some settings, promote tenure security.[21] In turn, secure tenure provides people with incentives to invest in their property, to care for it, and to maintain it because the homeowners reap the rewards of doing so.[22] When it comes time to sell a house, a well-maintained house fetches a higher sale price than a poorly maintained house.

In addition, one of the benefits of freehold title is that title holders can typically mortgage their land. Many property owners in the developed world use property titles as collateral for commercial credit. Loans from a commercial lender can help start a business, pay for medical expenses or education, or some other activity. The right to mortgage property is one of the many "sticks" in the bundle of rights attached to freehold title. So why are more title holders not using this stick to obtain loans and build or expand businesses, improve their homes, or fund education?

We identified several important reasons for the pattern of reliance on personal savings and savings clubs over commercial loans in Langa. Among them are the following:

- **Risk**. People do not want to risk losing their home for these reasons:

  1.) due to rigid labor regulations, a growing segment of South African's labor force works in the informal sector.[23] Informal sector workers are self-employed and have variable income streams, making it difficult to meet mortgage bond payments and making use of commercial credit risky.[24] Commercial lenders also view informal sector workers as high-risk borrowers (as compared with people employed by the formal sector) and therefore not good candidates for loans;

  2.) given the significant housing shortage in South Africa, replacing one's home, if lost, would be very difficult. The most likely result of losing a home would be a family moving into the house of a relative or into a shack;

  3.) many formal residences have an informal shack in the backyard, home to a relative or a source of rental income for the homeowner. If a home was foreclosed and lost, the ability to house family members and/or the right to rental income would also be lost;

  4.) homes also often serve as the locus for a business. If the house is placed at risk by a commercial loan, so too is the place of business;

  5.) the home has a very high cultural value as the family "seat." Parents and possibility grandparents lived in the house, and typically the current owner wants to keep the home to give to his or her children[25]; and

  6.) for people who lived with severe insecurity under apartheid governments, it may be especially valuable to hold ownership rights and the increased sense of security these provide. Black South Africans faced enormous institutional barriers in obtaining formal housing in the Cape Town area. For those who fought hard to get a house, retaining the house may have a high sentimental value.

- **Trust issues.** As noted, many Langa residents rely on personal savings and savings clubs to finance home renovations. Trust and reliability seems to play an important role in this choice. Savings clubs members feel strong social pressures to participate in a timely fashion, making payouts fairly dependable. Savings club members know each other and engage in repeated, face-to-face dealings. A person who does not pay into the monthly pot is less likely to be able to participate in a savings club in the future.

  On the other hand, people who live in Langa often see commercial banks as overly formal, unwelcoming, and costly (due both to interest payments and the time it takes to get a loan). While they may trust their next-door neighbor in a savings club, they may not trust a loan officer who they do not know. Further, for many, the peace of mind that comes from being debt-free and using savings makes personal savings and savings clubs preferable to commercial loans.

Other problems and barriers homeowners face

In addition to the problems outlined above, other, more formal, institutional barriers exist and impede economic development tied to the benefits of titling.

- **The unnecessary costs of government monopoly.** Though property is bought and sold in Langa, transfers are often informal, due to high transaction costs. Sellers must prove that they have paid any taxes they owe before legally transferring property. In addition, specialized (hence particularly expensive) conveyancing attorneys are required to formally transfer property. These lawyers are the only ones allowed by law to transfer properties in the Deeds Registry. Conveyancers' fees impose undue burdens on poorer citizens who often avoid these costs and transfer property informally with an affidavit. As a result, the Deeds Registry becomes increasing inaccurate. The government has partially addressed this problem by eliminating duties on lower-valued properties, but the monopoly of conveyancers remains.

- **Poor quality of local governance.** Local governments lack the capacity and/or the will to provide residents with a safe and clean local environment, and place roadblocks in the path of commercial and residential property development. Residents resent the lack of service and fail to pay local taxes, creating a Catch-22 as residents are required to prove their taxes have been paid in order to formally transfer property. Moreover, many have people reported obstructionist behavior on the part of local officials, when attempting to improve properties.

- **Problems related to crime.** In a high crime environment, homeowners may limit their home improvement projects. Too nice a home (with, for example, a second story or perhaps a garden) may signal wealth to possible thieves and may make the home or its occupants a target.

- **Access to financing.** Many point to the lack of mortgage financing for low-income earners as a problem in the South African financing environment. The government has tried to address this problem but banks have been slow to lend to low-income borrowers. Further, as interest rates in South Africa remain high, this makes commercial loans more expensive.

- **The high cost of formality.** Just like Americans, South Africans can start businesses. However, while it is relatively easy and inexpensive for Americans to create a formal business, it is costly for South Africans to do the same. Instead, many entrepreneurs opt to open informal businesses. If government policies made opening a business less costly and more attractive, the pace of economic development might well increase and people might be more willing to use titles as collateral to expand businesses or to invest in human and other forms of capital.

Conclusion

The experience in Langa Township is illustrative of the complexities of any titling project. No one receives title to property in an institutional vacuum. If a titling project is undertaken in a weak institutional environment, where elites are likely to capture the benefits of legal change or where there is a large informal sector, the project may have limited benefits. Wealthier, better educated citizens may manipulate the changed legal environment to their advantage. Informal-sector workers may shy away from the use of commercial credit. Transactions costs associated with legal professionals may give poorer citizens incentives to transfer property informally. All of these problems and more can and do exist. Thus, for any titling project to have a hope of success, it must be based on strong local knowledge of institutional strengths and weaknesses.

The evidence from Langa suggest that titles, when they are secure, do give people incentives to invest and maintain their property, to support local artisans and building supply stores. This goes some way towards stimulating the local economy. However, for poor people to truly unlock the full value of titles, governments need to do a much better job of improving the broader institutional climate.

CASE STUDY #2: BUENOS AIRES, ARGENTINA

by Sebastian Galiani and Ernesto Schargrodsky

Introduction

The fragility of property rights is considered a crucial obstacle for economic development. The main argument is that individuals underinvest if others can seize the fruits of their investments. In today's developing world, a pervasive manifestation of feeble property rights are the millions of people living in urban dwellings without possessing formal titles of the plots of land they occupy.

Land-titling programs have been recently advocated in policy circles as a powerful instrument for poverty reduction. Hernando De Soto emphasizes that the lack of property rights impedes the transformation of the wealth owned by the poor into capital.[26] Proper titling could allow the poor to collateralize the land. In turn, this credit could be invested as capital in productive projects, promptly increasing labor productivity and income. Inspired by these ideas, and fostered by international development agencies and private institutions, land-titling programs have been launched throughout developing and transition economies as part of poverty alleviation efforts.

The important question is then the following: Are land-titling programs a powerful tool to reduce poverty or will the societies that adopt them face another policy delusion? In other words, what are the causal effects of urban land titling? To answer this question is not easy at all. To identify what would happen to a family if they receive the title to the plot of land they inhabit instead of staying in that piece of land without the legal title is complicated: the problem is that we do not observe the same families in both situations.

A natural experiment

Thus, any attempt to answer the above questions has to compare families with and without land titles. However, the allocation of property rights across households is usually not random but based on wealth, family characteristics, individual effort, previous investment levels, or other mechanisms built on differences between the groups that acquire those rights and the groups that do not. Exogenous variability in the allocation of property rights is necessary to solve this selection problem.

In a series of recent papers we address this selection problem by exploiting a natural experiment in the allocation of urban land titles to a very deprived population in Argentina.[27]

The natural experiment exploited in these papers actually started in 1981, when about 1,800 landless families organized by a Catholic chaplain occupied a wasteland in the San Francisco Solano area, on the outskirts of Buenos Aires, Argentina. At the time of the occupation the squatters thought the land belonged to the state, but they later found out that it was private property. The occupied area turned out to be made up of 13 tracts of land belonging to different private owners, which were partitioned by the squatters into small, urban-shaped parcels for each household. The squatters resisted several eviction attempts during the military government. After Argentina's return to democracy in 1984 the Congress of the Province of Buenos Aires passed a law expropriating the land from the former owners, in exchange for monetary compensation to be paid by the government, and allocating it to the squatters.

The resulting titling process, however, was incomplete and asynchronous. The government made a compensation offer to each original owner calculated in proportion to the official tax valuation of each tract of land, which had been set by the fiscal authority to calculate property taxes before the land occupation. The government offers were very similar (in per-square-meter terms) for the 13 land tracts. Each of the original owners had to decide whether to accept the expropriation compensation proposed by the government or to start a legal dispute with the aim of obtaining higher compensation.

In 1986 eight of the 13 former owners accepted the compensation offered by the government. The formal land titles that secured the property rights to the parcels were then transferred by the state to the squatters in 1989. However, five former owners did not accept the compensation offered by the government and disputed the expropriation payment in the slow Argentine courts. Thus the process of expropriation was incomplete. One of these five trials ended in 1998, and this tract of land was transferred to the squatters. The other four lawsuits were still pending at the time of writing.

A random allocation

A result of this episode is that today there are two groups of squatters living in very close proximity to each other, one of which has formal property rights (because its members live on parcels of land that used to belong to the former owners who accepted the expropriation or whose lawsuit ended) and the other of which remains untitled (because its members occupied parcels of land belonging to the challenging owners). This allocation of land titles was unrelated (more precisely, exogenous) to

the squatters' characteristics. At the time of the occupation the squatters did not know that the land had private owners, nor that an expropriation law was going to be passed, nor which parcels of land had owners who would accept (or dispute) the compensation offer, nor which eventual lawsuits could end first. Titled and untitled households arrived at the same time and were similar at the time of their arrival.

A statistical comparison of the household characteristics of these two groups prior to receiving the treatment (that is, prior to one group receiving titles) shows that the hypothesis of random assignment of land titles during this natural experiment cannot be rejected. That is, there are no significant differences between the treatment and control groups in the age, gender, years of education, and other characteristics of the family member who was the household head at the time of the occupation. There are also no differences in plot characteristics. Moreover, the squatters had no participation in the legal process between the government and the former owners, and the values of the dwellings they constructed were explicitly excluded from the calculation of the expropriation compensation.

Obtaining property rights depended on the decision of the original owners to challenge the expropriation as well as on the resolution of these legal processes. Given that these factors were exogenous to the squatters, it is possible to study the effect of the intervention "to give property rights" by comparing individuals who received and did not receive land titles, but who live in very close proximity, had similar pretreatment characteristics, and have been exposed to similar life experiences (with the exception of the treatment).

Experimental results

On credit

Do titled households have more access to credit? The evidence provided suggests that there is not much difference on this respect. In addition, we do not find differences at all in their actual earnings. Titled and untitled households have similar total earnings.[28] Thus, should we conclude that entitling the urban poor is not a sensible policy? Not necessarily.

On housing investment

The possession of land titles may affect the incentives to invest in housing construction through several concurrent mechanisms, beyond credit access:

1.) The traditional view emphasizes security from seizure. Individuals underinvest if others may seize the fruits of their investments.

2.) Land titles can also encourage investment by improving the transferability of the parcels. Even if there were no risk of expropriation, investments in untitled parcels would be highly illiquid, whereas titling reduces the cost of alienation of the assets.

3.) A third mechanism is that land titles provide poor households with a valuable savings tool. Poor households, especially in unstable macroeconomic environments, lack appropriate savings instruments. Land titles allow households to substitute present consumption and leisure into long-term savings in real property.

Empirically the impact of legal land titles on housing investment indicates that entitled families own today much better houses than untitled families. There are large effects of land titling on the probability of having walls and roof of good quality. The proportion of houses with good quality walls rises by 40 percent under land titling, while the increase reaches 47 percent for good quality roof. The results also suggest a statistically significant increase of about 12 percent in constructed surface under the presence of land titles. Finally, the study finds that a variable summarizing the overall aspect of each house using an index from 0 to 100 shows a large and significant effect of land titling on housing quality. Relative to the baseline average sample value, the estimated effect represents an overall housing improvement of 37 percent associated to titling.

Thus, we can conclude that moving a poor household from usufructuary rights to full property rights substantially improves housing quality. The estimated effects are large and robust, and seem to be the result of changes in the economic returns to housing investment induced by land titling. Thus, this micro evidence supports the hypothesis that securing property rights significantly increases investment levels.

On household size and structure

The possession of land titles may also affect the size and structure of households. There are several potential reasons for that to happen. Insurance motives seem to be the most important. The poor lack access to well-functioning insurance markets and pension systems that could protect them during bad times and retirement. With limited access to risk diversification, to savings instruments, and to the social security system, the need for insurance has to be satisfied by other means. A traditional provider of insurance among the poor is the extended family. Another possibility is to use children as future insurance.

Moreover, the lack of land titles might reduce the ability of household heads to restrict their relatives from residing in their houses. In addition, untitled households may feel the need to increase the number of family members in order to protect their houses from occupation by other squatters.[29]

Indeed large differences exist in household size between titled and untitled families. Untitled families have an average of 6.06 members, while titled households have 0.95 members less. The difference in household size seems to originate in two factors. First, there is a higher presence (0.68 members) of non-nuclear relatives in untitled households. Untitled households report a much larger number of further relatives of the household head who are not her/his spouse or offspring (i.e., siblings, parents, in-laws, grandchildren, etc.) than entitled households. Second, the entitled households show a smaller number of offspring of the household head born after the title allocation.[30]

On children's outcomes

Earlier seminal work advances the presence of parental trade-offs between the quantity and the quality of children. This trade-off appears because limited parents' time and resources are spread over more children. If land titling causes a reduction in fertility, it could also induce households to increase educational investments in their children.[31]

We explore this hypothesis by looking at differences in educational outcomes. They show that for the offspring of the household head in the 5-13 age group in the early-treated households (the group of children for which they find a reduction in the number of members), there is a large effect on school achievement. The children in the control group show an average delay of 1.09 years in their school achievement, whereas this delay is 0.42 years shorter for the children in the early-titled parcels.[32]

Moreover, exploring the effects of land titling on child health shows that children in the titled parcels enjoy better Weight-for-Height scores than those in the untitled parcels, although there are no significant differences in Height-for-Age measures. In addition, finds that teenage girls in the titled parcels show lower pregnancy rates than those in the untitled parcels. In the sample under study, teenage pregnancy is an important problem. 11.4% of the 14 to 17 years-old girls for whom an answer to their question on teenage pregnancy was provided, were or had been pregnant at least once. They find that the pregnancy rate was substantially higher in the untitled parcels (20.8%) than in the titled parcels (7.9%).[33]

Thus, entitling the poor enhances their investment both in the house and on the human capital of the children of the entitled families, which will reduce their poverty in the future.

On formation of beliefs

Finally, exploiting this rare natural experiment, we most recently studied the formation of beliefs among squatters and found a significant difference in the beliefs that squatters with and without legal titles declare to hold. The measure of beliefs are obtained through survey questions designed to broadly capture beliefs that appear important to the workings of a market economy, namely individualism, materialism, the role of merit, and trust.[34]

The set of beliefs declared by squatters with property rights are significantly different from those held by squatters without titles. The change in beliefs is consistently in the direction of what can loosely be called "Market Beliefs" (for example, in the sense that they are more individualist and materialist). This is interesting because of the strong similarities in the lives of squatters with and without titles. Moreover, the estimated causal effect is sufficiently large so as to make the beliefs of squatters with legal titles comparable to those held by the Buenos Aires general population. This is interesting because of the remarkable differences in the lives these two groups lead.[35]

Conclusion

The study of institutions and their effect on behavior, economic development, and beliefs presents an opportunity to isolate and identify those policies that are most effective in helping societies defeat poverty. However, rare is the opportunity to study the effect of policy changes in an experimental nature such as the one discussed here. Doing so allows us make confident assessments about changes caused by the policy change itself (the "treatment"), rather other factors which may be simply correlated to the change and caused by other unobserved phenomena.

Thus the studies presented here, using a fortunate but uncommon exogenous change in titling status of squatters outside of Buenos Aires, allows us to peer into the decisions of households under different ownership status but with everything else held constant. Our results present evidence on the different channels through which policies on property rights could affect development and ultimately reduce poverty. By examining differences in housing quality, household composition and size, child health and education outcomes, and beliefs, we find that land-titling programs are indeed effective in causing changes in outcomes; changes that are positive and likely to aid in families' battle against poverty.

IPRI AND GENDER EQUALITY

During the development phase of the initial International Property Rights Index, several academics and experts in this field emphasized the importance of gender equality with regard to property. As women play a crucial role in society and the economy, and their access to property rights matter for both, we decided to appropriately account for a component covering gender equality.

The Concept

Women's rights, with regard to property, are regularly taken for granted in industrialized countries but are often non-existent in countries of the developing world (both in practice and now and again in written statute). To account for the aspect of gender equality, this report integrates an idea to extend the standard IPRI measure with a measure of gender equality (GE) concerning property rights. The general formula of this modified index (IPRI(GE)) that considers gender aspects is the following:

$$IPRI(GE) = IPRI + 0.2*GE$$

The weight of 0.2 for the gender equality measure was chosen somewhat arbitrarily by the authors and the reader is invited to change this weight according to his/her preference. The construction of the GE measure is based on the five indicators displayed in Exhibit 17.

EXHIBIT 17: Structure of the Gender Equality Component (GE)

- Women's Access to Land
- Women's Access to Bank Loans
- Women's Access to Property Other Than Land
- Inheritance Practices
- Women's Social Rights *

*This indicator is a composite of five other variables combined to represent "women's social rights."

The Variables

Women's Access to Land/Women's Access to Property Other than Land/Women's Access to Bank Loans

These three variables are integrated in the GE component as they indicate the quality of women's ownership rights with respect to three aspects: women's access to bank loans, their right to acquire and own land, and the right to own property other than land. The rating on these factors indicates the extent of restrictions or the size of the female population for which restrictions are relevant. However, some restrictions may only be relevant for a woman in a specific stage of her life (e.g. married women).
Source: *OECD Gender, Institutions and Development Data Base (GID).*

Inheritance Practices

This factor covers inheritance practices, ranking countries on the degree to which regulations preference male heirs. In other words, this variable indicates to which extent bequests are equally shared between male and female offspring.
Source: *OECD Gender, Institutions and Development Data Base (GID).*

Women's Social Rights

Women's Social Rights is the only variable that covers broader aspects of women's equality. For 2007, the data for this variable was taken from the Cingranelli-Richards Human Rights Data set. However, since this source was not updated since 2004, the authors elected to create a composite social rights variable that would mirror the 2007 source so that GE scores between years would be comparable, but also so that a consistently updated source could be employed. The data for this variable now comes from the same source as the other variables, but is composed of a simple composite of the following measures: Repudiation, Parental Authority, Female Genital Mutilation, Freedom of Movement, and Ration of Female-to-Male Adult Literacy.
Source: *OECD Gender, Institutions and Development Data Base (GID).*

Methodology

The methodology of the GE component is identical to the one used to construct the IPRI. The final GE score is also an index based on the average of equally weighted variables, which ranges on a scale of 0 to 10. This, a score of 0 signifies complete discrimination against women, while a 10 is given to countries with fully developed equal rights of ownership between the sexes. Given that all the factor's basic data sets were constructed as indices, we simply normalized the data to the 0-10 scale.[36]

Consequently, for the final IPRI(GE) ranking, a 0-12 scale results due to the 0.2 weighting for GE.

EXHIBIT 18: By IPRI(GE) Ranking

Rank	Country	IPRI (GE)	GE
1	Finland	10.6	10.0
2	Norway	10.3	10.0
	Denmark	10.3	10.0
	Netherlands	10.3	10.0
	Germany	10.3	10.0
6	Sweden	10.2	10.0
	New Zealand	10.2	10.0
	United Kingdom	10.2	10.0
	Switzerland	10.2	10.0
10	Australia	10.0	10.0
11	Austria	9.9	10.0
	Ireland	9.9	10.0
13	Canada	9.7	10.0
	Japan	9.7	10.0
15	United States	9.5	10.0
16	Belgium	9.4	10.0
17	France	9.1	10.0
18	Portugal	9.0	10.0
19	Spain	8.7	10.0
	Chile	8.7	10.0
21	Estonia	8.6	10.0
22	Malta	8.5	10.1
23	Hungary	8.3	10.0
24	Israel	8.2	8.3
25	Mauritius	8.0	10.0
26	Malaysia	7.9	7.7
	Costa Rica	7.9	10.0
	Italy	7.9	10.0
29	United Arab Emirates	7.8	4.6
	Korea (South)	7.8	8.0
31	South Africa	7.7	4.0
	Czech Republic	7.7	10.0
33	Uruguay	7.6	10.0
	Thailand	7.6	9.9
35	Tunisia	7.4	7.6
36	Poland	7.3	10.0
	Turkey	7.3	9.0
	Panama	7.3	10.0
39	Colombia	7.2	10.0
40	India	7.1	4.7
	Kuwait	7.1	7.1
42	Brazil	7.0	10.0
	Romania	7.0	10.0
	Mexico	7.0	10.0
	Philippines	7.0	9.9
46	Bulgaria	6.9	10.0
	El Salvador	6.9	9.4
	Sri Lanka	6.9	8.8
49	China	6.7	8.3
50	Dominican Republic	6.6	10.0
	Jordan	6.6	4.4
	Morocco	6.6	5.8
53	Indonesia	6.5	8.2
54	Botswana	6.4	2.6
	Argentina	6.4	10.0
	Madagascar	6.4	9.3
57	Ukraine	6.3	10.0
58	Egypt	6.2	7.0
	Bahrain	6.2	5.8
60	Vietnam	6.0	6.6
61	Burkina Faso	5.9	4.2
	Malawi	5.9	5.6
	Ecuador	5.9	10.0
	Peru	5.9	9.0
	Benin	5.9	6.4
66	Mauritania	5.8	4.0
	Armenia	5.8	9.9
	Russia	5.8	8.8
69	Honduras	5.7	8.2
	Nicaragua	5.7	10.0
	Algeria	5.7	5.9
72	Mali	5.5	1.9
73	Bolivia	5.4	8.5
	Paraguay	5.4	10.0
75	Venezuela	5.3	10.0
76	Tanzania	5.2	2.1
77	Cameroon	5.1	4.9
	Mozambique	5.1	4.3
79	Albania	5.0	7.1
	Kenya	5.0	3.5
81	Ethiopia	4.9	5.7
82	Zambia	4.8	3.4
83	Angola	4.6	6.1
	Uganda	4.6	2.1
85	Nepal	4.5	3.2
86	Pakistan	4.4	2.4
87	Nigeria	4.1	3.0
88	Chad	3.7	2.1
	Zimbabwe	3.7	3.1
	Bangladesh	3.7	3.8

EXHIBIT 19: By GE Score

Rank	Country	IPRI (GE)	GE
1	Malta	8.5	10.1
2	Finland	10.6	10.0
	Norway	10.3	10.0
	Denmark	10.3	10.0
	Netherlands	10.3	10.0
	Germany	10.3	10.0
	Sweden	10.2	10.0
	New Zealand	10.2	10.0
	United Kingdom	10.2	10.0
	Switzerland	10.2	10.0
	Australia	10.0	10.0
	Austria	9.9	10.0
	Ireland	9.9	10.0
	Canada	9.7	10.0
	Japan	9.7	10.0
	United States	9.5	10.0
	Belgium	9.4	10.0
	France	9.1	10.0
	Portugal	9.0	10.0
	Spain	8.7	10.0
	Chile	8.7	10.0
	Estonia	8.6	10.0
	Hungary	8.3	10.0
	Costa Rica	7.9	10.0
	Czech Republic	7.7	10.0
	Uruguay	7.6	10.0
	Poland	7.3	10.0
	Colombia	7.2	10.0
	Brazil	7.0	10.0
	Dominican Republic	6.6	10.0
	Argentina	6.4	10.0
	Nicaragua	5.7	10.0
	Paraguay	5.4	10.0
	Italy	7.9	10.0
	Panama	7.3	10.0
	Bulgaria	6.9	10.0
	Ukraine	6.3	10.0
	Venezuela	5.3	10.0
	Romania	7.0	10.0
	Mexico	7.0	10.0
	Ecuador	5.9	10.0
	Mauritius	8.0	10.0
43	Thailand	7.6	9.9
	Armenia	5.8	9.9
	Philippines	7.0	9.9

Rank	Country	IPRI (GE)	GE
46	El Salvador	6.9	9.4
47	Madagascar	6.4	9.3
48	Turkey	7.3	9.0
	Peru	5.9	9.0
50	Russia	5.8	8.8
	Sri Lanka	6.9	8.8
52	Bolivia	5.4	8.5
53	Israel	8.2	8.3
	China	6.7	8.3
55	Indonesia	6.5	8.2
	Honduras	5.7	8.2
57	Korea (South)	7.8	8.0
58	Malaysia	7.9	7.7
59	Tunisia	7.4	7.6
60	Albania	5.0	7.1
	Kuwait	7.1	7.1
62	Egypt	6.2	7.0
63	Vietnam	6.0	6.6
64	Benin	5.9	6.4
65	Angola	4.6	6.1
66	Algeria	5.7	5.9
67	Morocco	6.6	5.8
	Bahrain	6.2	5.8
69	Ethiopia	4.9	5.7
70	Malawi	5.9	5.6
71	Cameroon	5.1	4.9
72	India	7.1	4.7
73	United Arab Emirates	7.8	4.6
74	Jordan	6.6	4.4
75	Mozambique	5.1	4.3
76	Burkina Faso	5.9	4.2
77	South Africa	7.7	4.0
	Mauritania	5.8	4.0
79	Bangladesh	3.7	3.8
80	Kenya	5.0	3.5
81	Zambia	4.8	3.4
82	Nepal	4.5	3.2
83	Zimbabwe	3.7	3.1
84	Nigeria	4.1	3.0
85	Botswana	6.4	2.6
86	Pakistan	4.4	2.4
87	Chad	3.7	2.1
	Tanzania	5.2	2.1
	Uganda	4.6	2.1
90	Mali	5.5	1.9

Results and Comparison

Exhibit 18 presents the results of the extended IPRI integrating the gender equality (GE) variables. The reader will notice the results are reported for only 90 countries instead of the 115 countries included in the IPRI ranking. This is due to data constraints.

One will notice the final IPRI(GE) ranking resembles a similar pattern of the IPRI ranking. Of course this is due to the relatively low weight of 0.2given the GE component. However, when testing alternative weights such as 0.3, similar patterns emerges with only slight differences. Again, Finland, Norway, Germany, Netherlands and Denmark all remain top performers. And once again Bangladesh is the lowest-ranked country, with a GE score of 3.8 (placing it 79 out of 90 within the GE component).

One will also notice a heavy grouping of countries at tied for the top with a score of 10.0 in the GE component. This is the result of a somewhat generous measure employed in the underlying data source (the GID). This unfortunately eliminates a great deal of potential variance which might have been used to create more dispersion among the GE rankings. In the future, other possible sources may be incorporated in order to get around this problem. However, we still feel the final IPRI(GE) scores and rankings accurately reflect the relative strength of each country along the criteria of this particular score.

DATA SOURCES

During the development phase of the initial International property Rights Index, several academics and experts in this field emphasized the importance of gender equality with regard to property. As women play a crucial role in society and the economy, and their access to property rights matter for both, we decided to appropriately account for a component covering gender equality.

Subjective versus Objective Data

The majority of data included in the IPRI stems from expert survey responses. However, some factors also reflect "hard" data based on the countries' regulations, laws, and actual estimates of magnitudes (for instance, piracy). Readers might wonder why the Index consist of such a mix of objective and subjective data.

First, objective data that reflects a country's strength in property rights protection is almost impossible to obtain beyond a narrow scope of parameters, so that there are few alternatives to relying on subjective data collections. Second, rather than merely summarizing a country's *de jure* facts regarding property rights protection, IPRI aims at also capturing *de facto* outcomes and prevailing effectiveness of the property rights system. Perceptions-based measures often contain information that is not reflected by objective measures, particularly in developing countries. In fact the research for the initial IPRI in 2007 focused mainly on the latter intention, and therefore integrated a large amount of data stemming from the experience and perceptions of experts in the field. In the future, the authors will continue to consider alternative compositions of subjective and objective data.

Data Sources

World Economic Forum (WEF) – Global Competitiveness Index:
World Economic Forum's Global Competitiveness Report supplies information regarding an economy's competitiveness for a large set of countries (125 for 2006-07). The rankings are drawn from a combination of publicly available hard data and the results of the Executive Opinion Survey. The latter is a comprehensive survey conducted on an annual basis by the WEF, together with its network of partner institutes (leading research institutes and business organizations) in the countries covered by the report.

There are four variables in the IPRI for which data has been obtained from the 2006-07 WEF Global Competitiveness Report: "Judicial Independence," "Property Rights," "Ease of access to loans," and "Intellectual Property Protection." The specific questions that were used to elicit a response are displayed in a chart elsewhere in this report. For more detailed information on the Global Competitiveness Report, visit:
http://www.weforum.org/en/initiatives/gcp/Global%20Competitiveness%20Report/index.htm.

World Bank Group (WB) – World Development Indicators:
The World Development Indicators compile statistics to provide an annual snapshot of the progress in the developing world and the challenges that remain. It is a product of intensive collaboration with numerous international organizations, government agencies, and private and nongovernmental organizations. The indicators are obtained from numerous levels, starting with censuses and household surveys. Nongovernmental organizations and the private sector also make important contributions, both in gathering primary data and in organizing their results.

One variable from the World Development Indicators was used for the IPRI: "Confidence in Courts.." The World Development Indicators obtained this data from the responses to the World Bank's Investment Climate Surveys. For more information on this data, see:
http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:21298138~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html.

World Bank Institute (WBI) – Worldwide Governance Indicators:
The Worldwide Governance Indicators stem from the World Bank Institute and draw on the most recent data available on an annual basis. That is, the most recent report (2007) actually contains data gathered from multiple years within the last decade. The World Governance Indicators reflect the perceptions on governance of a very diverse group of respondents: hundreds of variables are drawn from more than fifty sources and organizations. Several of the data sources are surveys of individuals or domestic firms with first-hand knowledge of the governance situation in their country. But the report also captures the perception of country analysts at the major multilateral development agencies, reflecting these individuals' in-depth experience working on the countries they assess. Other data sources from NGOs, as well as commercial risk rating agencies, base their assessments on a global network of correspondents typically living in the country they are rating. The variables "Political Stability" and "Control of Corruption" are drawn from this source. For more information, see:
http://info.worldbank.org/governance/wgi2007/.

World Bank Group (WB) – Doing Business:
The source of the "Registering Property" variable is from the World Bank Group's Doing Business Report 2007. The Doing Business data is collected in a standardized way on an annual basis. To start, the Doing Business team, with academic advisors, designs a survey. The survey uses a simple business case to ensure comparability across countries and over time – with assumptions about the legal form of the business, its size, its location and the nature of its operations. Surveys are administered through more than 5,000 local experts, including lawyers, business consultants, accountants, government officials and other professionals routinely administering or advising on legal and regulatory requirements. For more information, see:
http://www.doingbusiness.org/.

Ginarte-Park (GP) – Index of Patent Rights:
The source of the "Patent Protection" variable in the IPRI come from the Ginarte-Park Index of 2005. The GP Index is based on "macro" legal features (and not on micro-level data) and incorporates a subset of legal features in existence in each country. The information used to construct the GP Index is obtained directly from national patent laws and contains five categories: the extent of coverage of patent protection, membership in international patent agreements, provisions for loss of protection, enforcement mechanisms, and the duration of protection. The most recent data set itself was obtained directly from the authors, but for a more in-depth discussion of the index, its methodology, and older data please refer to following paper: Juan Carlos Ginarte and Walter Park, "Determinants of Patent Rights: A Cross-National Study," Research Policy, Vol. 26, No. 3, October 1997, pp. 283-301.

United States Trade Representative (USTR) – 301 Watch List
The data used for the construction of the "Copyright Piracy" factor stem from the 2007 USTR 301 Watch List, which every year is published in detail on the website of the International Intellectual Property Alliance. The data used in the IPRI reflects the estimated level of piracy in the business software, entertainment software, motion pictures, and record industries. Representative institutions of the individual industries estimate their data in different ways. It is reasonable to assume that the piracy levels reported are actually underestimated as they only capture piracy experienced by the US copyright-based industries. For more information, see:
http://www.iipa.com/2007_SPEC301_TOC.htm.

International Trademark Association (INTA) – Trademark Protection Survey:
The country information on trademark protection reflects the outcomes of INTA's Trademark Protection Survey. The data for this variable is obtained from the responses of a survey that was sent to 230 INTA members with knowledge of the level of trademark protection. The survey consists of 13 questions covering registration, maintenance, and enforcement of trademark rights. The limitations of this only numeric source found for trademark protection on an international scale are the following: first, the year of publication of the survey is 1998 and can thus only be seen as a proxy for countries' current level of trademark protection; second, the coverage of the survey nets only 40 countries thus making this source of limited use in the IPR component. Future editions of the IPRI will focus heavily on finding a suitable alternative to this source, or otherwise recreating the survey so that it may reflect more updated information. For more information, see:
http://www.iipa.com/2007_SPEC301_TOC.htm.

Organization for Economic Co-operation and Development (OECD) – Gender, Institutions and Development Data Base (GID):
The OECD GID is the sole source of data used for construction of the IPRI(GE) rankings which incorporates aspects of gender equality. The GID is a tool for researchers and policy makers to determine and analyze obstacles to women's economic development. It covers a total of 162 countries and comprises an array of fifty indicators on gender discrimination. The nine GID variables, which are incorporated in the GE component, are related to women's access to loans, access to land, access to non-land property, inheritance practices and social rights. These data have been compiled from various sources like BRIDGE, the Asian Development Bank, the Canadian International Development Agency, and AFROL. For more information, see:
http://www.oecd.org/document/16/0,3343,en_2649_33935_39323280_1_1_1_1,00.html.

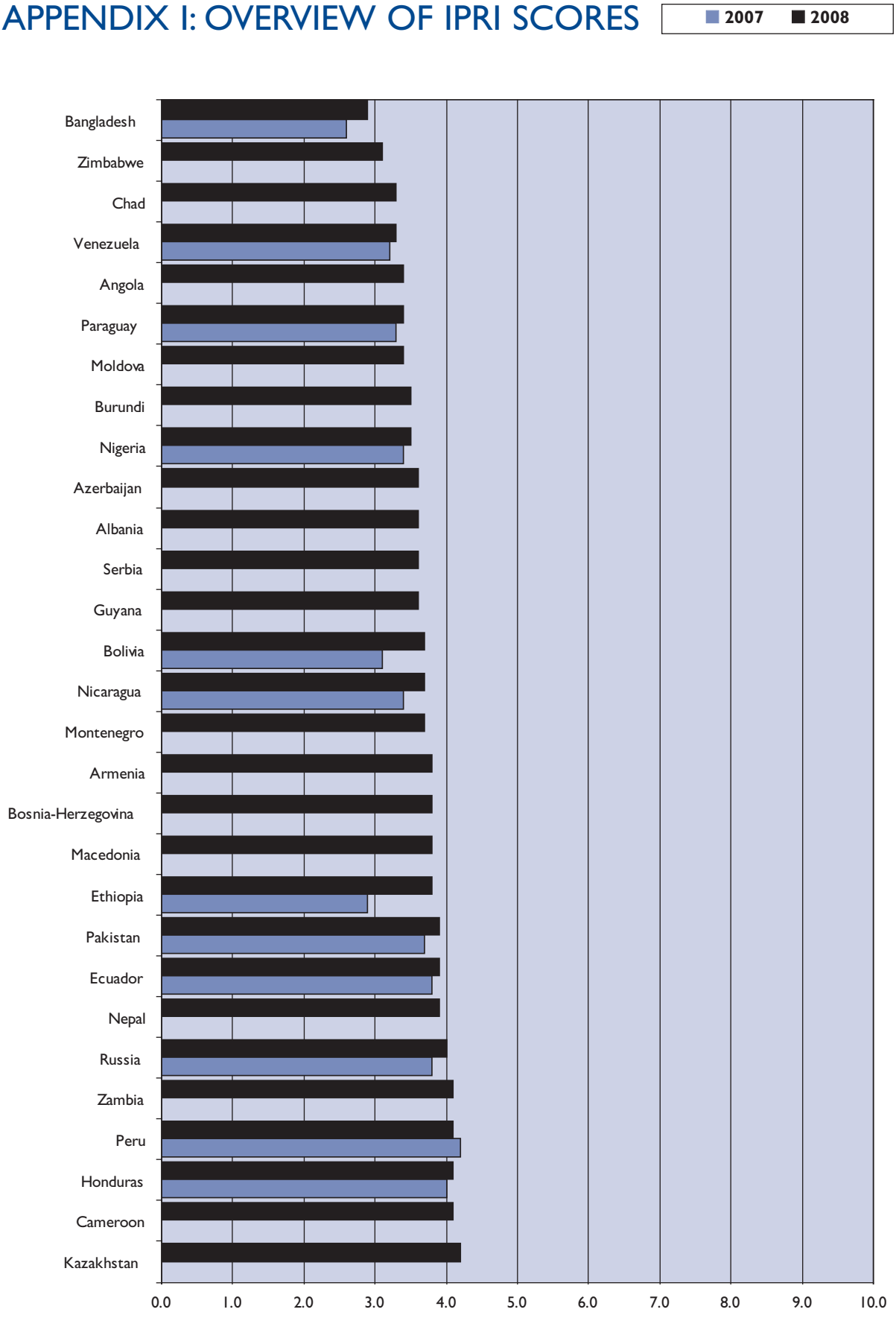
CONCLUSION

The 2008 edition of the International Property Rights Index is the second and most recent edition of an annual series of reports begun in 2007. The report is the primary focus of the Hernando de Soto Fellowship program, begun in 2006 to support the report's conceptualization, research, and authorship, and promotion. In conjunction with several dozen partner organizations throughout the world, the report's primary aim is to promote awareness of the importance of property rights, broadly defined, to economic growth and well-being. Additionally, the authors hope that the report itself will be a useful resource for efforts by other researchers and policymakers to promote improved property rights in their own countries.

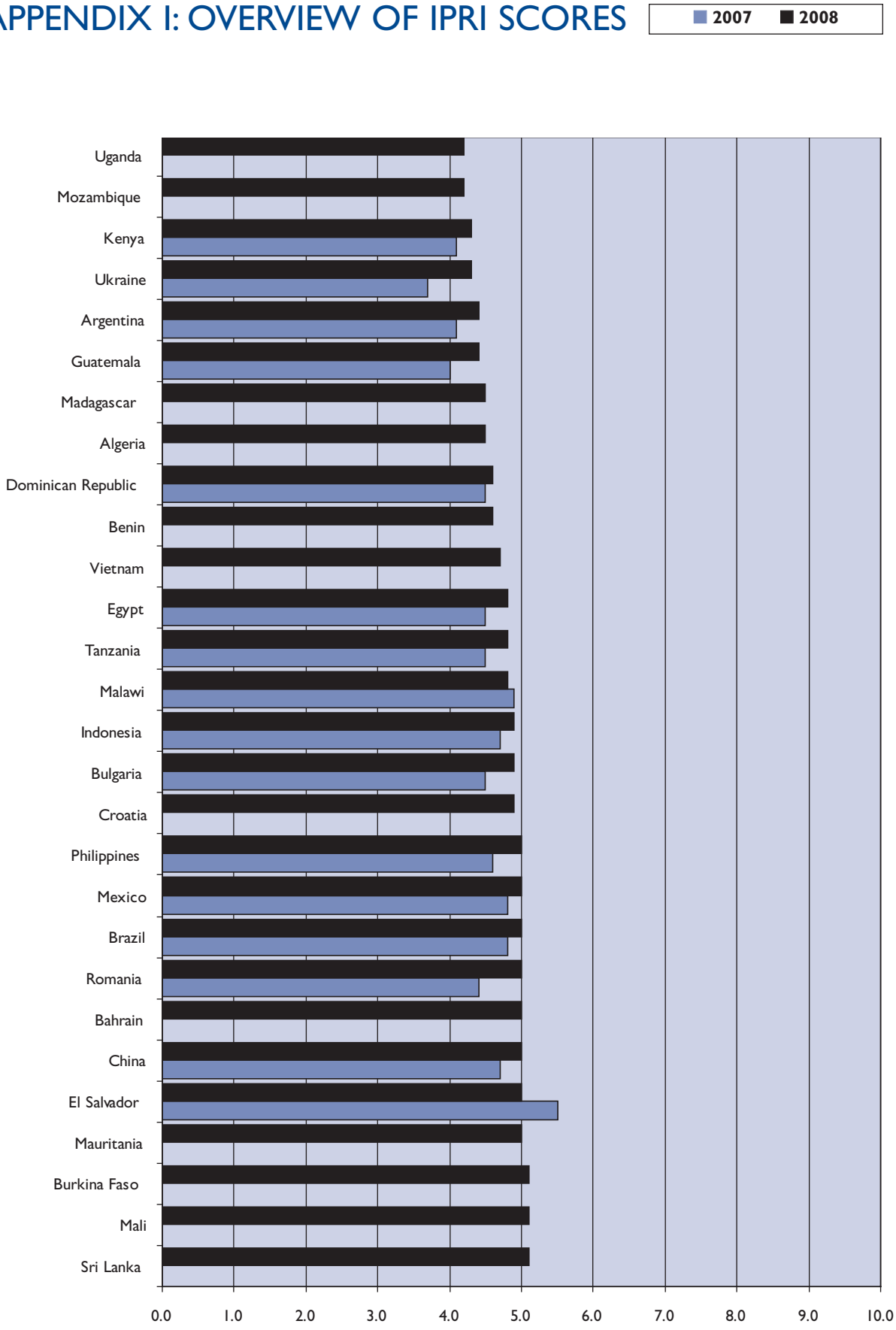
As this is the second year of the program, this second edition should be seen as an improved but not perfected project. Each year hence, the Hernando de Soto program will focus on continuing to refine the report by incorporating better data sources, expanding the content through additional and more varied case studies, and exploring different ways of analyzing the data and developing a sophisticated model through which to understand the relationship between property rights and economic development.

We invite feedback regarding additional ways to improve the IPRI in future years. Although it is, as far as we know, the most comprehensive study available focusing exclusively on property rights, our goal is for the IPRI to become the premier cross-country property rights study available, and a first-stop resource for interested researchers and policymakers.

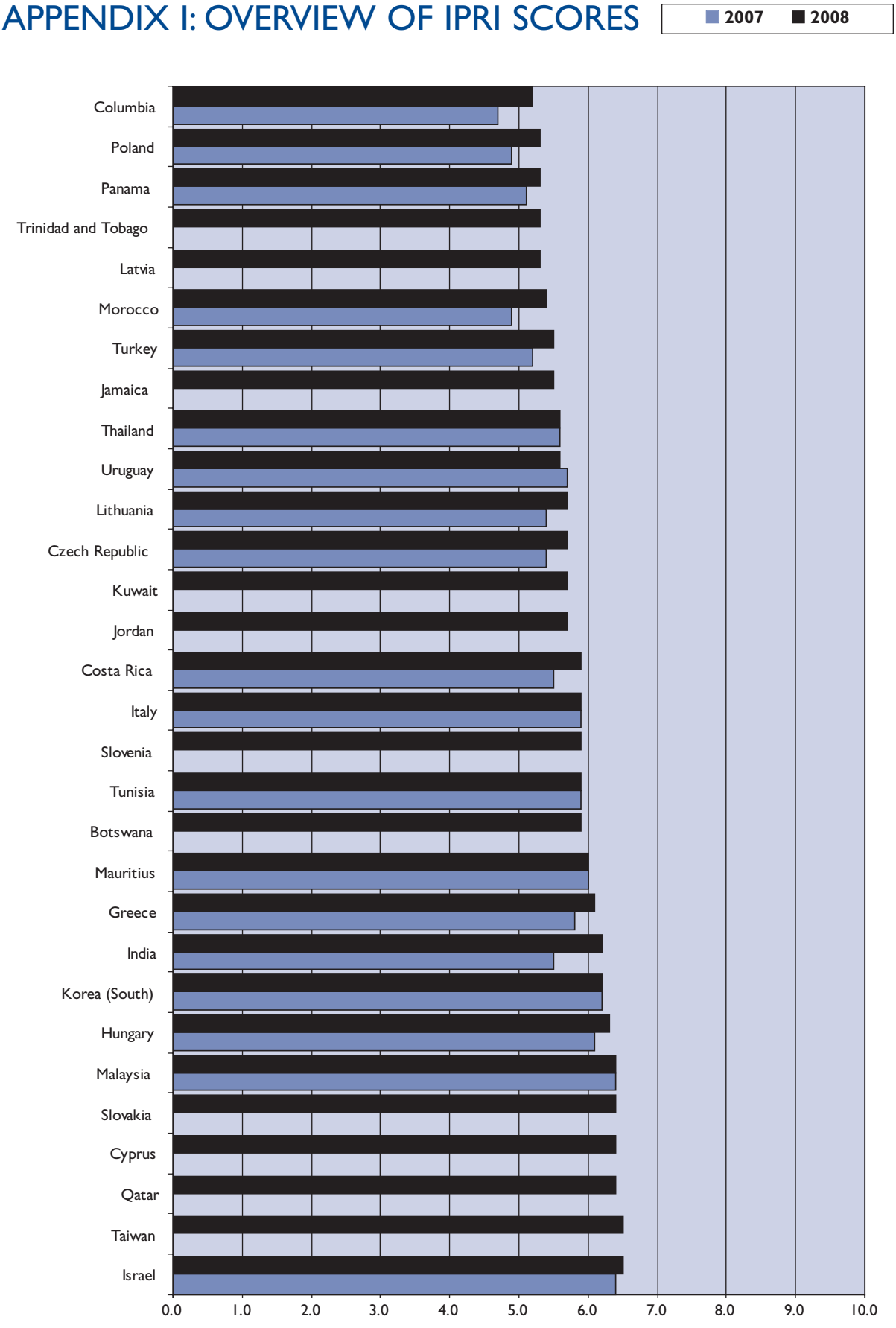
APPENDIX I: OVERVIEW OF IPRI SCORES



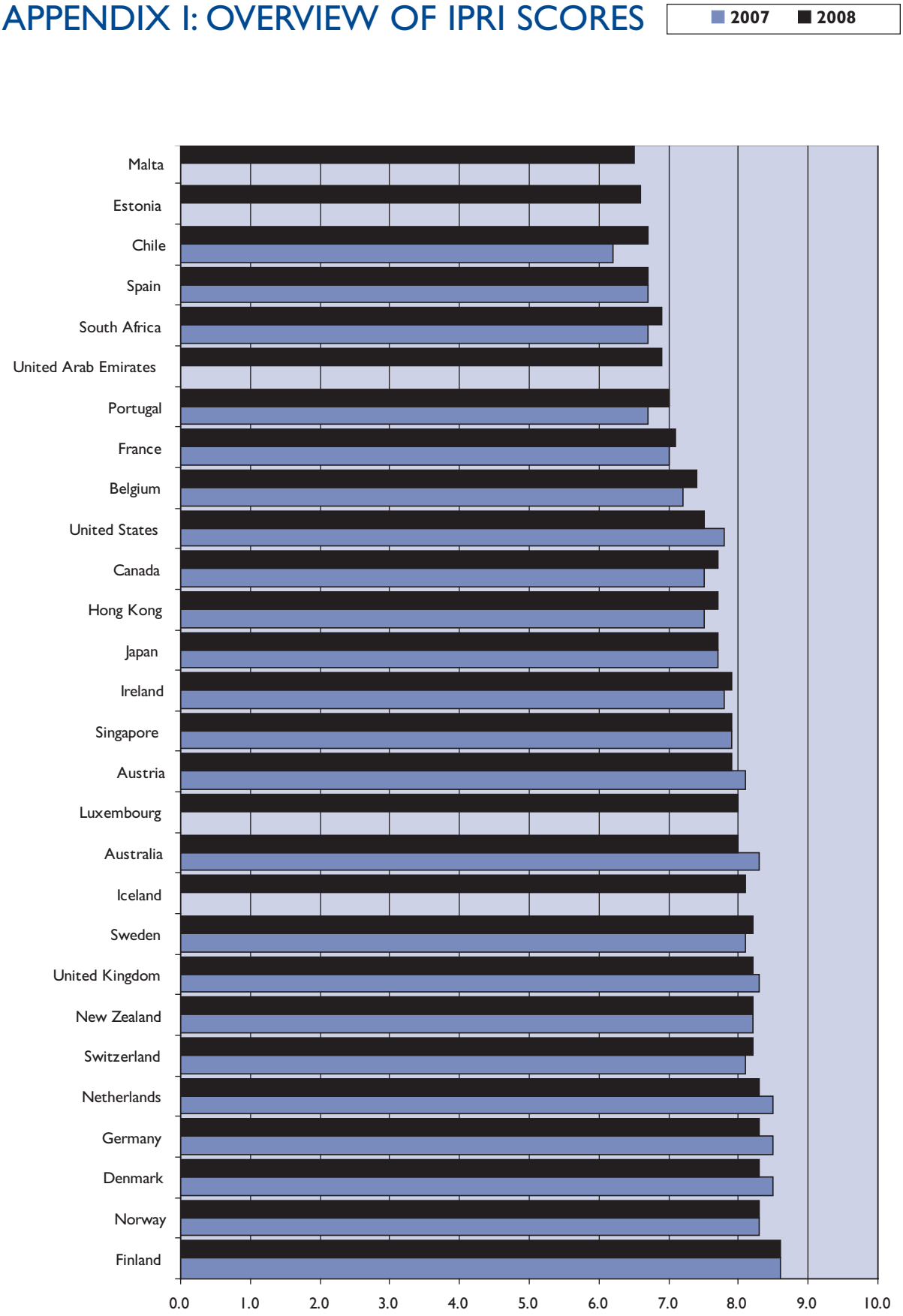
APPENDIX 1: OVERVIEW OF IPRI SCORES



APPENDIX I: OVERVIEW OF IPRI SCORES



APPENDIX 1: OVERVIEW OF IPRI SCORES



APPENDIX II: DETAILED METHODOLOGY AND DATA SOURCE INFORMATION

LP Sources

Variable Name in Corresponding Database	Original Scale	Rescaling Method used for IPRI	Year	Number of Countries Included in Original Database	Source	More Detailed Information About Source	Data included in 2007 Index?
Judiciary Independence	1=no, heavily influenced: 7=yes, entirely independent	The original data was rescaled to a scale of 0 - 10	2006 - 2007	125	World Economic Forum— Global Competitiveness Report	The ranking reflects experts' answers to the survey question: "Is the judiciary in your country independent from political influence of members of government, citizens or firms?"	Yes (updated)
Confidence in Courts to uphold Property Rights	Percentage	(100 - Vi)/10	2007	92	The World Bank Group— World Development Indicators (Table 5.2)	Measures the percentage of managers who do not agree with the statement: "I am confident that the judicial system will enforce my contractual and property rights in business disputes." Collected as an indicator in the WDI's Investment climate: enterprise surveys	Yes (updated)
Political Stability	-2.5(worst) – 2.5 (best)	The original data was rescaled to a scale of 0 - 10	2007	201	World Bank Institute— Governance Matters 2007: Worldwide Governance Indicators, 1996-2006 http://info.worldbank.org/governance/wgi2007/home.htm	Combines several indicators which measure perceptions of the likelihood that the government in power will be destabilized or overthrown by possibly unconstitutional and/or violent means, including domestic violence and terrorism.	Yes (updated)
Control of Corruption	-2.5(worst) – 2.5 (best)	The original data was rescaled to a scale of 0 - 10	2007	199	World Bank Institute— Governance Matters 2007: Worldwide Governance Indicators, 1996-2006 http://info.worldbank.org/governance/wgi2007/home.htm	Combines several indicators which measure the extent to which public power is exercised for private gain, including petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.	No

APPENDIX II: DETAILED METHODOLOGY AND DATA SOURCE INFORMATION

PPR Sources

Variable Name in Corresponding Database	Original Scale	Rescaling Method used for IPRI	Year	Number of Countries Included in Original Database	Source	More Detailed Information About Source	Data included in 2007 Index?
Property Rights	1 (worst) – 7 (best)	The original data was rescaled to a scale of 0 - 10	2006 - 2007	125	World Economic Forum— Global Competitiveness Report	Survey participants were asked to comment: "Property rights, including over financial assets: (1) = are poorly defined and not protected by law to (7) = are clearly defined and well protected by law."	Yes (updated)
Registering Property	Actual Number	The "Registering Property" variable is a weighted average of the source's "Procedures to register property" and "Days to register property" data, with 30% of the weight given to the former and 70% to the latter. The standardization formula used to calculate the zero-to-10 rescaling for this component was: 10 * ((Vmax - Vi)/(Vmax - Vmin)), with Vmax and Vmin set equal to the maximum value in the data set range and 0, respectively.	2007	178	The World Bank Group— Doing Business 2007 http://www.doingbusiness.org/	Number of procedures legally required to register property and time spent (in days) in completing the procedures. This indicator assumes a standardized case of an entrepreneur who wants to purchase land and a building in the largest business city.	Yes (updated)
Ease of access to loans	1 (worst) – 7 (best)	The original data was rescaled to a scale of 0 - 10	2007	125	World Economic Forum— Global Competitiveness Report	Survey participants were asked: "How easy is it to obtain a bank loan in your country with only a good business plan and no collateral? (1 = impossible, 7 = easy)".	Yes (updated)

APPENDIX II: DETAILED METHODOLOGY AND DATA SOURCE INFORMATION

IPR Sources

Variable Name in Corresponding Database	Original Scale	Rescaling Method used for IPRI	Year	Number of Countries Included in Original Database	Source	More Detailed Information About Source	Data included in 2007 Index?
Intellectual Property Protection	1 (worst) – 7 (best)	The original data was rescaled to a scale of 0 - 10	2006 - 2007	125	World Economic Forum— Global Competitiveness Report	Survey participants were asked to comment: "Intellectual property protection in your country: (1) = is weak or nonexistent to (7) = is equal to the world's most stringent."	Yes (updated)
Patent Protection	1 (worst) – 5 (best)	The original data was rescaled to a scale of 0 - 10	2005	122	Ginarte-Park Index (obtained from the author). For full description of data and original citation, see Walter G. Park and Juan Carlos Ginarte, "Intellectual Property Rights and Economic Growth," Contemporary Economic Policy, Vol. 15, Iss. 3, pp. 51-61, July 1997	A country's rank in patent strength is based on five extensive criteria: coverage, membership in international treaties, restrictions on patent rights, enforcement, and duration of protection.	Yes (updated)
Copyright Piracy TLevel	Percentage	Calculation per industry: (100 - Vi)/10. The average of all industries' piracy level was taken to calculate final rescaled value.	2007	61	Special 301 Report (International Intellectual Property Alliance) submitted to the United States Trade Representative http://www.iipa.com/2007_SPEC301_TOC.htm. Additional data was obtained from IIPA member associations including Business Software Alliance and Motion Picture Association of America	Special 301 is an annual review process used in fighting international copyright piracy. It starts with the submission of public comments, of which IIPA's annual report is one of the most extensive and useful in terms of data.	Yes (updated)
Trademark Protection	1 (worst) – 5 (best)	The original data was rescaled to a scale of 0 - 10	1998	40	International Trademark Association: Trademark Protection Survey http://www.inta.org/index.php	The data is obtained from the survey that was sent to 230 INTA members with knowledge of the level of trademark protection available in the 40 countries in the study. The survey consists of 13 questions covering registration, maintenance, and enforcement of trademark rights.	Yes

APPENDIX II: DETAILED METHODOLOGY AND DATA SOURCE INFORMATION

GE Sources

Variable Name in Corresponding Database	Original Scale	Rescaling Method used for IPRI	Year	Number of Countries Included in Original Database	Source	More Detailed Information About Source	Data included in 2007 Index?
Women's access to land	0 (best) – 1 (worst)	The original data was rescaled to a scale of 0 - 10	2006	107	OECD Gender, Institutions and Development Data Base (GID) http://www.oecd.org/document/16/0,3343,en_2649_33935_39323280_1_1_1_1,00.html	The Gender, Institutions and Development Data Base (GID-DB) represents a new tool for researchers and policy makers to determine and analyse obstacles to women's economic development. It covers an array of 60 indicators on gender discrimination. The data base has been compiled from various sources.	Yes
Women's access to bank loans	0 (best) – 1 (worst)	The original data was rescaled to a scale of 0 - 10	2006	107	OECD Gender, Institutions and Development Data Base (GID) http://www.oecd.org/document/16/0,3343,en_2649_33935_39323280_1_1_1_1,00.html	The Gender, Institutions and Development Data Base (GID-DB) represents a new tool for researchers and policy makers to determine and analyse obstacles to women's economic development. It covers an array of 60 indicators on gender discrimination. The data base has been compiled from various sources.	Yes
Women's access to property other than land	0 (best) – 1 (worst)	The original data was rescaled to a scale of 0 - 10	2006	107	OECD Gender, Institutions and Development Data Base (GID) http://www.oecd.org/document/16/0,3343,en_2649_33935_39323280_1_1_1_1,00.html	The Gender, Institutions and Development Data Base (GID-DB) represents a new tool for researchers and policy makers to determine and analyse obstacles to women's economic development. It covers an array of 60 indicators on gender discrimination. The data base has been compiled from various sources.	Yes
Inheritance practices	0 (best) – 1 (worst)	The original data was rescaled to a scale of 0 - 10	2006	107	OECD Gender, Institutions and Development Data Base (GID) http://www.oecd.org/document/16/0,3343,en_2649_33935_39323280_1_1_1_1,00.html	The Gender, Institutions and Development Data Base (GID-DB) represents a new tool for researchers and policy makers to determine and analyse obstacles to women's economic development. It covers an array of 60 indicators on gender discrimination. The data base has been compiled from various sources.	Yes
Women's social rights (ad hoc)	0 (best) – 1 (worst)	This component of the gender equality indicator is a simple composite of five variables in the GID. The original data of each variable was rescaled to a scale of 0 - 10 and then averaged to determine the score for "women's social rights."	2006	107	OECD Gender, Institutions and Development Data Base (GID) http://www.oecd.org/document/16/0,3343,en_2649_33935_39323280_1_1_1_1,00.html	The five components to the "women's social rights" component are: Repudiation, Parental Authority, Female Genital Mutilation, Freedom of Movement, and Ratio of female to male adult literacy.	No

APPENDIX III: REGIONAL DIVISION OF COUNTRIES

Region	Country
Africa	Angola
Africa	Benin
Africa	Botswana
Africa	Burkina Faso
Africa	Burundi
Africa	Cameroon
Africa	Chad
Africa	Ethiopia
Africa	Kenya
Africa	Malawi
Africa	Mali
Africa	Mauritania
Africa	Mauritius
Africa	Mozambique
Africa	Nigeria
Africa	South Africa
Africa	Tanzania
Africa	Uganda
Africa	Zambia
Africa	Zimbabwe
Asia	Bangladesh
Asia	China
Asia	Hong Kong
Asia	India
Asia	Indonesia
Asia	Japan
Asia	Korea (South)
Asia	Malaysia
Asia	Nepal
Asia	Pakistan
Asia	Philippines
Asia	Singapore
Asia	Sri Lanka
Asia	Taiwan
Asia	Thailand
Asia	Vietnam
Central and Eastern Europe	Albania
Central and Eastern Europe	Armenia
Central and Eastern Europe	Azerbaijan

APPENDIX III: REGIONAL DIVISION OF COUNTRIES

Region	Country
Central and Eastern Europe	Bosnia-Herzegovina
Central and Eastern Europe	Bulgaria
Central and Eastern Europe	Croatia
Central and Eastern Europe	Czech Republic
Central and Eastern Europe	Estonia
Central and Eastern Europe	Hungary
Central and Eastern Europe	Kazakhstan
Central and Eastern Europe	Latvia
Central and Eastern Europe	Lithuania
Central and Eastern Europe	Macedonia
Central and Eastern Europe	Moldova
Central and Eastern Europe	Montenegro
Central and Eastern Europe	Poland
Central and Eastern Europe	Romania
Central and Eastern Europe	Serbia
Central and Eastern Europe	Slovakia
Central and Eastern Europe	Slovenia
Latin America	Argentina
Latin America	Bolivia
Latin America	Brazil
Latin America	Colombia
Latin America	Costa Rica
Latin America	Dominican Republic
Latin America	Ecuador
Latin America	El Salvador
Latin America	Guatemala
Latin America	Guyana
Latin America	Honduras
Latin America	Jamaica
Latin America	Nicaragua
Latin America	Panama
Latin America	Paraguay
Latin America	Peru
Latin America	Trinidad and Tobago
Latin America	Uruguay
Latin America	Venezuela
Latin America	Chile
Middle East/North Africa	Algeria
Middle East/North Africa	Bahrain

APPENDIX III: REGIONAL DIVISION OF COUNTRIES

Region	Country
Middle East/North Africa	Cyprus
Middle East/North Africa	Egypt
Middle East/North Africa	Israel
Middle East/North Africa	Jordan
Middle East/North Africa	Kuwait
Middle East/North Africa	Madagascar
Middle East/North Africa	Morocco
Middle East/North Africa	Qatar
Middle East/North Africa	Tunisia
Middle East/North Africa	Turkey
Middle East/North Africa	United Arab Emirates
North America	Canada
North America	Mexico
North America	United States
Oceania	Australia
Oceania	New Zealand
Russia	Russia
Russia	Ukraine
Western Europe	Austria
Western Europe	Belgium
Western Europe	Denmark
Western Europe	Finland
Western Europe	France
Western Europe	Germany
Western Europe	Greece
Western Europe	Iceland
Western Europe	Ireland
Western Europe	Italy
Western Europe	Luxembourg
Western Europe	Malta
Western Europe	Netherlands
Western Europe	Norway
Western Europe	Portugal
Western Europe	Spain
Western Europe	Sweden
Western Europe	Switzerland
Western Europe	United Kingdom

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[2] Armen Alchian, "Property Rights", The Concise Encyclopedia of Economics. Ed. David R. Henderson. Library of Economics and Liberty. December 1 2007, http://www.econlib.org/library/Enc/PropertyRights.html.

[3] For more on this aspect, see F. Scott Kieff, *On Coordinating Transactions in Information: A Response to Smith's Delineating Entitlements in Information*, 117 Yale L.J. Pocket Part 101 (2007), http://thepocketpart.org/2007/10/10/kieff.html.

[4] Ronald Coase, "The Problem of Social Cost," *Journal of Law and Economics*, 3, October 1960: 1-44.

[5] Robert D. Cooter and Hans-Bernd Schäfer (2007), "Law and the Poverty of Nations – Elements of Legal Reform," *German Working Papers in Law and Economics*, Vol. 2007, Article 16, http://www.bepress.com/gwp/default/vol2007/iss2/art16/.

[6] Karol Boudreaux, "The Role of Property Rights as an Institution: Implications for Development Policy," *Mercatus Policy Series*, Primer No. 2, Mercatus Center, May 2005.

[7] For more information on the fellowship, see http://www.propertyrightsalliance.org/?content=desoto

[8] Alchian, *op. cit.*

[9] Stephen Knack, "Measuring Corruption in Eastern Europe and Central Asia: A Critique of the Cross-Country Indicators" *World Bank Policy Research Working Paper*, No. 3968, July 1, 2006, http://ssrn.com/abstract=923275.

[10] The "Copyright Piracy Level" variable within the IPR component was primarily gathered from a single source, although it was supplemented by the author using additional sources.

[11] Where appropriate, scores and rankings from 2007 will also be referenced. For the latter however, because this year's report represents a 45 country increase in the size of the sample, rankings comparisons between years is unlikely to be appropriate (except at the extreme bounds). Additionally, unless otherwise noted, scores and rankings given for 2007 are in rescaled terms to conform to 2008 methodology, and not in the original score/ranking terms given in the 2007 report.

[12] Martin Adams and Stephen Turner, "Legal Dualism and Land Policy in Eastern and Southern Africa," UNDP International Land Coalition Workshop: Land Rights for African Development: From Knowledge to Action, Nairobi, November, 2005, p.9, available at: http://dlc.dlib.indiana.edu/archive/00001668/01/Legal_Dualism.pdf.

[13] See, Jean Ensminger, 1997, "Changing Property Rights: Reconciling Formal and Informal Rights to Land in Africa," in *The Frontiers of the New Institutional Economics*, John N. Drobak and John V.C. Nye, eds. (New York: Cambridge University Press) 175-77.

[14] See, Michael Roth, Jon Unruh and Richard Barrows, 1994, "Land Registration, tenure security, credit use and investment in the Shebelle Region of Somalia," in *Searching for Land Tenure Security in Africa*, J. Bruce and S.E. Migot-Adholla, eds. (Dubuque, IA: Kendall/Hunt).

[15] This chapter is based on a longer study entitled "The Effects of Property Titling in Langa Township, South Africa" *Mercatus Policy Series*, Policy Comment No. 4 (April, 2005), available at: http://www.enterpriseafrica.org/Publications/pubID.2464,cfilter.0/pub_detail.asp

[16] "Freehold" title is the right of title to land or other real property for an uncertain duration. In 2001, there were 3,172 formal, residential properties in Langa (i.e., homes, not shacks or commercial property). Of these, 780 were unregistered, and 30 were owned by banks. Personal communication from Mr. Jens Kuhn, Research Manager: Housing—City of Cape Town, October 13, 2005.

[17] Lauren Royston, "Security of Urban Tenure in South Africa: Overview of Policy and Practice," in *Holding Their Ground: Secure Land Tenure for the Urban Poor in Developing Countries*, Alain Durand-Lasserve, Lauren Royston, eds. 2002. p 167.

[18] This finding tracks with other research that suggests that people who acquire a secure title do expend resources improving their homes. See, for example, Erica Field, 2005, "Property Rights and Investment in Urban Slums," Journal of the European Economic Association, Vol. 3, No. 2-3, 279-90.

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[19] For example, Soweto is experiencing an economic boom but the property market continues to experience problems. See, Chris Needham, "Helping Hand for Soweto's property market," April 3, 2006, The Times, available at: http://www.sundaytimes.co.za/Property/Article.aspx?id=297018.

[20] See Meagher & Wilkinson, *op. cit.*

[21] Other forms of tenure, such as leaseholds, can also provide security, freehold is not the sole path to tenure security.

[22] See Boudreaux, *op. cit.*

[23] In the World Bank's 2008 Doing Business Rankings, South Africa ranks 91st of 178 countries in terms of employing workers.

[24] Results in rural areas can be similar. See, Frank Place and S.E. Migot-Adholla, 1998 "The Economic Effects of Land Registration on Smallholder Farmers in Kenya: Evidence from Nyeri and Kakamega Districts," Land Economics, Vol. 74, No. 3, p. 361.

[25] In our interview with Mr. Mhlongo, he told us that people prefer to stay in Langa. "It's where their parents were, where their parents died, where they grew up, and they don't want to lose such a place," he said. So, even if people move out of Langa, they will still hold onto the family home, even if it's empty, for the sake of protecting this family property. He said that even those people who are still in rental property consider it "theirs," as does the community, and that if they move and leave this property vacant, it is nearly impossible for the city to put new tenants in because the property should be kept for the "owners." Interview with Ronald Mhlongo, October 12, 2005, Langa Township, South Africa.

[26] Hernando de Soto (2000), *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*, New York: Basic Books.

[27] See Sebastian Galiani and Ernesto Schargrodsky (2004), "Effects of Land Titling on Child Health," Economics and Human Biology, Vol. 2 (3), pp. 353-372; Sebastian Galiani and Ernesto Schargrodsky (2006), "Property Rights for the Poor: Effects of Land Titling," mimeo, Universidad Tocuato Di Tella; and Rafael Di Tella, Sebastian Galiani and Ernesto Schargrodsky (2007), "The Formation of Beliefs: Evidence from the Allocation of Land Titles to Squatters," *Quarterly Journal of Economics*, Vol. 122 (1), pp. 209-241.

[28] Galiani and Schargrodsky (2006), *op cit.*

[29] Jean Lanjouw and Philip Levy (2002), "Untitled: A Study of Formal and Informal Property Rights in Urban Ecuador," Economic Journal, 112, pp. 986-1019; Erica Field (2003), "Entitled to Work: Urban Property Rights and Labor Supply in Peru," *Quarterly Journal of Economics*, Vol. 122 (4).

[30] Galiani and Schargrodsky (2006), *op cit.*

[31] Gary Becker and Gregg Lewis (1973), "On the Interaction between the Quantity and Quality of Children," *Journal of Political Economy*, 81 (2), pp. 279-288.

[32] Galiani and Schargrodsky (2006), *op cit.*

[33] Galiani and Schargrodsky (2004), *op cit.*

[34] Di Tella, Galiani, and Schargrodsky (2007), *op cit.*

[35] Ibid

[36] One country, Malta, actually resulted in a score above the standard scale (10.1 in this case). This is because the female-to-male literacy rate in this one case actually exceeded 1.0. We elected not to truncate the variable scale (which would have slightly penalized Malta) because the occurrence of such outliers is both rare and in this particular case so slight.