

**The Political Economy of Property Rights: An Examination Into the Components of
Land Laws and Their Effects on Politics and Growth**

by

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Chapter 1: Introduction

There is an incongruity between theories about the economic effect of property rights, specifically in the form of land legislation, and the empirical outcomes in countries around the world. Several scholars state that a clearly defined system of property rights is an essential component of economic growth. This belief arises from the conception of property rights as institutions, or sets of rules that resolve conflict over the competition for scarce resources, and provide for predictable behavior . However, the empirical results do not align with theoretical predictions in that implementation of property rights does not always result in security, increased productivity, investment or economic growth . Two cases will illustrate this problem.

In 1974, Cameroon passed a Land Ordinance. The ordinance offered title to any farmer who had “peacefully occupied” and “productively used” a given parcel of land .The process of obtaining this title involved submitting an application and having a government official go to the property to inspect the land. The official would place boundary markers on the land, after which, the application would be sent to various government offices for approval.

Firmin-Sellers and Sellers studied how this process affected the Babéte and Akum groups of the Bamiléké Kingdom in Cameroon. They obtained titling data on titling requests, and when (if at all) the requests were abandoned, from the period 1974 to 1996. They also conducted interviews with government officials, bureaucrats and farmers. They report that only a few successful applicants used their title to mortgage or sell their land. Further, they show that many title applicants stopped the application process after government officials set up boundaries on the property. One might conclude from this that the land ordinance did not have its intended effect.

Alston et. al. conducted a study of two frontier states in Brazil, Pará and Paraná. The process of titling in Brazil was similar to that of Cameroon. The land must have been occupied by the claimant and productively used. The process entailed a group of settlers organizing collectively and traveling to a local government office. The office would survey and mark the territory and then grant the authorization to occupy the territory. Finally, the relevant information would be forwarded to the appropriate national office for recordation. The study by Alston et. al. relied on a survey of 206 households in Pará and census data for both Pará and Paraná. One of their findings was that title had a statistically significant impact on land-related investments.

Why is there a difference in results between the two titling laws? Why did the program succeed in Brazil but not in Cameroon? The importance of this question is immediate. A vast literature has developed based upon theories of property rights ,

even though this puzzle has not been resolved. In addition, countries have enacted policies based upon these theories. For example, both USAID and the World Bank have sponsored land programs worldwide that are based upon these theories of property rights, and the results have been inconsistent. This research project attempts to explain this empirical variability and deviation of outcomes from the uniform theoretical expectations. It will explain why countries implementing laws based on theories about property rights do not always achieve the expected results. It will also explain why countries implementing similar types of property laws achieve different results.

Theory and Outline of the Dissertation

The theory offered here can help explain this variation in outcomes. By disaggregating the conception of property rights, further traction can be gained in understanding the political and economic dynamics of property rights. Property rights are often thought of and analyzed as a single, coherent entity. However, they are in fact, a bundle of multiple rights over the same object. The different components in this bundle can have different effects on economic outcomes, and perhaps more significantly, can have different distributional consequences. These distributional consequences can, in turn, have an effect on the motivation for interest groups to pursue the enactment of various types of property laws.

Chapter 2 of this dissertation explores the literature on property rights. It traces the development of the concept of property rights in the economic literature,

arguing that the concept remains underdeveloped. It then shows how this underdevelopment results in validity problems for those theories which attempt to explain the effects of property rights on macroeconomic outcomes. Finally, this chapter ends with an analysis of how concepts of property rights have been applied in the microeconomic literature. Here case studies are used to show that, by adjusting our conception of property rights to include multiple types of rights, and by examining the distributional consequences of these specific types of rights, we can gain a better understanding of the role of property rights in society.

In chapter 3, the theory sketched in chapter 2 is expounded upon. Specifically, this chapter relies on an economic model and graphical analysis to demonstrate the distributional consequences of property rights for the owners of land, labor, and capital. It also uses a model as well as literature on political institutions to derive hypothesis about which types of laws, specifically, restrictions on ownership, use or transferability, should be more prevalent in different societies. Chapter 4 relies upon an economic model to show how different types of rights, ownership, use and transferability, should differently affect economic growth. Specifically, this chapter concludes that restrictions on ownership will not affect growth, while restrictions on use and transferability will negatively affect growth.

Given the underlying conceptual and measurement problems discussed in chapter 2 and the detailed disaggregation of the “property rights” bundle central to the theories of chapters 3 and 4, chapter 5 suggests a different method of creating measures of property rights. Theoretically, this method is derived from two

comparative law methods. It reflects a positivist notion of rights as they are expressed by the state, rather than a notion of rights as an ideal-type.

Chapter 6 contains the empirical analysis. Specifically, it reports the results of several regression models testing the hypotheses derived in chapters 3 and 4. Although data limitations are evident, the results generally support the theory of the dissertation, and support in part, the hypotheses derived in chapters 3 and 4. General conclusions and future directions for research are presented in chapter 7.

Chapter 2: Macro and micro analyses of property rights

Introduction

This chapter explores two sets of literature in the field of the political economy of property rights: New Institutional Growth economics and macroeconomic theories of growth. The first literature begins with the Coase theorem and has continued into the present in the form of New Growth Economics (NGE). The second literature focuses on the application of the concepts developed in the macro literature to specific case studies. In reviews of both the macro and micro literature, this chapter demonstrates deficiencies in the extant theories of property rights. The deficiencies derive from a lack of recognition of the multiplicity hidden within the blanketing concept of property rights, and consequently a lack of analysis of the preferences of different groups for different rights.

The Underdeveloped Concept of Property Rights

Taken as a whole, the property rights literature summarized in the chart below presents a fairly comprehensive picture of property rights: in response to conflict arising from changes in value of resources, groups will organize to demand changes to the existing property rights institutions (Riker and Sened, 1991). The

success of these groups in organizing depends on numerous factors, such as their size, geographical proximity and homogeneity (Libecap, 2003). In response to demands for changes in the property rights institutions, and motivated by either economic or political reasons (Joireman, 2001) governments will respond by supplying property rights. The supply of property rights may differ depending on the type of political institution (Clague, et. al., 1996), the degree of corruption (Dong and Torgler, 2012), state capacity and credible commitment. (Frye, 2004). What is supplied are institutions that define, assign and enforce property rights. The outcome of this process is an institution that has been shown to effect economic growth in a variety of large-empirical studies, though not necessarily in case studies, both of which are discussed below.

This work contributes to this vast body of literature in several important ways. First, this work refines the definition of property rights. Drawing on the legal literature, that argues that rights can be expressed as a bundle (Hohfeld, 1913, 1917), the theory developed here and in the ensuing chapters claims that property rights are best understood and analyzed as distinct components. The different parts of the bundle will affect different interest groups in different ways.

As the demand side inputs literature suggests, groups will organize in response to changes in value to property in order to advocate for rights (For example, see Demsetz, 1967 arguing that changes in the value of resources precede the desire for property rights; Anderson and Hill, 1975 and 2003 discussing the types of factors that cause the change in value; Riker and Sened, 1991, outlining the political

process of demand and supply of property rights) . The success of these groups in organizing can vary depending on the size and heterogeneity and perceived benefit (Libecap, 2003). The second way that this work contributes to the body of property rights literature is by expanding on the motivation for the demand for property rights in this literature. The theory developed in this work claims that the perceived benefit depends on the type of right for which the groups are advocating. Owners of land may not have the same perceived benefit from rights of sale as they do from rights of use, for example. Thus, a combination of change in value and anticipated benefit will motivate certain groups to demand particular rights.

According to the theory of the work, institutions will respond by defining, assigning and enforcing particular types of rights. Finally, this work informs the body of property rights literature by arguing different types of rights have different economic outcomes. For example, rights to own will have different economic consequences than rights to use or transfer.

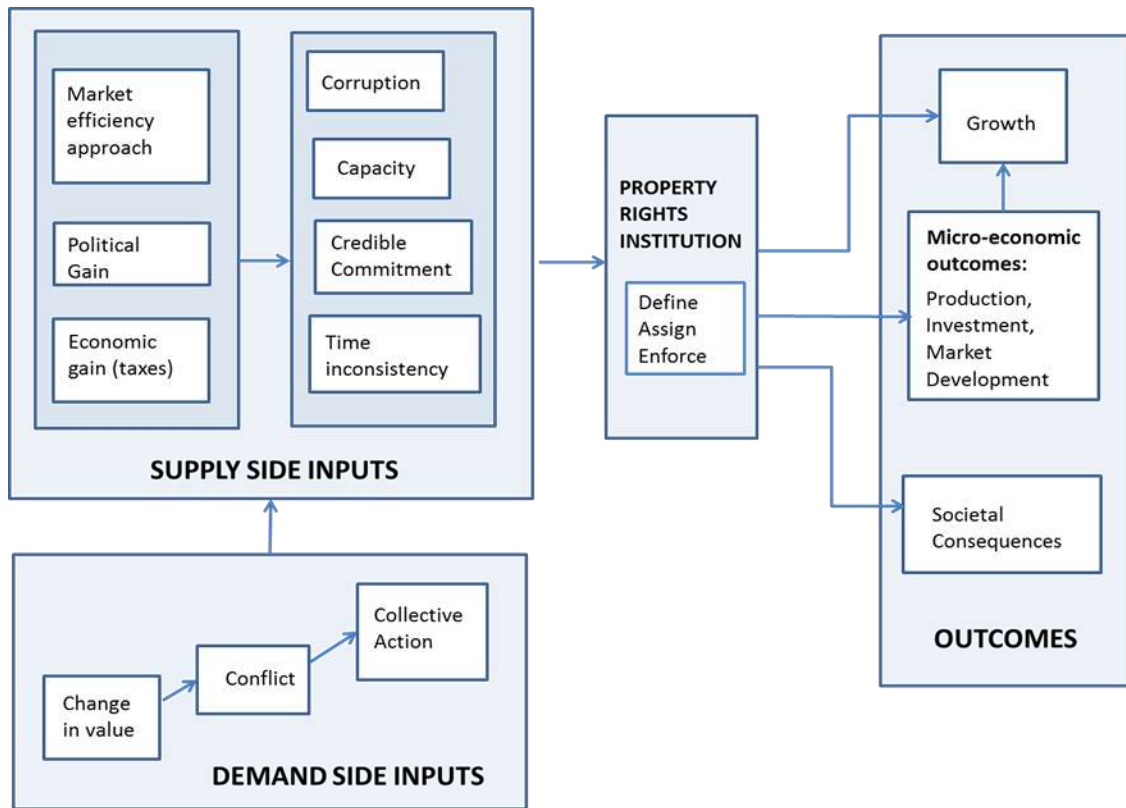


Figure 1: The current understanding of property rights

Macro Literature

Part of this analysis of the macroeconomic literature traces the concept of property rights as it has developed from the early modern scholars to new growth economists. By doing so, it will be shown that the concept as developed lacks construct validity, and consequently neither supports the types of analyses scholars have conducted using the concept nor the weight of inferences drawn from these analyses.

Early Modern Economic Literature

It is well established in the economic literature that property rights affect economic outcomes. According to early modern economists such as Coase, Cheung,

Alchian , and Demsetz , property rights serve to allocate resources in the context of scarcity.¹ Property rights reduce transaction costs and externalities and provide incentives for individuals to operate with greater efficiency in market settings.² These economists emphasized the role of property rights in furthering the efficiency of market exchanges and they minimized the role of government in creating and enforcing property rights.

The most (in)famous of the early modern economists was Coase.³ In 1960, Coase authored a seminal article in transaction cost economics, “The Problem of Social Cost.”⁴ Written largely in response to Pigou’s *Wealth and Welfare*, in this article, Coase suggests that Pigou’s argument, that economic cost should be

¹ For examples, see the following: “Capitalism relies heavily on markets and private property rights to resolve conflicts over the use of scarce resources.” (Alchian and Demsetz, 16); “It argues that the purpose of trade (and production) is to exchange bundle of *rights to do things* with goods that are exchanged. Thus the value of the goods that are traded increases and, consequently, the terms of trade improve with increases in the degree of property rights in those goods. It follows that the scope and content of property rights over resources affect the way people behave in a world of scarcity.”(Pejovich, 41)

² “Under public ownership the costs of any decision or choice are less fully thrust upon the selector than under private property.” (Alchian, 146)

³ Coase is revered by some as the progenitor of the law and economics movement, and criticized by others as misrepresenting, and leading to the overall abuse of, the concept of property rights (See Merrill and Smith, “What Happened to Property in Law and Economics?” 2001)

⁴ “The Problem of Social Cost” is only one of a triad of articles that scholars have used to derive the Coasian concept of property rights. Prior to the publication of “The Problem of Social Cost”, in 1937, Coase, published “The Nature of the Firm.” In this article, Coase sought to explain why firms arise in markets. He did so by arguing that they are substitutes for the price mechanism. By making those decisions internally which would otherwise be made in the market, and therein be subject to the forces of supply and demand, firms save money, using authority as economic alternatives to markets. In other words, firms exist because they can save on information, transaction and contracting costs of production. This explanation of the operation of the firm is analogous to the operation of property rights, as economists have come to understand them. Like the firm, property rights, clearly defined and enforced, reduce transaction and contracting costs.

A lesser known, but still significant article is “The Federal Communications Commission” According to Merrill and Smith (2001), in this article, Coase is explicit about his view as property rights as a list of uses of a resources.

assigned by balancing private cost to an individual with cost to society, is incorrect⁵.

What should be the consideration, Coase argued, is the total cost to society of forcing either party to cease his actions. Thus, this article addresses the problem of how society should assign rights when the actions of two individuals collide.

One of Coase's famous example is a hypothetical dispute between a farmer and a neighboring cattle herder. The cattle herder's cows graze on the farmer's land and destroy his crops. In another example, Coase describes a railway, in which the sparks from the train tend to cause fires in a nearby forest. The question in both cases is who should bear payment for the damage done, or who should be forced to cease his actions? In other words, where is the initial assignment of rights? It is in this article that Coase famously argued that where transactions are costless, the initial assignment of property rights is irrelevant, because people will negotiate to achieve the most economically efficient outcome.⁶ In reply to Pigou, he argued that where property rights are assigned, and transactions are costless, there is no need for the government to "correct" the market imperfections with taxes. However, where transactions are not costless, the initial assignment of rights is significant.

⁵ Pigou advanced a concept of market externalities. In Pigou's conception, the determination of whether or not an action is good or bad is made by balancing the cost or gain to society of an individual's action, and the private cost or gain to the individual of his action. In the case of negative externalities, Pigou argued that it is possible to tax the actor to correct the externalities. If the actor is taxed to the same degree as the general cost to society, then the private cost to him of undertaking the action is higher, and he will do it less, or cease the action altogether. This type of tax is known as a Pigouvian tax.

An externality is a type of market failure that occurs when the costs or benefits of an action are not borne (or gained) by the actor. When these actions occur, the market will either overproduce a product (in the case of a negative externality where the cost is not born by the actor) or under produce a product (in the case of a positive externality where the benefit is not gained by the actor).

⁶ Thus, in the example of the farmer and the cattle raiser, if the farmer had the initial "right" such that the cattle herder was prohibited from grazing his cattle on the farmer's crops, but the cattle herder found that his profit margin from having his cows graze on the crops exceeded the penalty he would incur, he would continue to graze his cattle on the crops and use the excess money to pay the farmer.

Institutions such as firms, governments, courts and by extension, property rights, arise to reduce these transaction costs.

The significance of this work for present purposes derives from the focus on the use of property rights to reduce externalities in a market setting. The sole purpose of the property rights model, according to these early modern economists, was to enable a fuller explanation of theories of the firm. The result of a theory of property rights focused on the firm was that property rights were defined by their *function* and not by their *essence*. For example, Cole and Grossman (2002) find that economists often conflate property rights with *uses* of a right or *claims* of a right. For example, a popular introductory economics textbook states that “Firms do in fact have rights to discharge obnoxious substances into the air, as proved by the fact that they do it openly and are not fined. They have both actual and legal rights to pollute.”⁷ The authors suggest that this conception of rights confuses doing something with a right to do something. In other words “There is a tendency among economists to use the term property ‘to describe virtually every device – public or private, common-law or regulatory, contractual or governmental, formal or informal- by which divergences between private and social costs or benefits are reduced.’”⁸ In the context of the firm, property rights were defined as the use of resources, and often the use of resources for the purpose of reducing transaction costs and externalities. For example, Demsetz (1967) suggests that “a primary function of property rights is that of guiding incentives to achieve a greater internalization of

⁷ Cole and Grossman, 322

⁸ Merrill and Smith, 358 (quoting Posner)

externalities.”⁹ The conceptual foundation upon which the property rights literature rests is faulty in this regard.

Douglas North

In 1973, North and Thomas published *The Rise of the Western World*. The theoretical question that this book sought to answer was what explains the rapid economic ascendancy of some European countries between the 10th and 17th centuries? The answer the authors suggest is that this ascendancy is due to the degree to which states developed efficient economic organization. The authors define efficient economic organization as a system in which property rights bring the rate of private return to the rate of social return, and so provide individuals an incentive to innovate. In this analysis, when externalities exist, such that an individual does not reap the full benefit of his action, he will not undertake actions which society needs to grow economically. Such situations arise when property rights are poorly defined.

From North, it is understood that efficient property rights are institutions that help to equate the private and social rates of return. Because of this, they provide incentives for individuals to undertake activities that further a country's economic growth . In addition, North argued that property rights are not the result of market forces. Rather they are given by the state for the purposes of maximizing benefits to the state . As such, contrary to the underlying notions of efficiency in the early modern economic literature, property rights are neither necessarily efficient nor

⁹ Demsetz, 348

conducive to economic growth. While this work advanced the concept of property rights by detaching it from the firm and applying to the state, and by positing that property rights are not necessarily efficient, as discussed below, the work did little to supply a solid conceptual understanding of property rights.

New Growth Economics

The New Growth Economists (NGE) developed the next substantial body of work analyzing the relationship between property rights and economic growth. The broader questions of interest to these scholars are what causes economic growth, and under what conditions will countries converge to their steady state growth rates. On the basis of the research of North, many of the New Growth Scholars with an interest in property rights conducted large scale econometric analyses on the relationship between property rights and economic growth. These studies consistently conclude the property rights and the security of property rights are positively related to economic growth. For example, in one of the earlier studies, Barro found a positive relationship between property rights and growth. Knack and Keefer improved upon the manner in which property rights was measured, and used Barro's regressions to find an even stronger relationship between property rights and growth. Hall and Jones theorized that institutions, which they label "social infrastructure", influence output per worker. Similar to North's definition of property rights, they suggest that social infrastructure are the institutions and policies that provide incentives for individuals and firms to undertake productive or predatory

activities.¹⁰ Barro used 85 countries in a regression analysis and found that there is a relationship between property rights protection and enforcement and economic growth. Clague conducted a similar analysis and also found a positive relationship between property rights protection and enforcement and growth. Similar studies confirmed these results¹¹. These works have established a firm and often replicated connection between some concept of property rights and various economic outcomes. However, because these are econometric studies, they rely on precision in the conception of property rights as well as precision in the measurement of property rights. Yet as previously adumbrated, the development of the concept of property rights in the economic literature is lacking.

Definitional Problems in the Property Rights Literature

The way in which scholars understand property rights is limitingly vague and superficial in conception. There are three main problems with the concept of property rights in early modern economic literature. First, a problem with some of these earlier works is that they do not clearly define property rights. For example, although the work of Coase is the foundation for much of the modern scholarship on property rights and economic outcomes, Coase neither mentions nor define property rights, although he does discuss mention the concept of “rights”. This is not as much

¹⁰ Hall and Jones, 95

¹¹ For example, see Johnson, McMillan and Woodruff, 2002, finding that weak property rights discourage investment, or see Kaufmann, Kray and Zoido-Laboton, 1999, finding that property rights enforcement, subsumed in a conglomerate measure of rule of law, is positively related to economic growth.

of a problem for the arguments of Coase as it is for the arguments that purport to be based on Coase.

Second, for those early modern scholars that do define property rights, the nascent conceptions of property rights that they offer are not essential definitions, but non-essential definitions by final cause or purpose. That is, they do not necessarily define property rights by describing the essential features, but rather they define property rights by describing what their purpose is. In other words, they have a conception of *de facto* property rights. While this alone is not necessarily a problem, definitions by final cause tend to result in overbroad constructs. For example Demsetz suggests that property rights are “... an instrument of society and derive their significance from the fact that they help a man form those expectations which he can reasonably hold in his dealings with others.”¹² Further, “property rights convey the right to benefit or harm oneself or others.”¹³ This is problematic because it significantly broadens the concept of property rights to include things that were not likely intended by the scholars. For example, in terms of Demsetz’s definition, an instrument of society that helps one to form expectations in dealings with another could be something as simple as driving rules. Yet, it is doubtful that Demsetz would have argued that one could have property rights in driving rules. Finally, all of Coase’s examples of property rights are two party disputes. As Merrill and Smith argue, this may have unintentionally given rise to a misconception of property rights as a merely

¹² Demsetz, 347

¹³ Ibid

a version of contract rights. Contract rights and property rights have different implications and meanings in the law.¹⁴

The conceptual problems with property rights continued in the work of North. In *Structure and Change in Economic History*, North's famous conceptualization of efficient property rights is that they are structures within a society that bring the private rate of return equal to the social rate of return for a given investment or activity. This conception of property rights is again, a definition by purpose, and can result in an overly broad notion.¹⁵ In *Institutions, Institutional Change and Economic Performance*, North defines property rights as "the rights individuals appropriate over their own labor and the goods and services they possess" Further, "[a]ppropriation is a function of legal rules, organizational forms, enforcement and norms of behavior- that is, the institutional framework."¹⁶ But defining property rights as rights is a tautology. While it clarifies North's conception of *property* (labor, goods and services they possess), it does not clarify the concept of *rights*. As a result, it is still unclear what property rights mean.

¹⁴ Property rights are *in rem*, that is they are rights that are good "against the world". Contract rights, by contrast, *in personam*, that is, they are rights that are good against a limited number of people. Further, property rights have general forms, where as contract rights can be created at-will by the parties to a contract. By using two-party examples, and discussing the ease with which rights can be re-distributed and re-organized, the authors suggest that Coase may have unwittingly given rise to an idea that property rights and contract rights are the same. Further, they suggest that this notion is prevalent among today's law and economics scholars and has contributed to the disintegration of the meaning of property rights.

¹⁵ North further states that the essence of property rights is the right to exclude (21), and this is a helpful beginning for narrowing the construct.

¹⁶ North, 33

Conceptual Problems in the NGE literature

The conceptual problems are most prevalent in the work of the New Growth Economists. Whereas the early modern economists and North relied on case studies and historical surveys, the New Growth Scholars use econometric modeling.

Consequently, their work is more contingent upon precise measurement of a concept which yet remains unclear. These problems manifest in several ways. First, in some works, the concept of property rights remains undefined. The lack of explicit definition may be a reason why the measurement of the concept is often overbroad.

Second, definitions that are offered are problematic. Some of them are tautologies. Consequently, there is a semblance of definition even when the concept of property rights remains undefined. For example, Clague, Keefer, Knack and Olson define property rights as “the individual rights that relate to things that may be bought and sold”. While this definition is an improvement over that of North (discussed earlier) because it is significantly less broad, it has one of the same problems that the North definition had. The term *rights* is not defined, and by implication, all that has been done is to proffer a definition of property. Other definitions have the same problem of being overbroad that some of the definitions of the early modern scholars had. For example, Acemoglu, et. al. define property rights institutions as “the rules and regulations protecting citizens against the power of

government and elites”¹⁷. It is possible to imagine several institutions that are not property rights that perform this function.¹⁸

Third, there is frequent conflation in the literature of property rights with other concepts. For example, many scholars interchange the terms “property rights” with either “security or secure property rights” or “property rights enforcement” or “property rights protection” . While such an interchange of terms may seem innocuous, the establishment of property rights and the protection of property rights are two different processes that require different resources of the state and may depend upon different political dynamics. Further, this type of conflation obscures the fact a state can establish different types of property rights, and choose to protect all, some or none of these rights. Other scholars frequently discuss property rights protection or property rights establishment in the same terms as the rule of law . This type of conflation is essentially the same problem as conflating property rights with property rights enforcement. A state that does not have or respect the rule of law can still have property rights, and may even choose to enforce some or all of them.

Still other scholars discuss and measure property rights and contract rights together . The problems with this type of error are the same as with the conflation of property rights and property rights security. The two constructs are in fact quite different. Contract rights are rights that can be exercised only against other parties to an agreement. Contrarily, property rights can be exercised against anyone who

¹⁷ Acemoglu, et. al. 2005, p. 955.

¹⁸ For example, first amendment freedoms such as press, speech and assembly may well perform these functions.

interferes with one's property, regardless of their consent . The error obscures the differences between types of contract and property rights, and the differences between property rights and contract rights themselves. Further, it ignores the differences in political dynamics that may give rise to the two types of rights, and it ignores the differences in economic outcomes that the two types of rights may affect.

The Measurement of Property Rights in the New Growth Literature

In general, the most commonly used measures of property rights, while advantageous for their ability to aid in cross-national comparisons, have several problems. First, they are not nuanced enough to address the particularities of property rights protections. Second, because of the opaqueness of their methods, it is not clear what aspects of property rights they may be measuring. As a result of these measurement problems, these studies may not be conclusive as to the relationship between property rights and economic growth.

The econometric analyses of the New Growth Scholars demonstrate that “property rights” is fundamental to economic growth. However, the lack of conceptual development among economic scholars has two unfortunate implications. First, it calls into question some of the conclusions in the literature. That is, if it is not property rights that are being measured, the conclusions that property rights are fundamental to growth becomes questionable. Second, it hinders further development of the ways that different property rights can effect economic growth. Conceiving of “property rights” in such general and vague terms obscures the fact

that there are many different property rights, and each of this may have different effects on economic growth.

Micro Literature

While many scholars discussed in the previous section focused on econometric studies, other scholars have chosen to focus on individual countries in order to understand in greater detail the relationship between property rights and economic outcomes. Since the earliest such studies in the early 1980s, there have been many studies attempting to understand the relationship between property rights and economic outcomes in single country contexts. These studies are heavily concentrated in Latin America and Africa, however, their coverage spans the globe , and also include historical studies as well (For examples, see the Old West in the United States and 15th century Tuscany . These studies use the constructs of the macro literature and examine whether or not the predictions of the macroeconomic literature are empirically validated in case-study contexts, and if not, why not. Much of this literature questions the general applicability the macro studies. These scholars often use land titling laws as a vehicle for this type of examination.

The Theory of Land Titling Laws

Land titling laws are laws that give title to land or create land registration systems. These systems create a record of all privately owned land within a country, and document ownership, transfers and encumbrances on those parcels of land. The purpose of such systems is to mitigate market inefficiencies. For example,

transactions revolving around land can suffer from inefficiencies due to asymmetric information. Sellers and owners of land are frequently in positions in which their informational advantage can create problems of adverse selection. Land titling laws solve these problems by creating records in which parcels of land are documented to the extent that a potential buyer, or other 3rd party, examining the record knows who owns the land and the encumbrances on the land. In varying degrees, such systems also provide assurance to 3rd parties about the likelihood that their claim on the land will be respected or enforced by the state.

By providing information and assurance to 3rd parties, land titling laws are said to stimulate economic growth and development by facilitating market operations revolving around land. Typically, such operations include obtaining credit, buying, selling, leasing of land, investments in infrastructure on the land, leading to increased productivity, and avoiding the costs of disputes over boundaries and invasions .

Scholars describe two means through which titling laws are believed to lead to growth and development. First, having security is believed to stimulate “development”, through one of four mechanisms: obtaining credit (being able to use land as collateral to get loans), creating or enhancing markets increasing sale of land, increasing land-related investments and facilitating conflict settlement through clearly identifiable ownerships (Figure 2). Second, having title facilitates access to credit, which can then be used to finance land related investments or enhance markets, or having title facilitates dispute resolution that can enable buying and selling of land or incentives to land related investments (Figure 3).

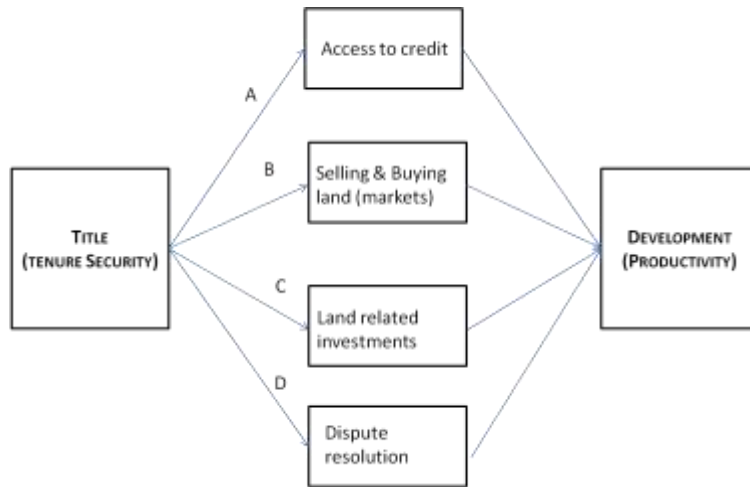


Figure 2: A proposed path of the relationship between titling and development



Figure 3: An alternative path of the relationship between titling and development

In adherence to this belief, many countries have begun land privatization or titling programs . The US Agency for International Development has supported programs in El Salvador, Guyana Honduras, Costa Rica, Jamaica, Peru, and Ecuador . In addition, the World Bank has been the sponsor of several land titling programs in countries such as Venezuela, Ecuador, Guatemala, El Salvador, Nicaragua, Paraguay,

and Bolivia. Several studies of individual countries' land titling programs have been conducted in the past 40 years. By analyzing these studies as an aggregate, one can attempt to generalize the findings about the relationship between land titling laws and development or growth.

Table 1 shows a selected sample of country case studies of land titling legislation. In the table, it can be seen that according to the results reported by the individual case studies, there is no consistency or uniformity across countries in results of the registration process.

Table 1: Selected case studies on land titling laws and their results

Country/Region (Author(s))	Year	Outcome Variable	Explanatory Variable	Results (measured in terms of outcome variable)
Africa Barrows and Roth ¹⁹	1990	Tenure security	Registration	Increase ²⁰
Africa Pinckney and Kimuyu ²¹	1994	Credit	Titling	No increase
Brazil Alston, Lee and Schneider, ²²	1996	Investment	Titling	Increase
Burkina Faso ²³ Malton ²⁴	1994	Investment	Tenure security	Little to no effect
Cameroon Firmin-Sellers and Sellers ²⁵	1999	Tenure security and investment	Titling	Increase security; no increase in investment
Costa Rica Seligson ²⁶	1982	Credit	Titling	Increase
Kenya	1994	Productivity	Titling	No increase

¹⁹ This study also use investment, credit and land markets as dependent variables, and individualization as an explanatory variable

²⁰ The increase of security due to registration was among the Kisii. In addition, the relationship was present among high density areas among the Machokis, but lower among some Mbere. As investment and credit in Kenya, there was no correlation between title and investment in one study, but an increase in cash-crop production, land markets. A brief rise attributed to other factor. In Uganda, investment and credit: no investment increases, no credit increases due to non-alienability of land, land markets: increase in land markets. In Uganda, the relationship between registration and tenure security was thought to vary depending on status. In Zimbabwe: increase in investment

²¹ Credit in this study is based on the process of using land as collateral. The authors also used investment, inequality and land transactions as dependent variables. They found no relationship to any of these variables due to titling.

²² Investment here is measured as the portion of the farm placed in either improvement pasture or permanent crops. The reported increase was in most models.

²³ The Burkina Faso study also assessed the manner in which tenure institutions affect perceptions of tenure security (page 42)

²⁴ Investment in this study is measured as soil fertility. The explanatory variable is an indigenous system of security.

²⁵ One of the important conclusions of the article is that the increase in tenure security was in an unexpected way, and not through the mechanism envisioned by the law. Investment, specifically through the use of credit, did not increase.

²⁶ The authors measured credit as measured as loans. They also used other dependent variables: technical assistance measured as as help from government, and income measured as perceived income. Technical assistance and perceived income also increased.

Migot-Adholla, Place and Oluoch-Kosura ²⁷				
Kenya Carter, Wiebe and Blarel ²⁸	1994	Productivity	Titling	Increase
Kenya Place and Migot-Adholla ²⁹	1998	Productivity	Titling	No increase
Madagascar Jacoby and Minten ³⁰	2007	Investment	Titling	No significant effect
Mexico Johnson ³¹	2001	Assets	Titling	Access to credit not a factor
Nicaragua Deininger and Chamarro ³²	2006	Land related investments	Titling	Increase
Nicaragua De Lagelsia ³³	2004	Land related investments	Titling	Increase
Rwanda ³⁴ Blarel	1994	Land improvement	Tenure security	Increase
Somalia ³⁵	1994	Security	Titling	No significant effect
Thailand	1987	Investment and	Titling	Increases investment, and

²⁷ The mechanism through which they tested the effect of land titles on productivity was through credit use.

²⁸ They note that the effect of titling on productivity is not robust to the inclusion of other variables in the model.

²⁹ Productivity is measured as yields. The authors also see security, concentration of land and credit use as dependent variables. They find no increase in any of these due to tilting.

³⁰ Investment was measured as (measured by clearing of land, installation of new infrastructure and maintenance of existing infrastructure). Land value and productivity (measured by rice yield) were also used as dependent variables. The study found a small effect on productivity and land values.

³¹ The dependent variables were existing assets (measured as irrigated land) and expected future assets (measured as machinery). They found that although access to credit is not a factor, higher accessibility to services (lower transaction costs) is a factor.

³² They also used land values as a dependent variable and found that registration did increase land values.

³³ They also measured land values and credit. They found no relationship between titling and credit.

³⁴ This study also examines the relationship between land distribution, use and scarcity. Tenure security was measured as land rights (see later in this chapter). Agricultural development was measured as mortgage land improvements and crop yields. There was little relationship between security and credit and no relationship to crop yields.

³⁵ Security here is measured as perception of security. Other findings were that use of land as collateral was not significant for small holders, but the effect was greater for large landholders. There was an insignificant effect on investment

Feder and Onchan, 1987		productivity		productivity
Uganda Roth, Cochrae and Kisama-Mugerwa ³⁶	1994	Security	Titling	Increase

³⁶ Security was measured as disputes and perceptions of security. The authors also used credit measured as loans, and investment measured in multiple ways, as dependent variables. They found some increases in long term investment and inconclusive results on credit.

In fact, scholars analyzing the relationship between titling and credit (path A in both diagrams), have found mixed results. Roth et. al. found mixed results in Uganda. The use of credit was slightly higher after titling, but most of the credit was informal. However, as Barrows and Roth observe in their own study of Uganda, that this is likely due to the inalienability of land under the Ugandan law of the time. Roth et. al. also report inconclusive results on analysis of the relationship between titling and credit. Pinckney and Kimuyu found that titling did not lead to an increase in the use of credit in Kenya or Tanzania. Similarly, Barrows and Roth did not find a significant relationship between titling and credit in Kenya. Contrarily, in a study of Costa Rica, Seligson reports a positive relationship between titling and credit.

Scholars analyzing path B, the relationship between titling and security have also varied in their findings. Barrows and Roth have found that security increase among some groups and also decreased in Kenya. They found equally mixed results in Uganda. In Cameroon, Firmin-Sellers and Sellers found that security increased, but not in the manner expected.³⁷

As to the relationship between land titling and investments, in Africa, the relationship has been negative, whereas elsewhere, the relationship has been positive. For example, Pinckney and Kimuyu found no increase in investment in their study of Kenya and Tanzania. Jacoby and Minten found that when investment was measured as the clearing of land and the installation and maintenance of

³⁷ Many of those participating in titling did not complete the program (ultimately obtain title to land), but rather discontinued the application process after government officials physically marked their land.

infrastructure, there was no relationship between titling and investment. Contrarily, in two separate studies of Nicaragua, titling was found to be positively related to investments . Similarly, in Thailand, Feder and Onchan found that titling increases investment.

Only a handful of the selected studies have analyzed the relationship between titling and markets. Barrows and Roth found an increase in land markets in both Kenya and Zimbabwe following the implementation of a land titling law, though in Kenya they attribute the increase to factors other than the law. Contrarily, in a study of Kenya and Tanzania, Pinckney and Kimuyu found no increase in land transactions due to titling. Similarly, Place and Migot-Adholla found no increase in sale (measured as concentration of land holdings) attributable to a land titling effort.

As to security, the results have also been mixed. In Somalia, security was found to be negatively but insignificantly related to titling. Roth et. al. found by means of interviews in a Uganda study, registered land owners did perceive a higher level of security than non-registered land owners. This was due in part to a sense of “freedom” from obtaining permission of the customary authorities before transacting in land, a sense that the power of the chiefs was waning, and confusion over what the customary rules were about confiscation of land.

Finally, some scholars addressed the distal relationship, that of titling and productivity. Migot-Adholla et. al. found that titles had no significant effect on productivity in Kenya. Contrarily, Carter et. al. in their study of Kenya, found that titling did have an effect on productivity, but the model was not robust to the

inclusion of other variables. In Madagascar, Jacoby and Minten reported a small relationship between titling and productivity. In Thailand, Feder and Onchan find a significant relationship between titling and productivity.

Understanding the studies

The overarching conclusion of the studies, in aggregate, is that there are no consistent results. Land titling, representing property rights security, does not consistently lead to increases in investment, productivity, market development or use of credit.

While most of these studies examine the effect of titling on the economic activity of different groups or areas within a country, other scholars have used methods which hold individual level factors constant. In 2007, Jacoby and Minten conducted a study on a region in Madagascar. Each of the households in their survey had two different types of land, both titled and untitled. They found that titling had no significant difference on investment, a small (7%) difference on productivity, and a small (6%) difference on land values. This suggests that it is not merely titling or registration alone that causes the desired economic outcomes.

Another approach is holding country specific factors constant. For example, there have been multiple studies conducted within the same country. Kenya has been examined at least 5 times. In three of the studies, the effects of titling on productivity were analyzed. Carter et. al. studied the Njoro area, a region in the Rift Valley. Migot-Adholla et. al. studied 4 sites, Kianjogu and Mweiga, Nyeri, a region in central Kenya,

and Madzu and Lumakanda, Kakamega district, a region in western Kenya. All three studies found no significant or robust relationship between titling and productivity.³⁸

Two of the studies, analyzed the relationship between titling and investment.

Barrows and Roth analyzed secondary data literature which described the effects of land registration in regions dominated by different ethnic groups. Pinckney and Kimuyu studied groups in both Kenya and Tanzania. Neither study found a relationship between titling and investment. The fact that these studies found similar results, at different times, across different ethnic groups suggests that while titling may not be the cause of the relationship, a country-level factor may be.

In short, using the studies in the aggregate and applying two different methodological approaches leads to the conclusion that land titling laws do not have the expected economic results. There have been many theories that attempt to explain why results differ across individual cases. However, current hypotheses do not explain why these laws have not had the theoretically expected results. For example, scholars have hypothesized that the reason for the discrepancy between the theory and empirical results is the absence and strength of financial markets and institutions, the incompatibility of market structures with communal systems of property, as well as factors such as land size, land location, value of land, elections and institutions. Atwood suggests that such laws can create, rather than reduce uncertainty because they abolish the cultural norms on which people relied for certainty of land transactions. Other scholars have suggested that the potential for

³⁸ The authors found a relationship initially, but it was not robust to the inclusion of other variables.

cooption by political elites contributes to the uncertainty that some owners feel under new land titling regimes. However, no single explanation seems sufficient to explain the variation in outcomes across all of the cases.

The Content of law

The results of these studies suggest that there is an element to the existing theory of property rights that is lacking. This dissertation argues that the lacking element is an examination of the content of law, and an analysis of how *specific types* of rights lead to certain outcomes. For example, what is latent in most of the literature, though explicitly stated in some, is an understanding that titling laws enforce existing structures of land rights imposed by a state. In fact, most titling and registration laws contain clauses stating that once land is registered, rights and obligations attaching to the land are governed by the provisions of the act. In other words, once land is registered, the only rights permitted are those outlined by the law. Titling laws only reflect the actual content of the property right.

A handful of studies have equated tenure security with land rights, and have examined the impact of these rights on the economic outcomes discussed above. This proves to be a more fecund approach, especially when aggregating studies in which the same country has been studied multiple times. The table below presents a summary of some of these studies. When compared with table 1, the results presented in table 2 appear to be more consistent.

Table 2: Selected summary of studies analyzing the content of laws and their results

Country/Region (Authors)	Year	Outcome Variable	Explanatory Variable	Results
Africa Migot-Adholla, Blarel, Hazel and Place ³⁹	1991	Productivity	Transfer rights	No relationship
Africa Place and Haze ⁴⁰	1993	Investment	Land rights	No relationship
Burkina Faso ⁴¹ Malton	1994	Investment	Land use rights	Little to no effect
Ethiopia Deininger and Jin ⁴²	2006	Investment	Transfer rights	Increase
Ghana Migot-Adholla, Benneh, Place and Atsu ⁴³	1994	Investment	Transfer rights	No influence ⁴⁴
Ghana Besley	1995	Investment	Transfer rights	No increase
Rwanda ⁴⁵ Blarel	1994	Investments	Land use rights	Increase
Tuscany, 15 th century Emigh, 1999 ⁴⁶	1999	Productivity	Land tenure rights:	Some increase more than others

³⁹ They measured productivity as crop yield and credit as formal loans. They found no relationship between transfer rights and formal credit, some in Rwanda and Ghana between transfer and investment, but no relationship between productivity and rights in Ghana, Kenya and parts of Rwanda

⁴⁰ Also examined the relationship between rights and credit and rights and land improvement

⁴¹ The Burkina Faso study also assessed the manner in which tenure institutions affect perceptions of tenure security (page 42). Investment in this study was measured as soil fertility. The rights here were based on an indigenous system of rights rather than a state system.

⁴² Investment is measured as planting trees (visible investment) maintaining or establishing terraces (invisible investment). Transferability measured as the ability to mortgage or sell, tenure security measured as perceived security based on past re-allocation experience and future re-allocation expectations. They found that mortgage rights increase both types of investment, sale rights increases terracing.

⁴³ Investment was measured by improvements to land.

⁴⁴ In one region, a certain type of investment (mulching) increased when land size was smaller than .4 hectares.

⁴⁵ This study also examines the relationship between land distribution, use and scarcity. The study broadly measured agricultural development as mortgage, land improvements and crop yields. Investments, in my terminology here, was referred to as improvements on land in the study. The study also found little relationship for credit, and no relationship for crop yields

⁴⁶ Land tenure rights were sharecropping and small holding. Share cropping was found to be more productive than small holding.

Zambia Roth ⁴⁷	1995	Investment	Transfer rights	Insignificant
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For example, in Ghana, there have been several case studies analyzing the relationship between land transfer rights and investment. Migot-Adholla et. al. and Migot-Adholla et. al. measured transfer rights as temporary rights to transfer only within a family, or rights to sell. In all three studies, the authors found no significant relationship between the content of the right and land related investments. In the 1991 study, the authors found that in two of the three regions, transferability rights were not related to investment, but in the third region, it was. Almost identically, a fourth study, by Place and Hazell studied the same regions in Ghana and found that in two out of the three regions in Ghana they studied, investment was not related to transferability rights. Both studies found that the difference was in the same region (Anloga). Contrarily, Besley measured transfer rights as whether an individual can sell, gift, mortgage, rent pledge or bequeath the land. He then aggregated these rights numerically. He found that rights were significant in Wassa, but not in Anloga. However, he also reported the results for disaggregated rights for Wassa, and the right to sell was not significant. All of these studies suggest that in Ghana (with the possible exception of the Anloga region), the right to sell is not significantly related to investment.

⁴⁷ Broadly measured development as land related investments, use of credit. The study also measure a variety of rights as independent variables, and found the right to alienate land insignificant and mixed; In one region perception of ownership related to improvements in land, in another region, perception of ownership related to credit and improvements

Rwanda also, has been studied multiple times. Blarel created a scale of transferability rights. In his analysis, “family lands” can only be transferred by bequest. “Lineage lands” can only be given to relatives, and “complete rights” can be sold. Similarly, Migot-Adholla et. al. created a scale of rights, “limited transfer rights” are temporary rights, “preferential transfer rights” include rights to transfer only within a family, “complete transfer rights” include the right to sell. Place and Hazell use a similar scale, naming the categories “limited rights”, which cannot be transferred, “preferential rights” which can be transferred within a family, and “complete rights” which include the right to sell. All three studies found that a significant difference between the lowest category (having no transferability rights) and having the right to transfer within a family. All three studies also found little difference between having “complete rights” and “lineage” or “preferential rights”, suggesting that the addition of the right to sell (in the presence of other rights) may not be an important factor for investment.

Even across countries, the studies begin to be suggestive of a pattern. As explained above, In Ghana transferability was not related to land related investments. Similarly, in Zambia, Roth found that the ability to sell land is not significantly related to investments. Place and Hazell also did not find any relationship between transferability rights and investment in Kenya. The only study that did not fit this pattern is the Deininger and Jin study of Ethiopia. They found that transfer rights, measured as an individual’s perception of his ability to sell or

mortgage land had a strong and significant relationship to one type of investment (terracing) but not another (tree planting).

In the aggregate, these studies that focus on the content of a rights rather than a broader notion of property rights reveal more consistent results. In Ghana, Zambia and Kenya, they suggest that rights to sell are not related to investment. However, in Rwanda and Ghana, rights to transfer land are related to investment. The collective conclusion of these studies greatly improves on the understanding of the larger econometric studies where property rights are poorly defined and proxied with governance variables. It also improves on the bulk of the case study literature in which land titling, encompassing varying degrees of ownership, use and transferability rights, was the object of study. Yet, given the fact that the effect of transferability rights varies between countries, it can be said that there is still another piece of the puzzle to be discovered. Specifically, the economic structure of society and the interest groups that this structure creates is important for understanding the effectiveness of different components of the property rights bundle. By examining several studies in greater detail, these aspects of property rights become clearer.

Interest Groups and the Content of Rights

To undertake this analysis, this chapter relies on four cases studies. The cases were chosen for several reasons. First, two of the case studies, that undertaken by Alston, Lee and Schneider in Brazil, and that undertaken by Feder and Feeney in Thailand, are very prominent in the literature. Second, the countries that are the

object of study, Brazil, Thailand, Rwanda and Kenya, are very different. For example, the background descriptions provided by the scholars, shows that all four countries had different land histories and political approaches to land. Three countries were colonized, Brazil was colonized by the Portuguese, while Rwanda was colonized by the Belgians and Kenya was colonized by the British. Thailand was not colonized, though it had a strong trade relationship with Britain, which some have characterized as coercive. The political structures of the countries are also different. Brazil has a long history of independence, and is a federal country. Rwanda and Kenya have much shorter histories of independence and are unitary state. Thailand was a monarchy.

In addition, the history of land policies is also different. Much of the conflict in Brazil stems from multiple claims to the same land due to contradictory and overlapping land policies: the presence of squatters, the lax granting of land under the *sesimara* system, and the unresolved conflicts with land grants under the new system. Contrarily, in Rwanda, the land institutions and policies were more phased: the Hutu system dissolved, in part due to the presences of the Tutsi's, the Tutsi system was replaced by the laws of the colonial government, and the laws of the colonial government were then replaced by the laws of the independent state. Similarly, in Thailand, the land policies appear to be more phased. Land became a salient issue in the 19th century, and successive laws attempted to enact policy in this area. Also in Kenya, there was not a case of overlapping or conflicting policies, but rather a series of policies in response to political needs. The differences of these

countries preclude explanations of path dependence or broader structural features as determinants of the outcomes.

Third and finally, although the studies all address the same question, the relationship between security and investment, there is variation in the outcomes. In Brazil, Thailand and Rwanda, property rights security increased investment, while in Kenya it did not. Also of import is the selection of a country in Sub-Saharan where security increased investment (Rwanda), given that the bulk of studies in Sub-Saharan show that security does not necessarily increase investment.

The Studies in Brief:

Brazil: Study Description

Alston, Lee and Schneider rely on two types of data for their study of Brazil. The first is a survey conducted between 1992 and 1993 of 206 landholders in the state of Para near the regions of Altamira, Tucuma, Sao Felix and Tailandia. The second is data from the Brazilian Agricultural Census in the states for Para (1970 to 1985) and for Parana (1940-1970). Part of their analysis entails examining the determinants of investment. Here, they measure investment as the amount of land placed in improved pasture and permanent crops. The investment data is derived from the census. The purpose of this study is to measure the determinants and effects of land title. Consequently, the data incorporates two distinct regions and two different periods. The authors measure the impact of land title on investment for small farmers who obtained land through a process of claiming government land or adverse

possession of private land in “frontier” regions. They found that title does have a positive, statistically significant effect on land-related investments in most cases.

Brazil Background of the Law

The study by Alston, Lee and Schneider begins with the history of land rights in Brazil. Brazil was a Portuguese colony, and in occupying the land, Portugal implemented a system that had been used in other colonies- that of dividing the land and granting portions of the land to “captains”. However, unlike other colonies, the colony of Brazil possessed no monetary appeal, and most of the “captains” either did not take possession of the land they were granted or did not make any significant investments in it. Still needing to establish a presence in its new colony, the Portuguese government abandoned the captain system, and in its place implemented a grant system (*sesmaria*). Under this system, large grants of land were given to individuals with the sole condition that the land be cultivated.

As crops such as sugar became profitable in Brazil, and as various minerals were discovered in the colony, population increased. Squatters appeared on land that had not yet been granted under the *sesmaria* system. Brazil attained independence in 1822, and abandoned the *sesmaria* system, but did not replace it with another system until 1850. In the interim, individuals through occupation acquired government land.

The precipitating factor for a new land law in 1850 was coffee production. Land that was once abundant and had little value, suddenly became scarce, and the value of it

increased substantially. Conflicts arose between competing claimants to land and the Land Law of 1850 was passed.

This law legalized the possession of those who had obtained land through occupation, revalidated the claims of those who had land under the *sesmaria* system, and established that after the passage of the law, land could only be obtained through purchase. The Brazilian government began to dispose of land “on the frontier” by offering land grants to colonization companies, and selling land to individuals. However, as population pressures increased, and the pace of expansion into the frontier also increased, such grants and sales were frequently made without resolving issues of who had prior claims to the land being granted or sold. Further complicating land distribution issues was the devolution of power to states, as Brazil became a Republic in 1899. States were given control over land settlement issues, and each state formed its own policy. A persistent issue throughout this process was the fact that because of the *sesmaria* system, and its effective reinforcement through the law of 1850, land remained concentrated in the hands of a few owners.

The law of 1964, *Estatuto da Terra of 1964*, and the constitution of 1988 both enacted agrarian reform. Cline describes the 1964 law. The law established certain types of land as appropriate for expropriation and redistribution by the state. The government was to designate “priority areas” for expropriation, which were areas of high population density and high ownership concentration. In these areas, specific types of land were to be targeted for expropriation. The law also stipulates tenancy conditions and taxation on lands of a certain size. The 1988 constitutions also has

specific measures on the use of land, in addition to targeting certain lands for expropriation and re-sale.

In Brazil, the time of Portuguese colonization was marked by land abundance but labor and capital scarcity. Dean notes that settlers who had been granted sesmarias were dependent on the Portuguese crown for credit and labor in the form of slaves. Furthermore, the inheritors of the large sesmarias were concerned about the labor supply and desired to restrict opportunities for new land in order to increase, or at least, maintain the current supply. This is particularly so after Britain began diplomatic pressure to end the slave trade. Furthermore, the record of debate around the land laws of 1843 and 1850 highlight the importance of restricting land ownership to increase labor to the conservative party.

Rwanda: Study Description

For the study of Rwanda, Blarel relied on data from a survey conducted in 1988 by the Agricultural and Rural Development Department of the World Bank and the Services des Enquêtes et des Statistiques Agricoles (SESA). The survey occurred in three prefectures, Buate, Gitarama and Ruhengeri and contained data on 232 households. Although all regions are densely populated, the author notes that the regions vary according to when they were settled. One of the questions that Blarel investigates is whether land tenure security is related to increased investment. However, he defines land tenure security according to the fullness of a set of rights. He identified 24 distinct rights that individuals may have over land, and grouped these rights into five categories: short term usufruct, long term usufruct, family land

(which includes the right to bequeath), lineage land (which includes the right to give to other lineage or family members) or complete rights land. Those with more rights are deemed to have greater security. Using logit analysis, Blarel finds that blocks of land with short term use rights are the least likely to have land improvements. Blocks of land with long term use rights are more likely, but not as likely as blocks of land with family, lineage or complete rights. He also finds that the difference in incidence of improvements between family, lineage and complete land is minor. In fact, there was no difference between lineage and complete rights land.

Rwanda: Background of the law

As Blarel reports, the history of land rights in Rwanda differs considerably from that in Brazil. The agricultural Hutus had established a land system called the *ubukonde*. Under this system, a community, related by a common ancestry, owned the land. Clan leaders allocated land to households, and households had long-term and exclusive rights to use the land, and transfer it to male children. Land could not be sold, and unused lands reverted to the community, and could be redistributed to another household. Blarel reports that this system eventually dissolved because of abuse of power by heads of clans (a patronage system developed), and by population pressures, some of which was brought by the pastoral Tutsis.

The Tutsis had two different land systems, one applying to agricultural land, known as *isambu*, and one applying to pastoral land, known as *igikingi*. The distinction between the Hutu and Tutsi systems was that use rights were given to individuals, and areas of land were no longer conceptualized as belonging to a

community. However, even under this system, individuals were granted only usufruct rights.

Belgian colonization introduced yet another distinct layer of land rights. While Belgium generally followed and recognized the system of the Tutsis, they also distinguished between indigenous lands, which were governed by Tutsi laws, and non-indigenous land, populated by foreign nationals, and governed by Belgian laws. These laws recognized individual ownership rights and established a system of land registration. Colonial authorities eventually abolished significant parts of the customary system, and in 1960 established that if land was not registered, it became the domain of the state. However, under this new system, groups could purchase customary rights, and holders of customary rights could have land reclassified as private land.

When Rwanda became independent in 1962, it ratified the system established by colonial authorities; in addition, it largely abolished the customary system (except in a few areas). Additional laws specified that land held under customary rights may be sold, provided the seller retains a portion of the land.

In Rwanda, land policy dating back to the feudal system under King Rwaburgiri was designed to control access to land. Similar to Thailand, discussed below, this system required that poorer classes, in this case Hutu, exchange labor for access to land owned primarily by Tutsi. The initial decree establishing that the land of the indigenous population remained under the customary law while the land of

the foreign settlers was governed by a different set of laws did little to change the land scarcity and conflict issues.

In response to discontent among the poorer classes, the Belgian government abolished the system of corvee labor, and declared that all non-registered land (customary land) was state land. Those occupying the land were doing so by usufruct and not ownership rights. Individuals in customary areas could request private title to land by undergoing a land registration process. After independence, the Rwandan government enacted a further land law limiting the sale of customary land. Such sales had to be approved by the government, and also the seller had to retain a small portion of the land.

Kenya: Study description

Migot-Adholla, Place and Oluoch-Kasura conducted a study of the relationship between security of tenure and land productivity in Kenya. They relied on data conducted by a joint operation of the Agriculture and Rural Development Department of the World Bank and the Agricultural Economics Department of the University of Nairobi. This survey, conducted in 1988, contains data on 406 households in the Kianjogu and Mweiga areas of the Nyeri district and the Madzu and Lumakanda areas of the Kakamega district. Like Blarel, Migot-Adholla et. al. define tenure security according to the rights associated with the land rather than as the presence or absence of registration. They suggest that the right to sell land is the paramount right, and group the rights according to the degree of transferability. “Complete rights lands” are lands over which there are rights to sell. “Preferential

transfer lands” are lands that may not be sold but may be bequeathed or given to family. “Limited transfer lands” are those which cannot be transferred for any extended period of time. Using logit analysis, the authors found that there was little effect of land security on land improvements. Specifically, they found that land rights were not related to tree crops or terracing. They also found that individual rights were associated with greater improvements in Lumakanda, but not in the other areas under study. Additionally, they found that security measured as land title had little effect on land improvements.

Kenya: Background of the laws

Prior to the arrival of the British, land was largely governed under the aegis of different ethnic groups. However, after colonization, the most productive and fertile land was occupied by British colonizers during the colonial era, Kenyans were forced to live in “African reserves”, and a dual system of law was implemented throughout the region. British law applied to the British settlers and traditional tenure systems governed the African reserves. However, as Migot-Adholla et. al., observe, the British appointed the “chiefs” governed the African areas. Under the British law, the Land Titles Act 1908, and the subsequent Registration of Titles Act 1919 governed land of the settlers.

However, late in the colonial period, when population pressures and degradation of soil contributed land scarcity in the reserves and subsequently to unrest amongst the population, the British changed the policy. The Swynnerton Plan

of 1954 began the process of establishing individual land rights. This was followed by the Native Land Registration Ordinance of 1959 and the Registered Land Act of 1963.

At the time of the study by Migot-Adholla et. al. , rights granted under the Registered Land Act, were subject to other laws, in particular the Land Control Act of 1967, and various agricultural land use acts. Consequently, in Kenya the right of ownership in the absolute sense was tempered by restrictions on the sale and use of agricultural land. Additionally, in Kenya, ownership in the districts in the study was widespread, and land was considered scarce.

The dual system of tenure and the restriction of land ownership outside the African Reserves benefited land owners and manufacturers by creating a ready supply of labor at minimal wages . In 1954, the Swynnerton Plan represented the most comprehensive change in land policy in Kenya since colonization. The plan proposed individualization of plots of land in the African reserves. While economic reasons were initially stated in the plan itself , political motivations also governed its adoption. The African reserves were becoming overpopulated, and the quality of the land was deteriorating. The Mau Mau uprising was beginning and some policy makers believed that implanting the Swynnerton Plan would not only quell the uprising, but also create a class of landed Africans that would contribute to stability in the area . The land boards that were implemented concomitantly with the new land policy served to restrict land transactions. Thus, in Kenya, restriction in land prior to the Native Land Registration Ordinance of 1959 benefited land owners. Expansion of land

ownership after 1959 was limited and done for the purpose of preventing the need for wide-scale redistribution policies.

Thailand: Study Description

Feder, Onchan, Chalamwong, and Hongladarom conducted their study in Thailand. The authors conducted surveys between 1984 and 1985 in the Lop Buri, Nakhon Ratchasima and Kon-Kaen provinces. In each areas the authors surveyed ten farmers in ten villages in the forest reserve and ten villages in the area outside of the reserve. They conducted additional surveys in the Chaiyaphum province the following year. For the question on the relationship between titled land and investment, data from the Chaiyaphum province was not used because the area experienced a drought. The dependent variables were expenditure on power inputs, such as the cost of machinery hours or animal days. They found that use of inputs per land unit is greater on titled land than on untitled land.

Thailand: Background of laws

Historically, land in Thailand was administered on a type of feudal system. All land belonged to the king. The administration of land among his subjects was governed by a *sakdi nā* system. Accordingly, people were granted a certain number of *rai* contingent upon their feudal rank . The king and those higher up in the feudal system derived wealth primarily from a corvée labor. Freeman were required to give four months labor or negate the duties by the supply of commodities. In addition, Feder et. al. describe slavery as a common practice.

Both Kemp and Feder et. al. describe the impetus for change in this system as stemming from the increase in trade, particularly the export of rice. Kemp reports that this and other changes, such as the abolition of slavery and a dramatic change in the corvée system increased pressure on land somewhat. However, the land to population ratio was so high that this pressure was easily relieved by the movement of peoples outside of populous areas.

In Thailand, prior to the 19th century, land was abundant and labor was scarce. The feudal system, in addition to other policies, helped to supply labor to the king. Private property was instituted in earnest as exports in rice increased. In fact, Johnston suggests that it was because of the changes in the labor system that exports were able to increase. As labor requirements diminished, Thais were able to devote more time and effort into farming and by so doing, increase rice production. However, the Thai economy continued to suffer from both labor and capital shortages. Johnston also observes that the labor shortage was such that some cultivators were granted permission to use prisoners on their farms. Similarly, Johnston also discusses shortages in capital. He notes that some land mortgages were secured by loans of up to 67%. In the Thai case, where the country was land abundant, labor scarce and capital scarce, it seems that the more liberal land ownership policies benefited both labor and capital interests in the Thai economy. Labor benefited because more farms expanded the demand for labor. Similarly, more farms expanded the demand for capital.

The law in Thailand at the time of the Feder et. al. study was the Land Code of 1954. The law stipulates different rights associated with different certificates of registration. Most of the certificates enable the user to transfer, use or mortgage the land. However, the types of transfer and the process required prior to the transfer of land vary according to how the land was surveyed. In addition, these certificates carry with them a requirement that land be used or lost to the holder. The required years of use vary with the certificate.

Comparison of Features

The results of the case studies appear to be inconsistent. In Thailand, Rwanda and Brazil security increased investment or improvement on land, while in Kenya it did not. However, what is missing from the case studies is a more complete explanation of the laws and the groups that benefit from the laws. By examining the broader context in light of my proposed theory, that the rights are separable, that separate rights have both a differential distributional effect on groups, and have a differential effect on economic outcomes, more traction can be gained in explaining the results. The history of these cases shows that because of the distributional consequences of different property rights, groups will have preferences for different parts of the bundle and try to have those preferences enacted as law.

In each of these cases, property rights in land benefited certain groups, and one may argue, were instituted because of the influence of these groups over the political system. In Kenya, for example, restrictions on land prior to 1954 benefited the landowners by creating a ready supply of cheap labor. Similarly in Brazil,

restrictions on land ownership prior to implementation of the land laws of 1843 and 1850 were intended to benefit land owners by creating a supply of cheap labor. In both cases, the expansion of ownership rights was done in a limited way and because landowners feared political repercussions of not doing so.

In Rwanda, as well, the restriction on access to land, which kept land in the hands of the Tutsis, and the government ownership of customary land, ostensibly benefited existing landowners. In the Thai case, where the country was land abundant, labor scarce and capital scarce, it seems that the more liberal land ownership policies benefited both labor and capital interests in the Thai economy. Labor benefited because more farms expanded the demand for labor. Similarly, more farms expanded the demand for capital.

Yet the laws that were ultimately implemented in these cases are not uniform, and represent the preferences for these groups over the set of property rights conceivable. For example, the land sale and restrictions in Kenya benefit the land owning class by increasing the value of their land. In Brazil, although the land law of 1850 extended the right of ownership of land to those squatting on lands, scholars have observed that the requirements for owning land were such that few could actually afford it. Consequently, the effective result was a restriction on landownership. In Rwanda, limitations on the sale of customary land and the use of land further benefited landowners. Finally, in Thailand, variations in the restrictions on land usage serve to benefit the capital interests.

Table 3: Summary of four country studies and the content of laws

	Own	Use	Sale	Land	Labor	Productivity	Investment
Rwanda	Yes			Scarce	Abundant	Yes	Yes
Kenya		Yes	Yes	Scarce	Abundant	No	No
Thailand	Yes	Yes		Abundant	Scarce	Yes	yes
Brazil	Yes	Yes		Abundant	Scarce	Yes	Yes

The chart above summarizes the countries according to the concentration of ownership, the distribution of the factors of production, the types of laws under the studies and the outcomes of these laws. Comparing two cases, Kenya and Thailand, where ownership of land in the areas under study is widespread, the laws have some restrictions. In Kenya, there are use restrictions on agricultural land as well as restrictions on transferability (in the form of land boards). In Thailand, there are some use restrictions as well as restrictions on the size of land that may be owned. The outcome of these cases is different, suggesting that the land/labor ratio may play a role in determining the outcome of the land law. Comparing those countries with concentrated country-wide ownership, we see that where ownership is concentrated there are policies that are restrictive of either ownership or transferability. In countries where ownership is more widespread, Kenya and Thailand, we see use restrictions. As for outcomes, the difference between Kenya and Rwanda, which have similar distributions of the factors of production, seems to be the content of the law. In Brazil and Thailand where there is no difference on salient features, or distributions of the factors of production, the outcome is the same.

Conclusion

The empirical studies surveyed in the literature review of the first part of this chapter suggested a relationship between growth and property rights, but did not specify to a necessary degree of exactitude the type of property rights necessary to promote such growth. The case studies analyzed in this chapter provided more details about the mechanisms through which property rights should affect growth. However, when taken altogether, the results of these case studies do not provide any additional insight into the nature of the relationship that can be applied generally. Yet when underlying land rights are considered, the studies do begin to form a pattern. Coupled with investigations into the dynamics of interest groups in a country, the content of law appears to have an influence on economic outcomes. The next chapter will explicitly state the theory that I have been developing in this chapter.

Chapter 3: The politics of property rights laws

Introduction

The preceding chapter reviewed the literature on property rights and economic outcomes. While the first part of the chapter explored the bulk of the literature and focused on the macroeconomic effects of property rights institutions, the second part focused on the case-study literature and the microeconomic effects of property rights institutions. I concluded that while the macroeconomic literature has explored the outcomes of property rights institutions, it has done little exploration of the content of property laws. The failure to distinguish between enforcement of property rights and the content of laws was highlighted by the case study analyses. Many case studies questioned validity of the theoretical thrust of the literature by collectively demonstrating that the efficient economic outcomes do not occur in all cases. Further, the results were more consistent when the content of the laws was considered. This chapter seeks to explain the divergence from the uniform predictions of economic theory to the variegated actual observed outcomes, as well as the cross-country variation by arguing that differences in content of the laws determine the differences in observed outcomes.

In this chapter, I argue first, not all countries have the same bundle of property rights in their laws. Second, different types of rights give rise to different short-term economic effects, and consequently have different distributional implications for groups. Finally, institutional forms that offer interest groups more opportunities to influence the legislative process are more likely to have aberrations from what may be considered the standard bundle of rights.

The non-uniformity of property rights

Property rights are not a uniform conglomerate. They are multiple rights adhering to one object.⁴⁸ This can lead to a considerable amount of variance across countries. The variance in property rights stems from two sources. First, there are different components to the bundle. Scholars have broadly characterized property rights into several categories. For example, Demsetz suggests that true ownership of property consists of a three-part bundle of rights, rights surrounding usage, rights of exclusion, and rights of transferability. Libecap states that ownership encompasses the right to use, the right to appropriate returns, and the right to transfer.⁴⁹

A second source of variance is that states can also vary the definition of these rights. For example, the 2001 of Land Code of Thailand defines immovable property

⁴⁸This idea of property rights as a “bundle” is vigorously contested in some legal literature. See for example, most famously, Thomas Grey, “The Disintegration of Property”, arguing that property as a bundle of rights results in an incoherence, See also J.E. Penner, 1996, “The Bundle of Rights Picture of Property”, arguing that the conception of property as a bundle of rights is atheoretical; Adam Mossoff,, 2003, “What is Property? Putting the Pieces Back Together” refereeing to the “bundle of rights” concept as not only atheoretical but also one that stems from “the acid wash of a nominalism first popularized in the law by the legal realists” 372).

⁴⁹ Libecap, 145

(land)⁵⁰, what constitutes private ownership⁵¹, how ownership may be acquired (sale, acquisitive prescription, gift, exchange, accretion),⁵² the conditions under which land may be leased,⁵³ how land may be used,⁵⁴ how individuals may create easements (agreements restricting use of land between themselves),⁵⁵ and the circumstances under which land may be mortgaged.⁵⁶ The power to define and specify the very nature of these rights gives states enormous potential to vary the property rights bundle such that even rights of the same name may have different implications in different countries. For example, while in many common law countries, the law recognizes rights in leases and mortgages in many French-inspired legal systems, leases and mortgages are not considered “rights” in property, but rather encumbrances on property .

In addition to the fact that the property rights bundle has several components, each of these components is separable from the others. Although there may be spillover effects, the presence of one part of the bundle does not guarantee the presence of other parts,. The variation in the content of property laws from country to country evinces this fact. For example, rights to sell land do not exist in Tonga. In Vanuatu, citizens may not mortgage their land. In addition, because of the historical development of property law, common law countries frequently recognize a greater variety of rights than civil law countries.

⁵⁰ Article 2

⁵¹ Articles 4-11; State and collective ownership are detailed in subsequent articles.

⁵² Articles 29-84

⁵³ Articles 106-113

⁵⁴ Articles 117-141

⁵⁵ Articles 142-167

⁵⁶ Articles 197-225

Even in titling systems discussed in chapter 2 there is variance. While the underlying process of land titling is similar across different countries, there are numerous procedural and philosophical differences. For example, French-inspired systems are most often called recordation, and the final act of recording the land transfer is *declarative*. That is, recording the land transfer with the government office is not considered a requirement of a legitimate land transfer, the consent of the parties is sufficient. The recording only *declares* that a transfer has been made. In German-inspired systems, as well as in some common law jurisdiction, the terminology used is land titling, and recording the transfer with the local recording office is *constitutive*. That is, it *constitutes* part of the process of transfer. The government in many of these countries will issue certificates of title. Any transfer of rights without proper registration or recording creates only an obligation due to the buyer. The buyer does not possess any real rights in the property. In other words, because of historical circumstance, philosophical basis, or deliberate choice, not all property laws will contain the same “bundle” of property rights.

A consequence of the distinctness and separability of the bundle is that property rights have distributional consequences for different groups. Libecap argues that any form of restriction implies a decrease in economic options and a reduction in value.⁵⁷ Further, he states “Because property rights define the behavioral norms for the assignment and use of resources, it is possible to predict

⁵⁷ Libecap, 145

how differences in property rights affect economic activity.”⁵⁸ These potential distributional consequences determine preferences of these groups for parts of the property rights bundle for the different rights. Further, the potential gains and losses of the different rights mobilize groups to advocate for their preferences to be enacted as law. The ability of these groups to successfully have their preferences enacted is constrained by the political institutions of which they are a part. The first part of this chapter articulates the theory of how the preferences for property rights are determined. Part two articulates the theory of how three political institutions constrain the ability of these groups to have their preferences enacted.

Distributional consequences of different property rights

This chapter uses a modified factors of production classical growth model and divide societies according to the factors of production: land, labor and capital. A group benefits if the anticipated return on their factor rises. Conversely, the group suffers if the anticipated return on their factor falls. This analysis will rely on a combination of economic models and graphical analysis to demonstrate the benefits and losses for the owners of the factors of production under different components of property laws, namely, ownership, use, and transferability.⁵⁹

⁵⁸ Libecap, 145. He also states that these types of comparative statics are complicated by causality problems, as well as market adjustments and considerations of transactions costs. All of these variables will be accounted for in the statistical analysis.

⁵⁹ For ease of conceptualization, I will discuss property laws as restrictive of rights, rather than granting rights.

However, this manner of discussion in no way reflects any philosophical conceptualization of rights. Some believe that rights only exist if a state grants them, because rights, by definition, can only be given by the state. Others believe that rights are natural, or inherent with a person, and thus actions

Land

Simple economics suggests that restrictions in the quantity of land, or increases in the demand for land increase its value, and according the factors model, benefit owners of land. The analysis for labor and capital is more complicated.

Labor

To determine the changes in the supply, demand and return on labor, I use the following models.

Labor supplied by the household:

Assume consumers are interested in maximizing consumption and leisure, given by the equation:

$$\max_{c,\ell} [\ln c + \ln \ell] \quad (\text{Equation 1})$$

An individual's consumption is equal to his income, or $c = wL + rK + \rho T$. w represents wages, r represents the return on capital, K , and ρ represents the return on land, T . This equation can be substituted into the equation above, so that the equation becomes

$$\max_{c,\ell} [\ln(wL + rK + \rho T) + \ln \ell] \quad (\text{Equation 2})$$

by the state only limit a person's rights. My choice to discuss rights in terms of restrictions by the state is not intended to be a statement about this debate.

Additionally, time is composed of labor and leisure. If time is represented as unity, then $L = 1 - \ell$. Using this in the equation above, the maximization problem then becomes

$$\max_{c, \ell} [\ln(w(1 - \ell) + rK + \rho T) + \ln \ell] \quad (\text{Equation 3})$$

To maximize, the first order condition (derivative) of this equation with respect to ℓ is taken, and the equation is set equal to zero.

$$\frac{w}{w(1 - \ell) + rK + \rho T} - \frac{1}{\ell} = 0$$

Manipulating,

$$\frac{w}{w(1 - \ell) + rK + \rho T} = \frac{1}{\ell}$$

Cross- multiplying,

$$w\ell = w(1 - \ell) + rK + \rho T$$

Grouping like terms,

$$w\ell - w(1 - \ell) = rK + \rho T$$

Multiplying out the left-hand side,

$$w\ell - w + w\ell = rK + \rho T$$

Re-grouping like terms,

$$2w\ell - w = rK + \rho T$$

Isolating the w term,

$$w(2\ell - 1) = rK + \rho T$$

Dividing through both sides by w

$$2\ell - 1 = \frac{rK + \rho T}{w}$$

Isolating the ℓ term

$$2\ell = \frac{rK + \rho T}{w} + 1$$

Re-writing the right-hand side

$$2\ell = \frac{rK + \rho T + w}{w}$$

Dividing through to isolate the ℓ term results in

$$\ell = \frac{rK + \rho T + w}{2w}$$

Recall that,

$$\ell = 1 - L$$

Thus, to solve for L , $\ell = 1 - L$ is substituted into the equation

$$1 - L = \frac{rK + \rho T + w}{2w}$$

Solving for L

$$-L = \frac{rK + \rho T + w}{2w} - 1$$

Rewriting,

$$-L = \frac{rK + \rho T + w - 2w}{2w}$$

Finally,

$$L_s = -\frac{rK + \rho T - w}{2w} \quad (\text{Equation 4})$$

This equation suggests that labor supply is negatively related to the quantity of land. That is, as the quantity of land increases, labor supply decreases.

Labor demanded by the firms:

Using the Cobb-Douglas production function, a firm's production function is given by

$$Y = AK^\alpha L^\beta T^\rho$$

The cost function of a firm is $wL + rK + \rho T$. Firms seek to maximize the profit, and in doing so, maximize the production function subject to the cost function. The maximization problem of the firm with respect to labor can be represented as:

$$\max_L (AK^\alpha L^\beta T^\rho) - (wL + rK + \rho T)$$

The derivative of which is:

$$\beta(AK^\alpha L^{\beta-1} T^\rho) - w$$

Setting the derivative equal to zero yields:

$$\beta(AK^\alpha L^{\beta-1} T^\rho) - w = 0$$

Solving for L:

$$\beta(AK^\alpha L^{\beta-1} T^\rho) = w$$

Isolating the L term

$$L^{\beta-1} = \frac{w}{\beta AK^{\alpha} T^{\rho}}$$

And finally, solving for L

$$L_D = \left[\frac{w}{\beta AK^{\alpha} T^{\rho}} \right]^{\frac{1}{\beta-1}} \quad (\text{Equation 5})$$

This equation states that the demand for labor is positively related to labor demand.

As the quantity of land increases, the labor demanded by firms also increases.

Capital Supplied by Households

The above analysis can also be used to derive the quantity of capital. Solving equation 0 for capital, the equation becomes:

$$K = - \frac{2wL - \rho T - w}{r}$$

Or

$$K_D = - \frac{w(2L - 1) - \rho T}{r} \quad (\text{Equation 6})$$

This equation suggests that the capital demand is positively related to both quantity of land T and the return on land ρ

Capital demanded by firms:

A firm's production function is given by

$$Y = AK^{\alpha} L^{\beta} T^{\rho} \quad (\text{Equation 7})$$

The cost function of a firm is $wL + rK + \rho T$

The maximization problem of the firm can be represented as:

$$\max_k (AK^\alpha L^\beta T^\rho) - (wL + rK + \rho T)$$

The derivative of which is:

$$\alpha(AK^{\alpha-1}L^\beta T^\rho) - r$$

Setting the derivative equal to zero yields:

$$\alpha(AK^{\alpha-1}L^\beta T^\rho) - r = 0$$

Rewriting,

$$\alpha(AK^{\alpha-1}L^\beta T^\rho) = r$$

Isolating K,

$$(K^{\alpha-1}) = \frac{r}{\alpha AL^{\beta-1} T^\rho}$$

Finally,

$$K_s = \left[\frac{r}{\alpha AL^{\beta-1} T^\rho} \right]^{\frac{1}{\alpha-1}} \quad (\text{Equation 8})$$

This equation suggests that capital supply is positively related to the quantity of land, T. That is, increases in the quantity of land, also increase the capital supply. Using both the capital supply and capital demand equations in tandem, we can see that the quantity of land is positively related to capital. Laws which restrict the quantity of land will also restrict capital supply and demand.

Graphical analysis

Below is an alternative method of analysis. Using graphical representations, I show how changes in the laws will affect the land, labor and capital markets. Land laws, particularly, ownership laws are about access to land. Consequently, the state can control the quantity of land available to the populous by controlling access to the land. The figure below is a static depiction of the supply and demand of land. The effects of changes in the supply and demand of land can be traced to labor and capital markets.

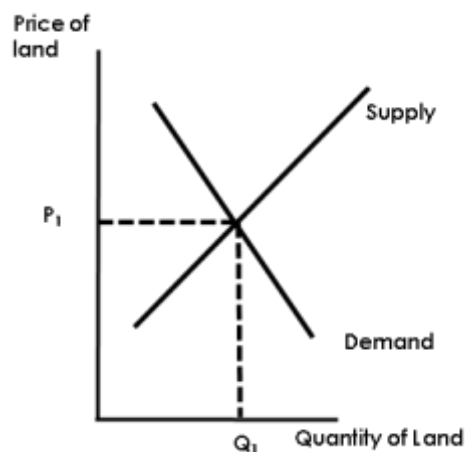


Figure 4: The Supply and Demand of Land

The quantity of land will affect the quantity of labor, but the direction of the relationship between land and labor is debatable. Some might suggest an inverse relationship between quantity of land available and the quantity of labor. That is, that as the availability of land increases the quantity of labor decreases. This is also the conclusion of equation 5 above. One explanation for this might be that as land becomes more available for use or ownership, workers leave the labor market and

derive income from land-related activities. Thus, an increase in land supply in the land market results in a decrease in labor supply. All other factors constant, this supply side reduction in the quantity of labor would result in a wage increase.

Conversely, one may also argue that the relationship between land and labor is direct rather than inverse. As one acquires more land, one needs more labor to work it up to a certain point, where the marginal contribution of each additional unit of labor diminishes. Thus, here, an increase in land supply results in an increase in labor demand, as predicted by equation 6. All other factors constant, the predicted results would be a wage increase.

The literature on the relationship between supply of land and changes in labor is inconclusive. There exist only a small number of studies on the relationship between property rights and labor markets, and the majority of these use single-country analysis. Some of these studies posit an inverse relationship between land and labor. For example, Rosenzweig (1978) uses both a theoretical model and an empirical data from India. Although the theoretical model is inconclusive, the empirical data supports a conclusion that increasing ownership among the landless population lowers the labor supply. Besley, et. al. (2011) also find a relationship between tenancy regulations and adverse effects on the poor in India. As the poor are more likely to be landless, the regulations increase the supply of agricultural labor.

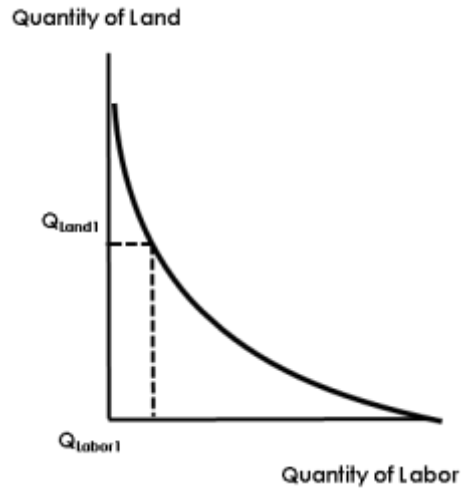


Figure 5: The relationship between quantity of labor and quantity of land

While neither logic nor empirical works yields conclusive results, for the purposes of this analysis, the ultimate outcome is the same. In cases of a positive relationship between land and labor (a labor supply decrease) or a negative relationship between land and labor (a labor demand increase), *ceteris paribus*, wages increase. For the purposes of the graphical representation, the changes are modeled as a negative relationship, though the analysis is the same if modeled as a positive relationship.

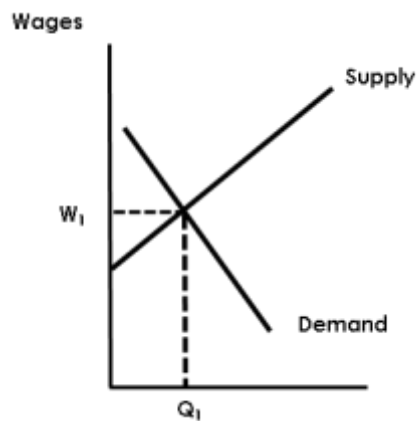


Figure 6: Supply and Demand of Labor

Wages affect the supply and demand of capital. Generally, savings is a function of income, usually conceived as income less taxes and consumption.

$$Y - C(Y - T) - G = I^{60}$$

where Y is national output or income, T is taxes, C is consumption, G is government spending, and I is investment. This can be re-written as

$$S = I$$

where S = savings

As a general statement, higher wages lead to higher income and higher quantities saved. The supply of loanable funds is also a function of the quantity of money saved. Therefore, an increase in wages will lead to an increase in the quantity of capital, as depicted in the figure below.

We can now model different types of land laws as effecting the supply and demand of land, and trace these changes to the labor and capital markets. Assuming that preferences over laws will be determined by changes in the return on the factors of production for land, labor and capital, then tracing the effects of changes in the supply and demand of land in the different markets enables us to articulate the preferences of these groups for different types of property laws.

A restriction in *who* may own land does not change the demand. The demand for land and the uses to which land may be put does not change. For example, in many countries, rental arrangements are common in the absence of well functioning land

⁶⁰ Mankiw, 60

markets.⁶¹ Therefore, a restriction in who may own land acts a quantity restriction, akin to a government license or quota. It reduces the quantity available in the market below the market-clearing price and quantity. Consequently, the supply of land is lower than the demand, allowing landowners to benefit. This is depicted in the first box of the figure below.

The dotted lines in the figure show how the changes in the relationship depicted in one box can be mapped onto another relationship, depicted in a different box. In the present case of changes in who may own land, the change in the decrease in the supply of land can be mapped onto box 2. In box 2 is a 45 degree line which merely reflects but does not alter the lines. These lines can be traced to box 3, which depicts the relationship between quantity of land and quantity of labor. This shows that a decrease in supply of land, shown in box 1 leads to a decrease in the quantity of labor, shown in box 3. This change can be traced to box 4, which depicts that supply and demand of labor. The decrease in the quantity of labor, is a represented as a supply side shift. A decrease in the supply of labor leads to an increase in the wage rate. The increase in the wage rate can be traced to the relationships between wage and quantity of capital depicted in box 5. Thus the increase in wage rate is shown to increase the quantity of capital. This can be traced to the relationship between quantity of capital and capital rates depicted in box 6. The supply side increase in capital results in a decrease in rates.

⁶¹ For example, see Vranken et. al., 2006

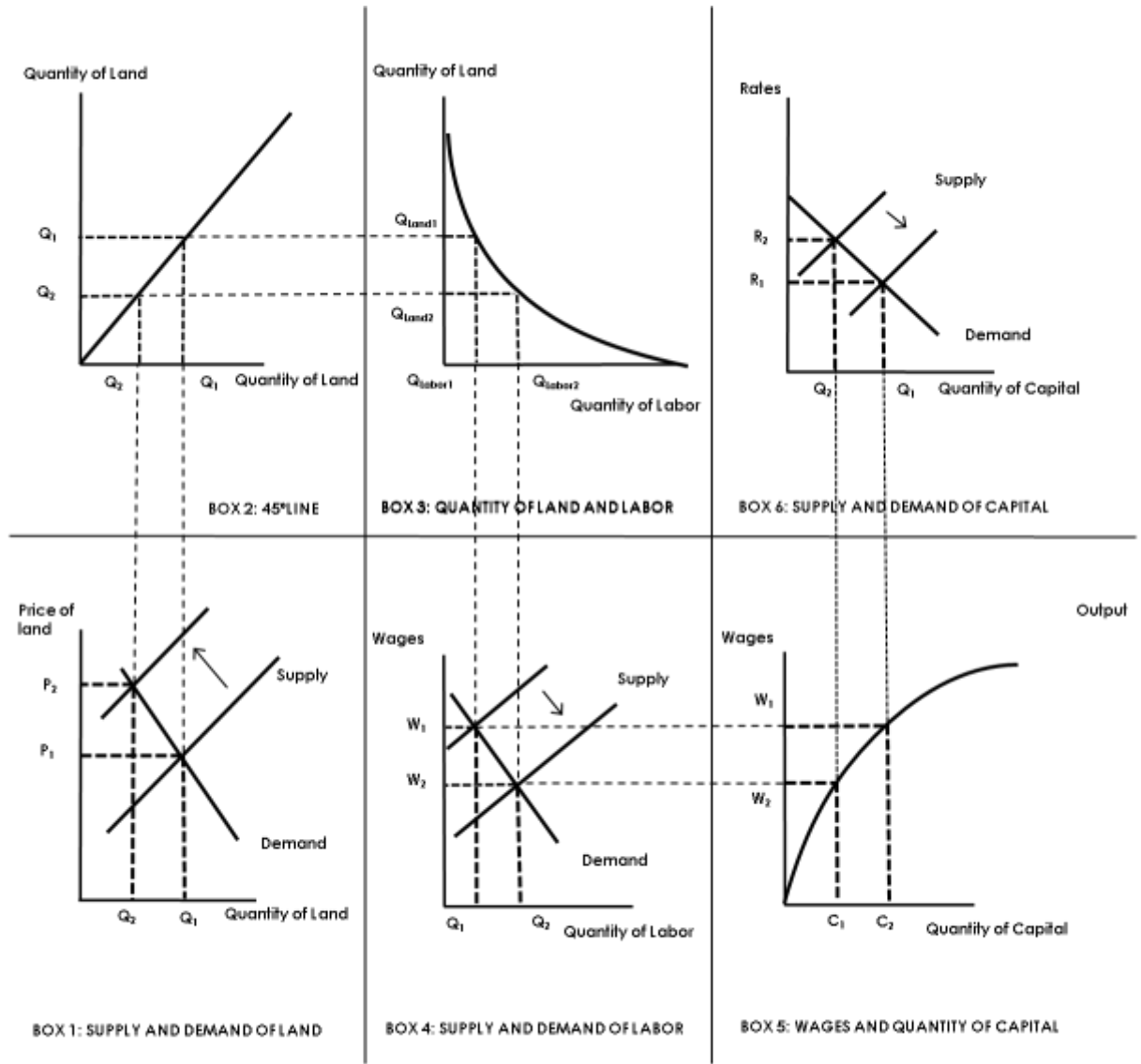


Figure 7: Graphical analysis of changes in "own who" laws on land, labor and capital

In sum, In other words, a restriction in who may own land reduces the quantity of land supplied, raises the price of land for owner, decreases the return on labor, but increases the return on capital.

This analysis may be repeated for each of the types of laws discussed above. A restriction on what land may be owned, similarly decreases supply, depicted in box 1, and the result is identical to the restrictions on who may own land.

A restriction on the uses to which land may be put decreases the demand for land. This is shown in box 1 of the figure below. The subsequent analysis, however, is identical to that of Figure 7.

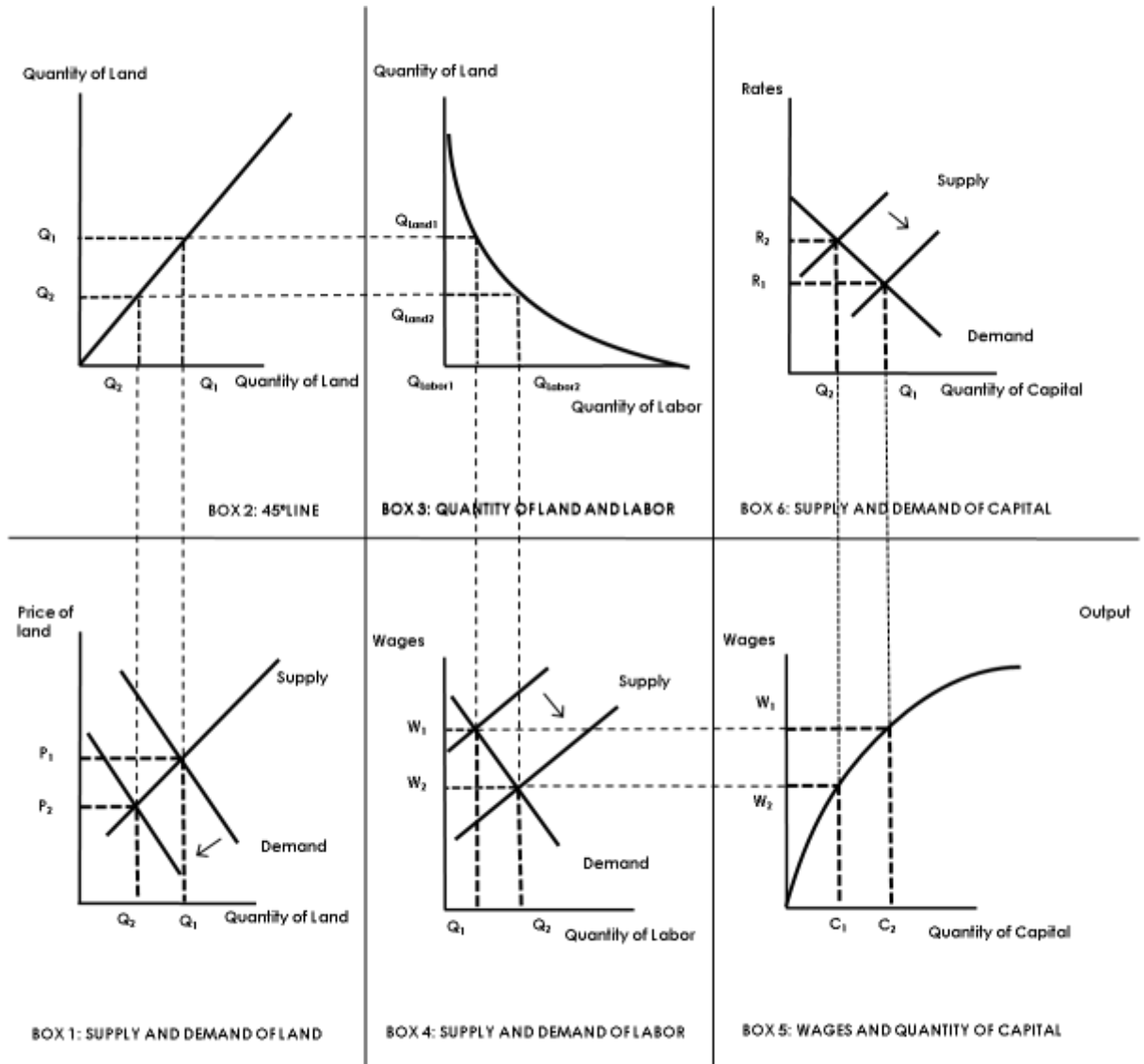


Figure 8: Graphical analysis of restrictions in land use on land, labor and capital

Restrictions in the sale of land reduce the supply of land in the market place as well as the demand. While the result is a decrease in the price of land, depicted in box 1 below, the subsequent results are indeterminate. The changes in the quantities of labor and capital are contingent upon the magnitude of the shifts in the supply and demand of land.

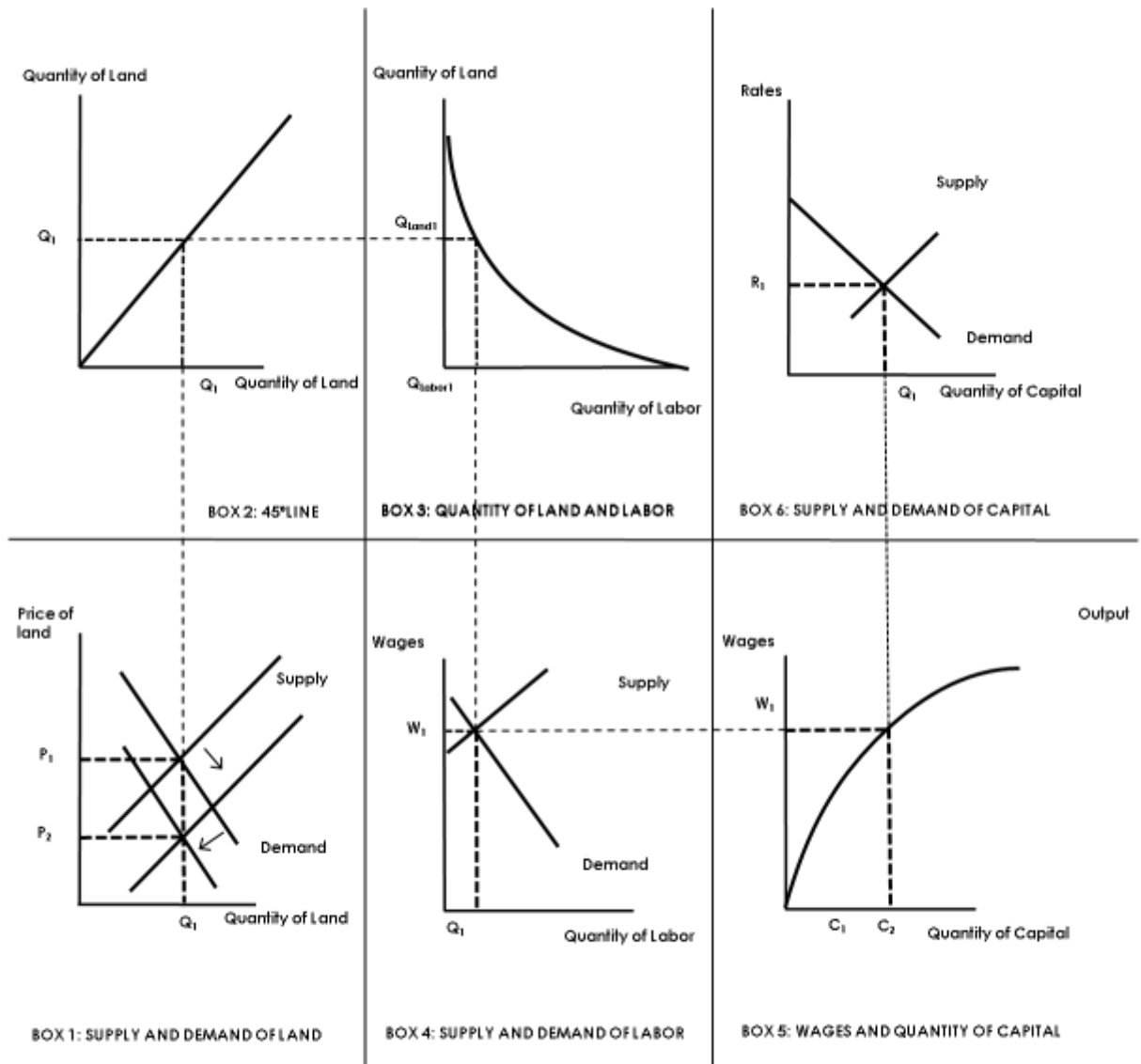


Figure 9: Graphical analysis of the restrictions in the transferability of land on land, labor and capital

If, as mentioned earlier, we assume that preferences over the laws of the different owners of the factors of production are determined by the returns they receive under changes in the law, we can articulate the preferences of these groups for the laws. For example, an increase in the price of land will benefit owners, and thus owners will favor laws which result in such increases. In the analysis above, the effects of all of the laws begin in the land market, and are traced to the other markets, thus we can summarize the impact on the owners of the different factors of production by how they are affected by a decrease or increase in the supply of land.

Table 4: Table depicting changes in supply and demand of land and the return on factors of production

	Price of land (rent)	Price of Labor (wages)	Price of Capital (rates)
Decrease in supply	Increase	Decrease	Increase
Decrease in demand	Decrease	Decrease	Increase

Changes in land laws

At this point we can assess the effect of changes in different types of laws on these outcomes. Restrictions on both *who* may own land and *what* may be owned can be seen as a restriction in quantity. In the graph, this is represented by a decrease in supply, in the model represented by a reduction in T . For owners of land, this increases the value of land, for owners of labor, this decreases the return on their labor and for owners of capital, this increases the rates of capital.

Restrictions on use decrease the demand for land. In the model, this is represented as a decrease in T , in the graphical analysis, this is represented by a

leftward shift in the demand curve. Consequently, use restrictions are predicted to harm the owners of land and labor, but benefit the owners of capital. Finally, restrictions on the transferability of land can be seen as a decrease in both the supply and demand of land. In the model, this is a restriction on $\ln T$, and in the graphical analysis, this is represented as a shift in both the supply and demand curves in the land market. For the owners of land, the benefits or losses are determined by the degree of the changes in each curve. However, laborers suffer wage loss, and owners of capital benefit. The chart below modifies the previous chart and summarizes the consequences of the laws for the owners of land, labor and capital.

Table 5: Table showing the results of property right restrictions and the return on factors of production

Type of law	Change in land market	Price of land (rent)	Price of Labor (wages)	Price of Capital (rates)
Ownership restriction	Decrease in supply	Increase	Decrease	Increase
Use restriction	Decrease in demand	Decrease	Decrease	Increase
Transferability restriction	Decrease in supply and demand	Undetermined	Decrease	Increase

The first part of this chapter has attempted to demonstrate how the owners of the factors of production have different interests in different types of property rights. The remainder of this chapter will show how these interests translate into policy outcomes. This leads to several hypotheses about the preferences of different groups for different types of laws:

H1: Owners of land will prefer ownership and eschew use restrictions

H2: Owners of labor will eschew all three types of property right restrictions

H3: Owner of capital will prefer restrictions in all three types of property rights.

This analysis offers a partial explanation to the original question, why do countries vary in the content of their property laws? The owners of land, labor and capital carry different preferences for these laws into the political process, and help to determine the types of property laws that are promulgated. However, which preferences predominate is not only a factor of group size and influence, but also a factor of the political institutions and the way that groups operate in them.

Institutions

Interest groups and property rights

Property rights have distributional consequences. Libecap states that “... any redefinition of decision-making authority over resource use brings about shifts in the distribution of wealth and political power. What can be expected, then, is that the attitudes toward institutional change taken by the individuals involved in the rights-allocation process will be decided by the net gains they anticipate from the restructuring plan.”⁶² Calabresi and Melamed outline the processes a state must undertake in the context of “entitlements.” Given that entitlements often involve conflicting interests over the same object, the state makes a decision as to whom the

⁶² Libecap, 146

entitlement will belong.⁶³ Given that these distributional consequences exist, scholars have argued that there is a relationship between property rights and political power.

Political institutions

Scholars have argued that the relationship between interest groups and legislatures is an important determinant in property rights legislation. Mattei suggests that much of the structure of property law in civil law countries is facially similar. Code structures are the same and provisions tend to have similar effects. What is different across these countries is what Mattei terms “special legislation”, legislation passed to supplement the code that represents that capture of the legislators by a particular interest group. This suggests that the way in which different interests translated into legislative output is a factor in understanding the way in which these laws arise in different institutional contexts.

Riker and Sened also postulate about the role interest groups in the context of property rights. They suggest that one of the four conditions for the emergence of property rights is that the grantor of the right receives a gain in terms of tax income and gratitude from the grantees. The gratitude received from the grantees can be in the form of legislative support. In terms of the analysis above, the determination of

⁶³ This article does not specifically address property rights. Rather Calabresi and Malemed present a framework for analyzing the choice to protect entitlements, arguing that society protects entitlements through one of three rules. Property rules involve an initial entitlement and the ability to alienate the entitlement. Liability rules involve an initial entitlement and the ability to destroy the initial entitlement for a objectively determined price. Inalienability rules involve an initial entitlement and a prohibition on transfers of that entitlement). The choice between these rules is determined by efficiency, distributional and other justice considerations.

which laws are enacted is made according to who benefits from the market inefficiency, and whether the group that benefits is able to influence the government to enact the laws favorable to it.

An example of this postulate can be found in the history of the land laws of England and France. Rosenthal contrasts property rights reform in England and pre-revolutionary France. He argues that while both countries were confronted with similar problems, (in England reformers sought to enclose open fields and assign property rights, while in France, reformers sought to assign property rights over common land), in England the reforms were successful, while in France they were not. In England, large landowners uniformly benefited from potential enclosures (provided the reforms were enacted in certain ways), and used the Parliament to enact reforms and resist change.

Contrarily in France, not all landowners benefited. Furthermore, in France, the judiciary was available as a means to resist efforts at reform. In both cases, it was the structure of interests, and the means by which they were able to exert pressure which resulted in changes (or no changes) to the land law. In the context of Sub-Saharan Africa, Bates also argued that the complex and at times contradictory agricultural policies of countries in sub-Saharan Africa can be explained by the relationships between the government and the interest groups which were benefiting from the various policies. Other scholars have also emphasized the relationship between political power and property rights .

Institutional design plays a role in determining the nature of this relationship between interest groups, politicians and the policies and legislation produced. In different political systems, legislators face different political constraints, which may have an impact on the laws they write to grant certain benefits. Institutional design affects legislation in several ways. Given this foundational element of institutional design, this analysis will focus on how institutional design affects the content of property laws.

Presidential and Parliamentary Systems

The posited normative consequences of presidential and parliamentary systems have long been the subject of debate among comparative politics scholars. More recently, scholars have begun to assess the policy and economic consequences of presidential and parliamentary systems. While only one piece of this literature tangentially addresses property rights, the findings of this literature still bear directly on the theory of how constitutional design can affect the content of property law.

Presidential systems are those in which voters elect the president of the state separately from the legislature. Presidential systems are characterized by separation of power, less party discipline, stronger judicial oversight, more bureaucratic power. Unitary governments, strong party discipline, coalitions, and less judicial oversight and bureaucratic power characterize parliamentary systems. Specifically, how do these differences translate into economic policy, or differences in property right systems? Few have addressed the latter question, but several have addressed the former question.

There are two mechanisms through which presidential and parliamentary institutions may influence the number or degree of property law restrictions: through the provision of public policy goods or through the access they provide to interest groups. These two mechanisms lead to opposite hypotheses.

Presidential and Parliamentary Systems: Public Policy Provision

These systems can produce different types of policy. Cox and McCubbins (2001) argue presidential systems produce policies that are directed at private rather than public gain. In “The Institutional Determinants of Economic Policy Outcomes”, Cox and McCubbins (2001) the authors conclude that the greater the number of effective vetoes, the more private regarding the policy.⁶⁴ In determining the public or private nature of the policy, the authors examine the amount of pork attached to legislation. They argue that the electoral system (candidate-centered elections) and campaign finance affect the demand for pork. The constitutional separation of powers and the decentralization of the legislature (committees) affect the ability of legislators to supply pork.

An extension of this theory is that of Shugart and Haggard (2001). They argue that additional structural features of the presidency can influence the policy making process. The more veto powers a president has (*reactive powers* in their terminology), the more difficult it will be to change policy (policy will be more *resolute*). Contrarily the more decree authority a president has (*proactive powers* in their terminology), the less of a credible commitment there will be to policies (policy

⁶⁴ Cox and McCubbins, 28

will be more decisive). Extending this argument, Weymouth (2011) argues that the more veto players in a system, the better the property rights. Here, Weymouth defines property rights as rights in the value of domestic currency, and argues that the presence of veto players inhibit the ability of the country to enact policies which decline the value of the currency. In his analysis, he measures veto players in such a way as to account for electoral rules, party discipline, party affiliations and electoral competitiveness.⁶⁵

Other scholars have argued that parliamentary systems generally are related to good governance, and higher levels of growth. Persson (2005) demonstrates that parliamentary systems tend to be associated with long-run economic growth. Gerring, Thacker and Moreno (2009) found that parliamentary systems are associated with measures of economic development and good governance. Contrarily, Lijphart (1999) found a negative but statistically insignificant relationship between consensus democracy and economic growth.⁶⁶ If property rights are indeed associated with higher levels of growth, as much of the economic literature suggests, then this suggests a correlation between parliamentary systems and property rights.

Presidential and Parliamentary Systems: Interest Groups

An alternative mechanism through which these institutions may be significant is the manner in which they shape interest groups. As Vlaicu observes “the distribution of power among institutions with decision-making authority determines

⁶⁵ Weymouth, 219-220.

⁶⁶ He did find some relationships between consensus democracies and lower inflation and lower unemployment, but the differences between consensus and majoritarian democracies in this regard were slight.

the targets of interest group influence-seeking activities as well as the success of their strategies.”⁶⁷ In parliamentary systems, although parties can form around specific interests and these interests can then participate in the government through coalitions, the opportunity to have specific interests dominate the political process is lessened by the need for compromise and building coalitions. For example, Lijpart argues that consensus democracy is more conducive to interest group compromise than the Westminster model. A more recent study by Vlaicu concurs with this analysis. Vlaicu compared the role of pressure groups in the UK and the US and found that pressure groups have less influence in the UK due to the concentration of agenda-setting powers and stronger party cohesion. Bennedsen and Feldman arrive at a similar conclusion, but through a different mechanism. They find that the vote of confidence procedure found in parliamentary systems reduces lobbying by interest groups. Using a formal model, they show that where the time horizon is long, the vote of confidence procedure reduces the incentives interest groups to lobby because it induces party discipline and the willingness of the agenda setter to alter the winning coalitions.

In presidential systems, political parties by necessity must have broader bases in order to win. However, interest groups still have the opportunity to influence the legislative process through lobbying. Because party discipline in presidential systems is not as strong, there is more of an incentive for legislators to heed the lobbying of different groups. Furthermore, in presidential systems there are more access points

⁶⁷ Vlaicu, 3

to the legislative process, more means by which to influence the process. As Gerrng et. al. states, “A separate powers system is generally thought to encourage the formation of a highly fragmented, non-party aligned (“independent”) interest group community.⁶⁸” For example, the authors show that lobby groups/interest groups are more active in the United States, in comparison with a European style parliament because majority coalitions can transcend party lines.

In short, if presidential systems create more opportunities for interest group influence, then we might expect to find greater restrictions in presidential systems. Similarly, if parliamentary systems are less prone to interest group influence, then we might expect to find fewer restrictions.

***H4:** Presidential systems will have more restrictions on property rights than parliamentary systems*

Conclusion

In this chapter, I have developed a theory about the relationship between the content of property rights, economic outcomes and politics. The first part of the chapter demonstrated the differing distributional consequences of different property rights on the owners of land, labor and capital. Owner of land benefit from restrictions in ownership. Owners of labor do not benefit from any land law restrictions, and the owners of capital benefit from all three types of restrictions. The second part of the chapter demonstrated that different political institutions can lead to different policy outcomes depending on how the institution allows interest groups

⁶⁸Felman 1999, Page 6

to capture the policy making instruments. This fact is further tempered by the legal family from to which a country belongs.

In short, the potential gain from different types of laws determines group preferences. The influence of these groups is in part determined by institutional design. These combination of factors, along with the legal family of a country helps to determine the content of property rights legislation. The next chapter demonstrates how property laws influence economic outcomes. The hypotheses derived from the next chapter, as well as from this chapter will be tested in chapter 6.

Chapter 4: A Theory of the Components of Property Rights and Growth

This chapter presents a theory of how different types of property laws affect economic outcomes. The first part of this chapter shows how different laws affect economic outcomes in the short run. The second part of the chapters shows how different laws affect long-run growth outcomes.

Short Run Economic Changes and Property Laws.

The preceding chapter used a graphical analysis to show how changes in property laws create different incentives for economic groups. In demonstrating this it showed how changes in laws alter the supply and demand of land, and have spillover effects into other markets. This general model will be extended here to show the ultimate effects that changes in land laws have on production.

Recall that if the supply of land decreases, the following analysis captures the results for labor and capital:

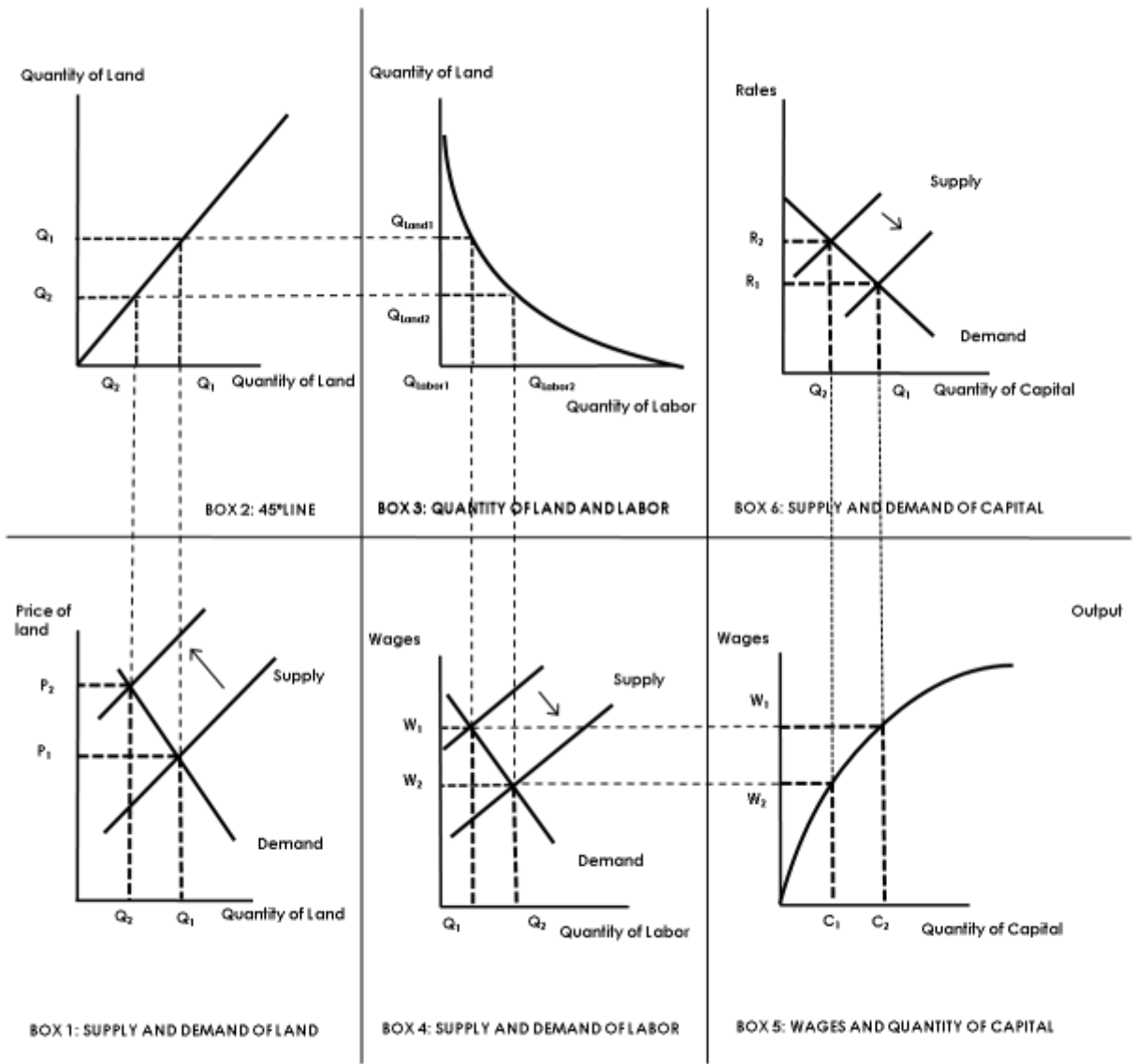


Figure 10: Graphical analysis of changes in law on land, labor and capital

Returns on capital (or investment and savings) are negatively related investment.

That is, at high rates of interest, individuals borrow less money, and with less money, make fewer investments. At lower rates of interests, individuals borrow more money.

If rates of the return on capital decrease, investment will increase. Given the following equation,

$$Y - C(Y - T) - G = I^{69}$$

where Y is national output or income, T is taxes, C is consumption, G is government spending, and I is investment, we can see that investment is directly related to output. Therefore, if investment increases, output increases. This is presented graphically below.

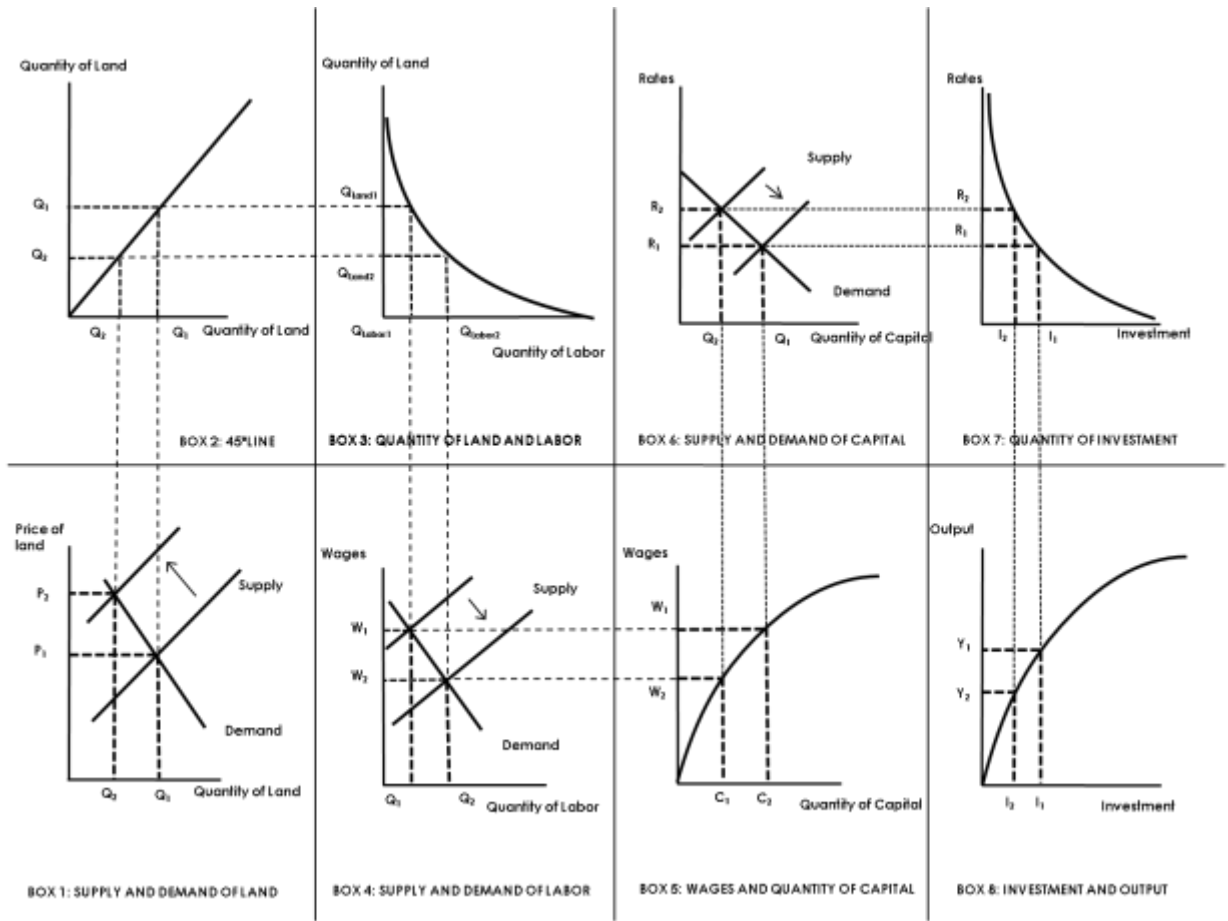


Figure 11: Graphical analysis of the effect of changes in law on output

A decrease in the supply of land ultimately lowers output. Conversely, an increase in the supply of land ultimately raises output. The full implications of this are related in the chart below:

⁶⁹ Mankiw 2000, 60

Table 6: Summary of expected changes in law and effects on land, labor and capital

Type of law	Change in land market	Price of land (rent)	Price of Labor (wages)	Price of Capital (rates)	Output
Ownership restriction	Decrease in supply	Increase	Decrease	Increase	Decrease
Use restriction	Decrease in demand	Decrease	Decrease	Increase	Decrease
Transferability restriction	Decrease in supply and demand	Undetermined	Decrease	Increase	Decrease

In short, all such restrictions should lower output. However, the way that these restrictions do so has different implications for different economically organized interest groups.

Long Run Economic outcomes and Property Laws

The Production Function

The production function is used to model how the elements in an economy relate to output. In its general form, the production function is written as

$$Y = f(K, L)$$

An often-used production function is the Cobb-Douglas production function, expressed as

$$Y = F(K, L) = AK^\alpha L^\beta$$

where K represents capital, L represents the quantity of effective labor, α represents the contribution of capital to output and the quantity $(1-\alpha)$ represents the contribution of effective labor to output. Further, $\alpha > 0$ and $\alpha < 1$.

Modifying this production function can give insight into the manner in which the content of laws affect output.

$$Y = AK^{\alpha}T^{\rho}L^{\beta}$$

where T represents the quantity of land, and ρ represents the contribution of land to output.

The Effect of land laws

The first part of the economic analysis examines the relationship between the content of laws and growth rates, using the Solow growth model. This analysis is derived from Romer . He begins with the Cobb-Douglas Production function, modified to include a variable for land.

$$Y = K^{\alpha}T^{\rho}[AL]^{\beta} \quad \text{(Equation 9)}$$

where K represents capital, T represents the quantity of land, AL represents the quantity of effective labor, α represents the contribution of capital to output, ρ represents the contribution of land to output and the quantity $(1-\alpha-\rho)$ represents the contribution of effective labor to output. Further, $\alpha > 0$, $\rho > 0$ and $\alpha + \rho < 1$.

In addition, capital and the effectiveness of labor behave according to the following equations.

$$\dot{K} = s\dot{Y} - \delta K$$

meaning that the growth rate of capital, \dot{K} , is the difference between the amount of money invested (the rate of savings times the growth in output $s\dot{Y}$) less the depreciation of the previous state of capital, δK .

Further, the growth rate in technology is given by

$$\dot{A} = gA$$

where g is exogenous.

Similarly, the growth in the quantity of labor is given by

$$\dot{L} = nL$$

where n is exogenous.

Finally, Romer suggests that because the quantity of land is fixed, implying that

$$\dot{T} = 0$$

By taking the log of both sides, the equation becomes

$$\ln Y(t) = \alpha \ln K(t) + p \ln T + (1 - \alpha - \rho) (\ln A + \ln L)$$

By taking the derivative with respect to time

$$g_y = \alpha g_K + p g_T + (1 - \alpha - \rho)(g_A + g_L)$$

Simplifying the equations based on equation 7 above

$$g_y = \alpha g_K + (1 - \alpha - \rho)(g + n)$$

If the economy is on a balanced growth path, it may be assumed that

$$g_y = g_K$$

Therefore,

$$g_y = \alpha g_Y + (1 - \alpha - \rho)(n + g)$$

The equation becomes:

$$g_Y = \frac{(1-\alpha-p)(n+g)}{1-\alpha}$$

Finally, growth per worker is found by subtracting growth in labor (on the balanced path) from growth in output (on the balanced path):

$$g_y - g_L$$

$$g_Y = \frac{(1-\alpha-p)(n+g)}{1-\alpha} - n$$

or

$$g_Y = \frac{(1-\alpha-p)g-pn}{1-\alpha} \quad (\text{Equation 10})$$

Using this model as a basis for analysis, one can derive the estimated effects of different types of property rights on rates of growth (or growth rates per worker). For example, consider that ownership laws which restrict the content of what may be owned, will affect T . This may be represented as a variable c below.

$$Y = K^\alpha c T^\rho [AL]^{1-\alpha-\rho} \quad (\text{Equation 11})$$

where $c < 1$.

Following the Romer analysis above, it can be seen that the result is identical to equation 14.

$$g_Y = \frac{(1-\alpha-p)g-pn}{1-\alpha}$$

Restricting the content of ownership will not have an impact on growth rates.

Similarly, logically it may be seen that restricting who may own land will not have an impact on growth rates because who may own land does change over time. This results in the first hypothesis:

H6: Restrictions on ownership will not affect rates of growth.

Use laws act not directly on land, but rather on lands contribution to output, ρ . This can be represented in the following manner with the symbol u .

$$Y = K^\alpha T^{u\rho} [AL]^{1-\alpha-\rho} \quad (\text{Equation 12})$$

This ultimately reduces to:

$$g_Y = \frac{p(g_R) + (1-\alpha-up)(n+g)}{1-\alpha}$$

or

$$g_Y = \frac{(1-\alpha-up)g-upn}{1-\alpha} \quad (\text{Equation 13})$$

The effect of use restrictions on growth depends upon land's contribution to output in a given country. If the contribution is high, and the restrictions are high, the drag on growth will be high (assuming technological progress is not sufficient to

overcome it). If the contribution of land to output is low, the laws will have less of an impact. These conclusions can be represented by the following hypothesis:

H7: Where the contribution of land to output is high, use laws will have a greater negative impact on growth rates than if the contribution is low.

Transfer laws Transfer rights, P, act as an independent element in the Solow model, in that the ability to transfer land from less productive forms to more productive forms creates economic benefits (much like technology in the model).

This is modeled as

$$Y = K^{\alpha} T^{\rho} S^w [AL]^{1-\alpha-\rho-s} \quad (\text{Equation 14})$$

where S represents the restrictiveness of transfer laws, w represents the contribution of these laws to output. And S does not change over time.

$$\dot{S} = 0$$

This can be reduced to

$$g_Y = \frac{(1-\alpha-p-s)(n+g)}{1-\alpha}$$

or

$$g_Y = \frac{(1-\alpha-p-s)g - (\rho+s)n}{1-\alpha} \quad (\text{Equation 15})$$

Assuming this particular form of the Solow model with constant elasticity, restrictions on transfer have a negative impact on growth independent of other factors. The impacts will be negative and greater where T (land) is larger.

H8: Restrictive transfer laws lower growth rates

In short, a modification of the Romer model predicts that ownership, use and transfer laws have different impacts on long-run growth. This model explains how different types of laws impact growth in the long run, which was the object of analysis in the majority of the marco-economic studies.

Conclusion

This chapter and its preceding chapter have presented a theory of how different property laws affect economic outcomes. Given that property rights have distributional outcomes, different rights have different effects on the owners of land, labor and capital. In parliamentary systems, which are more reflective of the majority of the populace, we might see fewer restrictions overall and consequently less short run and long term economic consequences. Conversely, in presidential systems, we might see more restrictions, and consequently, more negative economic effects in the short run and long run.

Chapter 5: The Measurement of Property Rights

This chapter will present data on the content of property law in different legal systems. Specifically, this chapter presents a method for comparing property law, a conceptual analysis of property law and data on the content of property law in different countries. The chapter begins with a presentation of a method of analysis of comparative property law.

It has frequently been lamented by scholars in comparative law that it is a field without (an agreed upon) methodology. The comparison of codified law must answer several implied methodological questions arising from ontological perspectives of both comparative politics and comparative law. The answers to these questions will determine the basis on which to compare countries, and therefore the method of selecting countries for comparison. For the present purposes, none of the current methods of comparative law are suitable for this the of analysis undertaken in this research, and offer an alternative method for comparison which satisfies both the ontological and methodological needs of both disciplines. Therefore, this section is divided into four sub-sections. The first section contains a

discussion of the nature of comparative law, and the major approaches within it. Second, this discussion will be followed by an explanation of how the methodology of comparative law scholars does not address the needs of a cross-national comparison of institutions. Third, this a discussion of the proposed method of selection will occur. Fourth, an explanation of how the variables were coded will be presented. The discussion begins with an overview of the four primary method of comparative law: functionalism, hermeneutic comparison, law and economics and critical legal studies. As Brand (2007) provides a good overview of the methodologies, this section relies on his synopses.

Comparative Law

There is general agreement that functionalism is the dominant method of comparative law. While there is divergence among scholars writing chronologies of comparative law as to its fountainhead (some scholars name the father of comparative law as Montesquieu, while other scholars place the beginnings of comparative law in more contemporaneous terms), there is wide agreement on the basics of functionalism. Brand (2007) describes that functionalism rests upon several assumptions. First, the functionalist assumes laws are attempts by a country to solve a problem. Second, the functionalist assumes that legal systems face similar problems. Third, the functionalist assumes that legal systems resolve these problems differently (and this is thus an explanation for cross-national differences in law). Fourth and finally, the functionalist assumes that while countries resolve problems

differently, the resolutions are generally the same. Consequently, the functionalist is focused not on the content of law, but the effect of law. A primary concern of the functionalist is neutrality, and a fear of applying a domestic lens to foreign laws. The methodology of the functionalist is to compare the laws of given countries as they solve a particular societal problem.

An alternative approach is Legrand's method of comparing cultures. This method advanced in the late 1990's, views laws as embedded within and inextricable from a cultural context. Laws are expressions of this context and the values and norms that the laws represent are not always translatable. The object of comparison is to understand cultural significance and how others operate within the culture. As one scholar expressed, hermeneutic comparison is "a search for the cultural, moral and linguistic relativism of law."⁷⁰

A somewhat related approach is that of the critical legal studies. According to Brand (2007), there are several steps to the comparative legal methodology. First, one must understand the results of removing a problem or set of facts from the social to the legal context. Second, one must then analyze the structure and the process of legal decision-making (i.e., the political dimension). Finally, one analyzes what aspects of the social-cultural dimension (from the first step) were lost by placing the problem in a legal context. The result of this process is an understanding (and comparison) of the political and power distribution effects of law.

⁷⁰ Brand 2007, p 429

At the other end of the spectrum, one could place the law and economic approach. Brand (2007) also describes three steps in the methodology. The first is to hypothesize about an efficient legal system. The next step is to compare existing legal the existing legal rules to the hypothesized efficient system. Finally, the ultimate step is to outline policy changes that would lead toward the more efficient set of rules.

A last method of comparative law is called “concepts comparisons”, created by Brand (2007). This method advocates comparison of legal concepts. The first step in this analysis is creation of the concept. The second step is to compare the concept across legal systems, and the final step is to explain the similarities and differences, taking into account historical, political and functional analysis.

Table 7: A synopsis of comparative law methodologies⁷¹

	Functionalism	Law & Economics	Culture Comparison	Concepts Comparisons	Critical Legal Studies
Unit of comparison	A legal problem	Substantive law	Meaning of a rule	A legal concept	Structure (especially political) of a legal framework
Basis of comparison (judgment)	Function of the law in solving the problem	Efficiency	Societal cultures and structures*	Operation of concepts	Political dimensions of law/ distribution of power
Concerns or normative values and beliefs	Neutrality and avoiding viewing foreign law through the lens of domestic laws	Neutrality, methodology	Cultural relativism	Analytic rigor, coherent methodology	Using comparisons as a critique of law
Purpose of comparison	Unification of law/conflict of law problems**	To find the most efficient type of law, to explain legal transplants	To discover differences between laws of countries and explain the cultural and societal structures of the texts	To discover how different concepts complement or conflict with each other	To highlight political agendas and distributions of power

For the purposes of this research, none of the above methods are suitable.

The linchpin of my theory is that countries differ in the amount and type of restrictions they place on property (land) rights, and that it is this variation that explains the different observed economic growth trajectories. Therefore, testing this

⁷¹ This chart is derived largely from Brand (2007)

theory requires an analysis of the content of property laws in different countries, and specifically observing the degree to which the content of those laws is in fact different. In addition, it requires an analysis of the content of laws in order to observe the degree to which different types of restrictive laws induce different types of economic behavior.

Functionalism, therefore, is inappropriate because the unit of comparison is a legal problem, rather than the law itself. Furthermore, the assumption of the functionalist, that countries resolve legal problems in similar ways, is the very concept that this dissertation is testing. While law and economics begins with the law as the basic unit of analysis, the basis for judgment is efficiency. Determining which legal rule are the most efficient is not the object of inquiry. In addition, while the second part of this analysis is understanding the effect of political institutions on law, hermeneutic comparison and critical legal studies seem to conflate the law and the political or societal institutions. The overarching problem with most of these methods (with the exception of law and economics) is that their concerns, normative values or purpose can cloud the purpose of the study. Consequently, the methods are unsuitable for any inquiry outside of those with the same normative approach or purpose.

Rather than adopting one of the tradition methods of comparative law, this chapter offers an alternative derived from the concepts comparison and the law and economics perspective. Because this dissertation defines property rights from a positivist perspective, that is relying on rights as how states define them in their laws,

like the law and economics approach, it will use substantive law. From the basis of the laws basis of the laws of the various countries, I developed a “concept” for various types of laws. That is, following the concept comparison method, I first surveyed the laws and then used the law to develop a construct of a specific type of right. I then used this construct as a means of evaluating the substantive law. Finally, returning to the law and economics approach, I analyze the law in terms of a desired economic outcome. The specific development of my law variables are explained below.

Methods

Sampling

The countries in the data set were limited to states.⁷² The selected legal taxonomy is based on *JuriGlobe*, the University of Ottawa’s classification of legal systems.⁷³ Based on its legal system, a country is assigned to one of the following five categories: common law, civil law, customary law, Islamic law, and mixed. Countries can have a mix of two or all four types of laws.⁷⁴ It should also be noted that there is only one country, Andorra, with a purely customary system of law. In addition, only three countries, Afghanistan, Maldives and Saudi Arabia were classified as having

⁷² My operational definition of statehood was a sovereign territory; a country for which no other country could claim ownership.

⁷³ One of the objectives of *JuriGlobe* is to provide free information on legal systems and classifications via the internet. The project is based on consultation with a substantial number of well-known monographs in comparative law, expertise of various scholars and feedback from users of the site.

⁷⁴ An exception is made for Israel, which is classified as a mixture of Civil, Common, Jewish and Muslim law.

purely Islamic systems of law. Accordingly, in the *JuriGlobe* classification, all countries fall into one of the following 15 categories.

While ideally future work could consist of a database for all states, for the present, a sample of countries is used. The sample size was 68 countries. The selection of countries was intended to insure that the sample had the greatest possible variation in the explanatory variable, content of laws. I wanted to capture as much as possible from those categories with mixed legal systems, since the mixes are likely to yield very different types of legal systems depending on the strength of the traditions represented and their various influences on property law. The sampling distribution is presented in the table below.

Table 8: Types of legal system in the data sample

Legal Type	Population	Percentage of Population	Sample	Percentage of Sample
Common Law	22	.11	10	.15
Civil Law	77	.40	28	.41
Custom	1	.00	0	0
Muslim	3	.02	1	.01
Civil/Common	12	.06	4	.06
Civil/Custom	25	.13	3	.04
Custom/Common	15	.08	11	.16
Civil/Muslim	11	.06	1	.01
Common/Muslim	4	.02	1	.01
Civil/Custom/Common	5	.03	3	.04
Civil/Custom/Muslim	7	.04	2	.03
Common/Custom/Muslim	6	.03	2	.03
Civil/Common/Jewish/Muslim	1	.00	1	.01
Common/Civil/Muslim/Custom	4	.02	1	.01
Muslim/Custom	1	.00	0	0
Total	194		68	

Creation of the law variables

Within the content of the law itself, I focused on legal statutes and provisions that pertained to the categories of ownership, use, transferability, mortgage and registration. Based on a pilot study conducted earlier, I developed a coding sheet, which asked specific questions about the content of the laws. The procedure was to gather and read the relevant laws for each country. Then using the coding sheet, I answered questions about the laws. I then converted the answers to the questions into an excel spreadsheet. As most of the questions were designed to have “yes” or “no” responses, the spreadsheet contained binary data. After entering the coding sheets into the excel spreadsheet, I further converted the data in the manner described below.

The Ownership Variable

Ownership, in the quotidian language as well as in the argot of most legal scholarship, conveys absolute dominion and control over an object. To own something is to exert physical control over all aspects of the object, its use, its disposition.⁷⁵ This concept of ownership is presented in legal codes around the world. For example, the Land Code of Lithuania states “Ownership of land means the owner’s right to hold, use and dispose of the land possessed by him.”⁷⁶ It is most notably represented in the codes of civil law countries. For example, in Greek law a real right is defined as “a right securing over a thing a direct (immediate) power that

⁷⁵ It is interesting to note that control derives from the Latin *contra* meaning “against”. Control over things is exercised against the world.

⁷⁶ Article 3

can be invoked against all persons.”⁷⁷ The quintessential and oft quoted example of an absolute concept of ownership presented in a law is found in the French Civil Code. “Property is the right of enjoying and disposing of things in the most absolute manner, provided they are not used in a way prohibited by the laws or statutes.”⁷⁸ The image that this concept conveys with regard to land ownership is one of an avarian solitary figure, living in a habitation that is surrounded by endless tracts of land, rolling hills and sylvan scenery. In such a setting, a person can indeed exercise control over his possessions. He can physically manipulate, use, dispose of and destroy any thing he possesses. Yet, when the image is supplemented by even one more figure, living nearby, the concept of ownership is untenable. The two figures cannot exercise such control over their possessions. The first figure’s desire to mark the onset of autumn with a celebratory conflagration of his endless tracts of land, may produce a significant amount of smoke, and interfere with the second figure’s desire to use his land as an apiary.

The concept of ownership expressed by the laws reflects the reality more than the idyllic image. My theory, as described earlier, aims at addressing the realistic relationship between property law, political institutions and economic outcomes

⁷⁷ Karibali-Tsptsiou 2012, p 59

⁷⁸ French Civil Code, Article 544 (http://www.napoleon-series.org/research/government/c_code.html)

Data Questions

Ownership variable

Ownership is about power (over a thing). At the same time, laws about ownership are about *access* to that power. Thus, this data set asks the following questions about laws on ownership.

No Ownership and Restrictions on Amount

- a. Does the law expressly state that all land is owned by the State, and if yes, can citizens own immovables on the land?
- b. Does the law restrict the amount of land that can be owned by an individual?

These questions address questions of *what* may be owned.

Of the 68 countries in the data set, 11 had prohibitions on land ownership: China, Eritrea, Kiribati, North Korea, Lao, Lesotho, Tanzania, Tonga, Vanuatu, Vietnam and Zambia. Within the confines of this seemingly simplistic question there were remarkable differences between these countries in how they expressed the prohibition on ownership. China's revolutionary new land law, mimics these concept of ownership in common law countries in that the State (or the Crown in common wealth countries) claims ownership of most of the land occupied by individuals. Individuals can, however, own rights to use and occupy land. Further, they can sell and mortgage these rights. Similarly, in Eritrea, article 3.1 of *Land Proclamation 58/1994* states that "In Eritrea, land is owned by the State." Individuals may possess usufruct rights over land, granted by the government.

In states such as North Korea, Lao, Tanzania and Vietnam, the prohibition on land ownership is expressed in the form of statements about land being vested in the entire community. For example, the Democratic People's Republic of Korea the land belongs to the State and to cooperative organizations. "All land in the country is the commons property of the people', and cannot be sold, bought or appropriated."⁷⁹ In a somewhat different fashion, Lesotho, Vanuatu and Zambia prohibit the concept of Western-style ownership in favour of customary law (although in some cases individual ownership is permitted under customary law). Finally, the island nation of Tonga retains a feudal structure to property. All land is owned by the King, the king distributes land to individuals of a certain class, who then distribute land to others. Simple correlation analysis shows that there is almost no correlation between a prohibition on ownership and growth. For this sample, the correlation is .0613. Countries within this category also vary in whether or not they give land away to be used, or require those using land to pay for the use of land. For example, Lao and Zambia citizens lease land from the state. Similarly, in Eritrea there are three types of land tenure outside of state owned land: agricultural usufruct, *tiesa* (roughly, a residential property) and leasehold. On agricultural usufruct, a tax is to be paid, and leasehold is subject to an annual rent.⁸⁰ In addition, countries vary in whether or not the state grants land for use on a long term or short term basis. For example, in Lao,

⁷⁹ Article 9

⁸⁰ Legal Notice 13/1997, article 4

citizens may lease land from the State for a maximum of 30 years.⁸¹ In Eritrea, leaseholds are granted for 10 to 50 years depending on the use and other factors.⁸²

Amount

Fourteen countries in the sample restricted the amount of land that may be owned (or used if the country has a no ownership policy): Bhutan, Egypt, Eritrea, Indonesia, North Korea, Lao, Mongolia, Nepal, Philippines, Sri Lanka, Tanzania, Thailand, and Tonga. Some countries restrict the amount of some types of land that may be owned rather than all. For example, Denmark had very specific restrictions on persons acquiring agricultural land in excess of 30 hectares. Such individuals could only be EU members, and could not have owned other agricultural land in any other EU state (including Denmark). In addition, he must reside on and farm the land within six months of purchase and possess the requisite agricultural training.⁸³

The laws of three countries restricted land without specifying how much land may be owned. Several countries restrict the amount of land that could be owned/used on the basis of the type of intended use. For example, in Lao, individuals or families can obtain anywhere from 1 to 15 hectares depending on whether or not they intend to cultivate rice, grow industrial crops, plant fruit trees, or graze livestock.⁸⁴ Similarly, in the Philippines the determining factors for the quantity of land are soil fertility, the terrain of the land, the type of crop intended to be grown,

⁸¹ Article 13, Land Law

⁸² Articles 2-3

⁸³ Property in Europe, 73. While these restrictions may in effect restrict the amount of agricultural land held, it is not a strict prohibition on the ownership or use of an excess amount of land as found in other countries. Therefore, I did not code this as a restriction on amount.

⁸⁴ Article 17, Land Law

and the infrastructure.⁸⁵ Sri Lanka and Mongolia, also have restrictions depending on the use made of the land. Nepal specifies a maximum amount based upon the location of the land.⁸⁶

The laws of Bhutan specify both a minimum and maximum land holding units.⁸⁷ Both the laws of Indonesia and Tanzania discuss restrictions on amount without specifying the limit. For example, Law number 5 of 1960 of Indonesia states “In order not to harm the public interest, excessive ownership and control of land are not permitted.”⁸⁸ Similarly, the Land Act of Tanzania states “21. (1) The Minister shall make regulations prescribed under section 179 of this Act providing for an area of land of occupancy or derivative right or in any way otherwise disposed of to any person or body corporate. (2) The regulations made under the provision of section 179 and subsection (1) of this section shall provide for consultation in determining land ceilings under this Section.” In addition, two provisions in the Legal Notice No.31/1997 of Eritrea state “To prevent allocation of land to holders with sole aim of holding land idle, the size of land to be allocated shall be proportionate to the planned aim.”⁸⁹ Further, “Land to be allocated for every right holder shall, to the extent possible, have standard size through out the nation.”⁹⁰

⁸⁵ “Philippines”, in *International Encyclopedia of Laws: Property and Trust*, page 123

⁸⁶ Land Law, article 7(1)

⁸⁷ Land Law, Ka 5.5 and Ka 5.6

⁸⁸ Article 7

⁸⁹ Article 6

⁹⁰ Article 9

In Tonga, the Land Law, article 7 does not specify any usage but according to Farran 2013, the purpose was to permit the allocation of sufficient amounts of residential and farm land to all male citizens.

Restrictions by immutable characteristics (gender and ethnicity)

The next set of questions was aimed at ascertaining whether or not land ownership or usage was contingent upon some immutable characteristic of the person seeking land.

- c. Does the law restrict ownership by gender?
- d. Does the law restrict ownership by ethnicity?

Only a small number of countries restricted ownership by ethnicity or gender, and most were Pacific Island nations. The laws of Vanuatu restricted ownership by ethnicity. Both the constitution and the land laws distinguish between indigenous citizens and non-indigenous citizens, restricting land ownership to the former. Similarly, in the Solomon Islands, lands are restricted to Solomon Islanders, and Solomon Islanders means “... means a person born in Solomon Islands who has two grand-parents who were members of a group, tribe or line indigenous to Solomon Islands;”⁹¹ Tonga was the only nation with gender restrictions.⁹² The one nation outside of the Pacific Islands that restricted by ethnicity was Liberia. The constitution

⁹¹ Land and Titles Act, article 2

⁹² Land Act, article 7

of Liberia specifies that land owners must be of citizens, and that with some exceptions, citizens must be of Negro ancestry.⁹³

Citizenship

The next set of questions inquired into the nature of restrictions on ownership or use of land by citizenship of the potential land holder.

- e. Does the law restrict the ownership/use of all land to citizens?
- f. Does the law restrict the ownership/use to citizens and some designated foreign persons?

Citizenship was the most common restriction in the sample of countries. Over one third of the 68 countries restricted all land ownership/use to citizens, while only six restricted the ownership/use of some land to citizens, the remainder had no restrictions. Most of the countries that restricted only some of the land to citizens placed these restrictions on the ownership of agricultural land. This was the case with Albania, Egypt, Eritrea, and Estonia.⁹⁴ In Iceland, the restrictions were placed around geothermal and hydrothermal rights.⁹⁵ Kenya, the remaining country which restricted only some of its land to citizens, has agricultural land in “land controls areas”. Transactions in these areas are highly regulated and in general, disposal of such land to non-citizens is prohibited.⁹⁶

In some cases, countries restricted laws to their own citizens and the citizens of a select number of other countries. While this was frequent in the European Union, it

⁹³ Articles 22, 27, see also http://usaidlandtenure.net/usaidltp/products/country-profiles/liberia/country-profile-liberia#Land_Liberia

⁹⁴ See (laws)

⁹⁵ See “the Act on Foreign Investment in Business Enterprises No. 34/1991

⁹⁶ See Land Control Act, sections 6, 9

did occur in other places. In Egypt for example, Laws No. 15 of 1963 and 143 of 1981 banned alien ownership of agricultural and desert land, which might have been coded as a limiting land ownership to citizens only.⁹⁷ However, these restrictions were amended to permit a small number of outside groups to own land. For example, Law No. 15 of 1963 also made an exception for Palestinians. Law No. 35 of 1971 also exempted foreign charities and the Holy Roman Synod. Law No. 143 of 1981 permitted citizens of Arab countries to own desert land.⁹⁸ There were only small correlations between these two variables and growth. Restricting land to all citizens was correlated with growth at .1640, while restricting some land to citizens was correlated at -.0808.

Foreign Ownership

These questions were intended to ascertain the nature of restrictions on foreign land ownership. These are not the same as the questions above restricting all or some land to citizens, for in many countries, although foreign persons could own land, they must seek approval before doing so.

- g. Does the law require foreign persons to obtain permission before acquiring any land?
- h. Does the law require foreign persons to obtain permission before acquiring some land?

⁹⁷ Presuming, of course, that land is comprised of only desert and agricultural land.

⁹⁸ Provided they obtain the requisite approval of the government in Egypt and that their countries have reciprocal agreements for Egyptian citizens.

Seventeen countries in the sample required aliens to seek permission from the government before owning any land in the country. The level of development of these countries was mixed. Six were developed democracies (Austria, Cyprus, Iceland, Ireland, Spain and Switzerland), and in these countries there were special exceptions for other EU-member citizens. The remaining countries varied in terms of geographical and economic position.⁹⁹

Some countries place additional restrictions or make exceptions for the ownership of land by aliens. For example, Cyprus requires permission to obtain land, and limits the requested quantity of land to approximately 4,000 square meters. Spain requires permission if the value of land exceeds a certain amount. Denmark and Switzerland exempt those who intend to use property as a primary place of residence from the need to obtain permission.

Thirteen countries require aliens to seek permission for the ownership of some, but not all land. For example, Albania has several laws restricting ownership of certain types of land by foreigners. Law no. 8337 of 1998 forbids foreign ownership of agriculture land, pasture land, forest land or meadows. In addition, Law no. 7980 of 1995 forbids foreign ownership of construction land unless the value of the construction on the land exceeds three times the purchase price of the land. Greece prohibits the acquisition of land by foreigners in border or high security areas, unless the foreigner is an EU citizen. In this case the EU citizen must seek permission first. In

⁹⁹ Antigua and Barbuda, Brunei, Eritrea, Bahamas, Belize, Lao, Lithuania, Mongolia, Poland, Samoa, Tanzania and Zambia

Singapore, a foreigner wishes to purchase residential property, must obtain permission first.

The correlation between average GDP growth (over 10 years) and requiring permission for ownership of all land is .1093. The correlation between average GDP growth and requiring permission for ownership of some land is .1650. If the two categories of foreign permission are combined, the correlation between the new category, representing the requirement for foreigners to obtain any permission before owning land and average GDP growth is -0.0137.

Restrictions on what may be owned

These questions were intended to capture an intrusion on what would otherwise be a private space. All states reserve land for the public. For example, some states simply reserve certain spaces as public, while others go further and cross the boundaries of what would otherwise be private property. Thus, most states expressly reserve as public space land for roads, utilities, national monuments, and similar public items. Other states establish an assumption of public land, unless an individual takes steps to signal that it is not.

The scope of this work would not permit an extensive analysis into all the variations of public intrusion on what might be private space. Therefore, I focused my analysis on resources, on the basis that public intrusion onto private land for economic resources might signal a greater willingness of the state to intrude upon private land. Thus, the coding sheet contained the following questions:

1. Does the State claim ownership of all mineral resources on a person's property?
2. Does the State claim ownership of some mineral resources on a person's property?
3. Does the State claim ownership of all water that might otherwise be part of a person's land?
4. Does the State claim ownership of all water that might otherwise be part of a person's land?

A majority of the 68 states in the sample claimed control over all mineral resources found on a person's land, only 7 states claimed control of some mineral resources. list Twenty-seven states claimed ownership of all water that may be on a person's land. Sixteen claimed ownership of only some types of water on a person's land.. The correlations were slight. "Minerals some" was correlated with average growth at $-.0506$. "Minerals all" was correlated with average growth at $.1160$. "Water some" was correlated with average growth at $-.0725$, and "water all" was correlated with growth at $-.1366$ ". Overall the correlations of the variables in the ownership category with GDP growth were not strong.

The Use Variable

The category of use restrictions was at once the most complicated, most time consuming and yet most interesting of the categories. One of the sources of the complication was the broadness of the types of laws that could affect use of land. Use laws can include laws whereby the state prohibits an individual from using his

land in certain ways in general, laws which restrict an individual's use of land for specific public purposes (urban development, zoning and environmental regulations), laws in which the state attempts to resolve potential conflict between owners of adjacent plots of land (neighbor and nuisance laws), or laws in which the state attempts to regulate the ways in which the owner of land binds himself in a private agreement with another regarding the use of his land (usufruct, lease, landlord and tenant laws, easements, servitudes, covenants and profits). The most advantageous way to conceptualize use laws to think about the overall purpose.

All use laws are about regulating competing uses of property and how the legal system decides who should prevail when such conflict occurs. That is, if as Barzel (1997) argued, laws imperfectly and incompletely define property rights, and consequently there is some aspect of property available for capture, use laws are about managing externalities. More precisely, use laws are about managing conflict over who captures the benefit or pays the cost of those externalities. Therefore more than any other types of property laws, use laws express the Coasian concept of property as managing conflict. The conflict can be between individual owners with two adjacent pieces of land, or the conflict can be between the individual and the state.

Like ownership restrictions, use restrictions can also be neatly captured in two dimensions. The first dimension includes those restrictions that are imposed by the state for the benefit of the public. The second dimension includes those restrictions on how two (or more) private individuals regulate their own usage.

Those restrictions that are imposed by the state for the benefit of the public include public moral exhortations, public health and welfare statements, specified usage laws, minimum and maximum size restrictions, rent restrictions, and maximum and minimum lease (or other) duration restrictions.¹⁰⁰

Restrictions on use of land

Because of the complications of the concept, the questions in my dataset were kept relatively simple.¹⁰¹ My dataset contained the following questions on land use.

1. Does the country have a specified unit use for all land?
2. Does the country have a specified unit use for some land?
3. Does the country divide the land into general use categories?

These questions are intended to capture information about the degree to which the state exerts control over how one may use land. For example, some states have very specific restrictions, labeled “specified unit use” in my terminology. These

¹⁰⁰ This category would also include environmental regulations and development and planning laws. Development and planning and zoning laws are intended to control the spatial location of different types of land use. In many countries, these types of laws and regulations are left to the lower levels of government. Because of the magnitude of delving into such regulations, and because of language and access barriers, development and planning and zoning laws were not captured in this dataset. However, in a few cases, there is a national zoning plan specified in the content of the land laws. Where there was this type of specification, it was captured under the rubric “zoning.”

Environmental laws are intended to restrict land use to activities which produce a tolerable level of impact on the environment. A significant number of countries had environmental regulations in place, and the degree of restrictiveness varied. For example, some activities which could pose a risk of environmental harm could be prohibited outright, while others were “allowed” so long as the consequences of the materialized risk are borne by the actor in the form of penalties. The variation of environmental regulations is significant. Further, intuitively, the variation in environmental laws would seem to be most influenced by interest groups, and thus these laws seem ripe for a political economy analysis. However, as with the development and planning laws, due to time, access and language barriers, I was not able to code these types of laws.

¹⁰¹ The original dataset contained a much more extensive list of questions on land use. However, I discovered that time limitations prevented me from completing the more detailed data collection in the use category.

restrictions require individuals undertake certain actions with their land, if they are the owners or primary users. Only seven states, Bhutan, Brunei, Guyana, Indonesia, Sri Lanka, Tonga, and Vietnam, had specified unit use laws for all land. Most of these restrictions pertain to cultivating land, and range from the general to the specific. For example, In Bhutan and Indonesia, the requirement is that land must be cultivated. Similarly, in Sri Lanka, land must be cultivated. However the law adds an additional requirement that it must be cultivated with the type of crops, livestock and fish that lead to “... the efficient management and better cultivation of agricultural land, as are best suited for the land, having regard to the extent and the situation and the natural resources of the land, in accordance with standards of cultivation as are hereinafter provided by this Act or any regulation made thereunder, with a view to improving the productivity and maintaining efficient standards of production both as to quantity and quality of the produce.”

Similarly, in Brunei, all registered land must be used for agricultural purposes, and in addition, there is a minimum number of crops that must be grown.¹⁰² In Guyana, land must “beneficially occupied”. In Tonga, the most restrictive regulations are imposed. The law states that within one year of acquiring land, the owner must have growing “200 coconut trees planted in rows and so arranged that the trees are 9 metres apart or 4.5 metres apart in rows 18 metres distant from each other.” In addition, the grounds must be kept clean and reasonable free of weeds. In Guyana,

¹⁰² Land used for residential purposes requires a permit

the exception to the requirement of cultivation, the law states only that the land must be “beneficially occupied.”

Twelve countries had “specified use” requirements over some, rather than all of the land. In Antigua and Barbuda, the restriction pertains only to non-citizens, who must “develop” their land. In Armenia, there are numerous restrictions over the use of agricultural land. Most of the requirements express the idea that the land must be cultivated in such a way as to meet certain standards of “earth engineering” or protection. In Ghana, according to the Farmland Protection Act, some of one’s land is required to be used as farmland, lest the land be taken by the state. In Kenya, certain land deemed to be “land control zones” are subject to use requirements. In Lao, citizens are required to “make use of the land according to state socio-economic development plans”, and to avoid damage to the soil and the environment. In Spain, the only developed democracy to fall into this category, owners of agrarian land must obtain the “best yield” for their land. Finally, in Zambia, owners of agricultural land must “beneficially hold” the land. “Beneficially holding” land is defined to include the practice of good methods of husbandry, care and maintenance of land, and cultivation as specified by an agricultural Board. The correlation with GDP growth of specifying use for all land is .0097, for specifying use for some land is .2591, and for the combined category, .0877.

Finally the last set of use category questions was intended to capture prohibitions on non-use.

4. Does the country prohibit non-use of land such that the land will be taken by the state if the land is not used?
5. Does the country have adverse possession laws, if so, for how long is the period of adverse

There are two types of non-use categories. In the first, land is taken by the state, and becomes state property. In the second, land is acquired by another private property, and remains private property. Seventeen countries have requirements that land be used lest it be taken by the state, and 40 countries had adverse possession laws.

The time limitations for use or non-use (in the case of adverse possession) varied. In general, government non-use laws had shorter periods of time for use of land, ranging from several months to 5 years. Most of the countries that had these types of laws required use of land in less than 1 year from when it was obtained. Contrarily, most adverse possession laws had long periods of non-use, ranging from 10 to 30 years. Most of the countries in the data set had adverse possession laws of 20 years. The correlations are slight, and somewhat counterintuitive. State taking of land is positively correlated with GDP growth at .2238. Adverse possession is negatively correlated with GDP growth at -.0991.

While it might be expected, according to neo-classical theory, that restricting use of land would have a negative correlation with growth, all of the correlations above suggest that the use variable operates in a counter intuitive manner. For example, laws of adverse possession, which have longer periods of time for which an individual

must act before losing his land have negative correlations, while government taking laws, which have shorter periods of time, have positive correlations.

The Transferability Variable

Transferability laws are laws that restrict that exchange of property from one owner to another. These laws can include gift and exchange, inheritance, sale and according to some, mortgage.

Restrictions on Transferability

For simplicity, I focused solely on restrictions on the sale of land. All of the questions below are designed to capture the manner of restrictions on the sale of land.

1. Does the law forbid the sale of land completely?
2. Does the law forbid the sale of land except by permission of the government?
3. Are there restrictions on what may be sold?

The distribution in this section was somewhat puzzling as I was not expecting to find any significant number of restrictions on transferability. According to the theory (see Chapter 3), countries would not have restrictions on transferability. However, the data reflects that this is not the case, and this confirms the findings of many of the case studies.

While only one country, Tonga, forbade the sale of land, 20 countries forbade the sale of land except with government permission. Eight of the countries in this category were developed democracies. The large number of countries in this category was somewhat unexpected, particularly the large number of developed

democracies. However, this was largely the result of the manner in which one common provision was coded. Many civil law countries, particularly in Europe, had “right of refusal” provisions in their land laws. “Right of refusal” provisions require that owners of land (or certain types of land) who intended to sell their land offer to sell the land to the municipality (or other local body) first. I coded this as requirement to obtain government permission before selling land.

Eight countries, Armenia, Maldives, Philippines, Spain, Sweden and Thailand, had provisions restricting the type of land that could be sold.¹⁰³

Limitations and Caveat

While conceiving of ownership as restrictions in the manner described above seemed to be the simplest and cleanest way of approaching the laws, this conception still resulted in several dilemmas.

State Ownership of Land

It was not the goal of this dissertation to quantify the implementation of the law, but rather to quantify the content of the law. However, in the case of ownership restrictions this rule had to be amended. In the case of State ownership of land, the concept that this question was intended to capture was that of a State exercising ownership of land to the exclusion of all others. In such cases, states permit citizens and others to use land, not to privately own it. However, in the commonwealth, it

¹⁰³ The Greek provision required transfers of agricultural land in excess of a certain amount to be approved by the Minister of Agriculture. Although this could have been coded as a restriction on “what”, it was coded as forbidding sale without permission.

was customary for laws to state that all land is owned by the Queen of England. Yet, in these countries individuals can and do exercise private ownership of land. Consequently, provisions like these found in commonwealth countries were largely ignored. Simple reliance on the content of the law as envisioned would have resulted in construct error in the variable creation.

Other Legal Restrictions

Another issue was the influence of laws not directly pertaining to land. It is imagined that many countries have laws where by certain persons may not own property. Laws regarding mental stability or the control of minors are examples. However, not all countries chose to express such provisions in their land laws. Provisions such as these which appeared common across multiple countries, and which did not appear likely to impact the outcome variable, GDP, were not coded. While it may be likely that states have more such restrictions than are listed in their laws, because an attempt was made for any given country to collect all laws directly pertaining to land, this threat is minimal.

Legal Family Distinctions

There were also issues with differences between legal families. First, the differences between civil and common law systems were more pronounced in the area of property laws. For example, laws typically conceived as property laws in common law countries were not so in civil law countries. For example, in civil law countries, “leases” are classified as obligations and are found in code books under the law of obligations rather than property laws. Other types of uses restrictions

that are seen as “rights” in common law countries are classified as “encumbrances” in civil law countries (examples). Further, civil law jurisdictions tend to adhere to a “unitary” concept of property. As such, the multiplicity of ways that use (and ownership) of property can be divided over time and persons in a common law country is foreign to the mindset of the civil law country. All of these may affect the construct validity of the use category. In addition, a problem with both use and transferability laws was that they could quickly devolve into contract law.

Scholars have also found differences between different aspects of the performance of civil and common law systems. For the purposes of the present analysis, the distinction between the two systems is the primary source of law. In civil law systems, the primary source of law is codified law. In common law systems, the primary source of law is judicial decisions of specific cases. As a result, judges have different roles in common law and civil law systems. Traditionally, it is thought that in common law systems, judges have more power to “legislate”, and also that because of this, common law systems are more flexible in response to changes in culture or time. However, other distinctions have also been posited. Hayek (1960) argued that common law countries were more likely to protect individual economic freedoms, whereas civil law countries were more likely to protect programs that redistributed resources. Other scholars have echoed this theory (Mahoney, 2000).

However, other scholars have suggested that there is no necessary connection between common law countries and economic freedoms, and further that the historical association between the two concepts is a historic accident that

has been belied by recent history (Atiyah, 1989). Some have tested the differences between common law and civil law systems and find that after controlling for a ‘transplant effect’, the distinction between civil and common law countries has no effect on the effectiveness of institutions that enforce the law (Berkowitz, et. al., 2000). Nevertheless, the distinction remains a persistent one in scholarly literature. However, the practical approach taken of quantifying the restrictions on land ownership, use and transferability avoided some of the problems conceptual differences between common and civil law systems, and further created an appropriate boundary to avoid moving too far afield into other areas of law. In addition, in order to control for the additional economic effects, each of the models in chapter 6 has a control for legal family.

Federalism and Decentralization

The second is the presence of federalism and decentralization. Policies differ across countries with respect to whether the national or lower levels of government would exert more control over land policies.¹⁰⁴ In federal countries, it is more likely that this particular power would be exercised by the lower levels of government. The dataset has eight federal countries, Argentina, Australia, Belgium, Germany, Malaysia, Switzerland and the United Arab Emirates. Laws obtained at the national level for these countries may obscure regional differences.

¹⁰⁴ This problem was not limited to federal countries. Some countries, such as Spain while not a federal system, devolved considerable power over some land issues to local governments.

Chapter 6: Empirical Analysis of the Effects of Property Rights on Politics and Growth

In chapter 2, I demonstrated that one of the problems in the property rights literature is the weak conceptualization of property rights. The misconception of property rights arose because of definitional ambiguity beginning with Coase. Subsequent econometric analysis, which required more explicit definitions, failed to correct the problem. I proposed using the content of laws as a way to correct the misconception of property rights. Chapter 5 delineated the methodological basis for comparing laws, and outlined the process by which I created the dataset to be used in the analysis. This chapter relies on the measurement of property rights explained in the last chapter to conduct empirical analysis of the theories outlined in chapters 3 and 4. I undertake this analysis in two parts. The first part analyzes the effects of laws on economic growth. The second part analyzes whether political and institutional factors determine the type of laws.

Part 1: The Effect of Property Rights on Economic Growth

All of the models in this section are linear regression models estimated by ordinary least squares models, of the following form:

$$Y = a + X_i b + e,$$

where X is a vector of regressor variables, including both the law variables as well as the control variables. The data displayed in a box and whisker plot below reveal the problems with high leverage points that were consistently present in all of the models and all of the law variables.

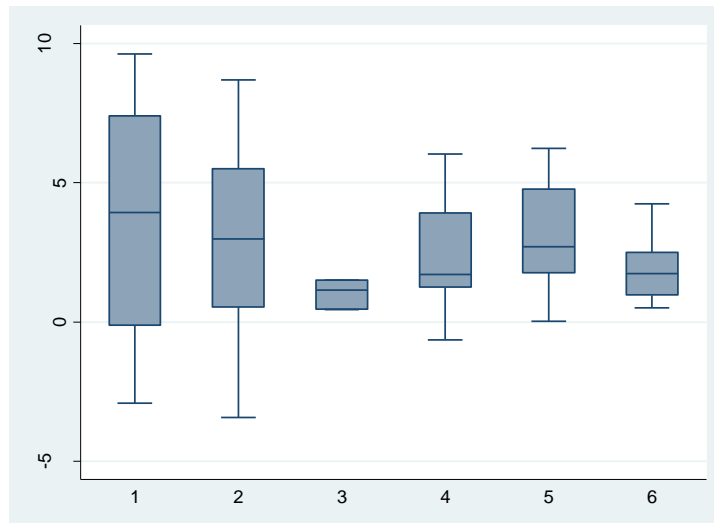


Figure 12: Box and Whisker plot of "own who" data

In this chart, category one is “No ownership” 2 is a combined category of citizen and gender/ethnicity restrictions, 3 is “some foreign” 4 is “foreign permit all” 5 is “foreign permit some” and 6 represents no restrictions. The plot shows skew for several of the variables. Most noticeably, this skew is present in the “some foreign” variable, represented as the third plot and the “foreign permit all” variable, represented by the fourth plot. Additionally, as is also evident from the plot, some of the data displayed lower variance than others. The range of average growth rates for countries with “some foreign” (plot 3) and “no restrictions” (plot 6) was much smaller than the others. Further, a variety of tests revealed that several countries

were exerting considerable influence over the regression line, such that their removal or inclusion from the analyses resulted in substantial changes in the outcomes. For example, Eritrea was one such country. While it displayed less restrictiveness in some of its laws, its average growth rate was considerably lower than countries with similar laws. Finally, the analysis did reveal heteroskedasticity.

These problems were addressed in two ways. First, to address the problem of highly influential points, where appropriate, some of the models were run without those points. Second, to address the problem of heteroskedasticity, all of the models were run using Huber-White sandwich estimates of standard errors. All of the models presented below are OLS models with robust standard error estimates.

The main variables used in each of the regression models were the law variables described in chapter 5, as well as the log of GDP 2000, literacy, as a proxy for human capital, and rule of law. For a description of the variables, please see appendix 4.

“OWN WHO”

The first models, presented in table 1 below, estimate the effects of restricting ownership of land to certain classes of persons on GDP growth. All of the explanatory variables in this model are categorical variables, save one, and comprehensive of the types of restrictions on persons.¹⁰⁵ The reference category represents no restrictions on ownership by class of person. Recall from chapter 5, my theory predicted that ownership restrictions would not have an effect on long-run

¹⁰⁵ For further explanation of the categories and the manner in which I coded the data, please refer back to chapter 5.

growth. Thus, in the models below, if neither the ownership variables nor the reference category is significant, then the model provides strong support for my theory.

Column 1 summarizes the results of the variables regressed on GDP growth per capita, averaged over ten years. The results suggest that some restrictions on persons do have an effect on GDP growth. Having no restrictions on person is represented by the reference category. This suggests that if a country has no restrictions, and that country has the mean value of initial GDP, literacy, rule of law, land use and is not a civil law country, then the average growth of that country is 10% higher. This coefficient estimate may be inflated due to the presence of skew in the data. Countries that require permits before foreign nationals can obtain some types of land are associated with a 1 % increase in average growth over those that have no restrictions on ownership. None of the other categories of restrictions on person were significant. The customary variable was also significant, suggesting that the presence of customary land decreases as compared to the reference category growth.

The log of GDP in the year 2000, the year beginning the period of observation is significant, supporting traditional economic growth models. In addition, the literacy variable, representing human capital is also significant, and also in line with traditional economic growth models. The rule of law variable was not significant, supporting some research suggesting that in many models, the significance of this

variable is contingent upon the selection of countries. Additionally, the control for civil law was also not significant.

Of note is the direction of the variables. Citizen Plus, Foreign Permit All and Foreign Permit Some are all positive. The common element in these categories is control. Countries with laws in these categories are able to assert more nuanced control over who may own land than those which have a blanket prohibition on land ownership. In addition, these categories also represent more control over who may own land than those which restrict land to some foreign, as this is often the topic of treaty.

It should also be noted that the model in column 1 was run without the inclusion of both Eritrea and China. Both countries were highly influential cases, and their growth rates were unusual for countries of similar laws. Eritrea has an unusually low growth rate. Conversely, China has a higher than expected growth rate. The probability value on the F-test of joint significance on this model was .1195. While this is not significant, it is just barely insignificant at the 10% level and could be attributed to the low N.

Columns 2, 3 and 4 attempt to disaggregate the effects of restrictions on ownership. Growth models are plagued by indeterminacy. As some scholars observe, the collective scholarship on economic growth has found more predictors than countries. The result is that it is impossible to ascertain what predictors are truly significant in the presence of all of the others. One way that this research attempts to address this indeterminacy is by examining the impact of the law variables on the

components of growth. If the significance of the laws can be found in one of the components of growth, this may help to mitigate the indeterminacy. Because the Solow growth model maintains that growth is derived from changes in labor, capital accumulation and total factor productivity overtime, these models analyze the impact of the restrictions on ownership on these components of growth.

Column 2 shows the results of a regression of the variables on the log of labor growth per capita, averaged over ten years. The constant term, representing no restrictions on person is not significant, which would support hypotheses six, that ownership laws will not have an effect on growth, presented in chapter 4. The probability value on the F-test of joint significance on this model was .63.

Column 3 shows the results of a regression of the variables on the log of fixed capital as a percentage of GDP. The reference category, representing no restrictions, is weakly significant at the 10% level. Countries that restrict land ownership to citizens are associated .3% greater growth in the log of fixed capital than those with no restrictions. The probability value on the F-test of joint significance on this model was .09, suggesting that the coefficients on these variables are significantly different from zero.

Finally, column 4 shows the results of a regression of the variables on total factor productivity (TFP). The low N on this model makes inferences unreliable, but the results are suggestive of directions for further research. The significance of the variables in the model mirrors that of the Fixed Capital model (column 3) and the Average Growth Model (column 1). That is, like the Fixed Capital model, having no

ownership is associated with an average growth rate that is higher than that of the reference category. Similarly, like the Average Growth model, having a law which requires foreign nationals to obtain permits before obtaining some types of land is significant, as is the reference category itself. This suggests, though does not in any way confirm, that the primary mechanism through which having these laws have an impact is through TFP. The probability value on the F-test of joint significance on this model was .07, suggesting that the coefficients on these variables are significantly different from zero. However, given the low N this is hardly reliable.

Table 9: Models Regressing Own Who Categories on GDP Growth, log of Labor Growth, log of Capital Growth and TFP (in order of restrictiveness)

VARIABLES	(1)	(2)	(3)	(4)
	Average Growth	Log of Labor	Log Fixed Capital	Total Factor Productivity
No ownership	-1.006 (0.636)	-0.0226 (0.0228)	0.0183 (0.118)	0.971 (0.786)
Citizen plus	0.630 (0.459)	0.0111 (0.0151)	0.255** (0.0900)	1.344* (0.547)
Some Foreign	-0.225 (0.490)	0.0104 (0.0139)	0.00941 (0.0704)	-0.416 (0.345)
Foreign Permit All	0.481 (0.476)	0.0105 (0.0154)	-0.0190 (0.0872)	-1.032 (0.618)
Foreign Permit Some	1.163* (0.533)	3.49e-05 (0.0136)	0.0323 (0.0793)	0.616+ (0.335)
Log of time	-0.305 (0.245)	-0.00758 (0.00879)	-0.0192 (0.0341)	0.129 (0.236)
Custom	-1.545** (0.500)	-0.0353* (0.0162)	0.0120 (0.105)	-1.973** (0.471)
Log of GDP 2000	-1.454** (0.261)	0.0207* (0.00993)	0.0205 (0.0490)	-0.820* (0.351)
Literacy	5.468** (1.959)	-0.0527 (0.0673)	0.839* (0.399)	2.123 (3.546)
Rule of Law	0.657 (0.443)	-0.0198 (0.0135)	-0.169* (0.0740)	0.758* (0.355)
Civil	0.520 (0.550)	-0.0253 (0.0206)	-0.0176 (0.0731)	-1.055+ (0.574)
Constant	9.964** (2.095)	-0.0664 (0.0678)	-0.858+ (0.431)	5.639** (1.848)
Observations	65	63	62	47

R-squared	0.606	0.295	0.376	0.567
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Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

“OWN WHAT”

Table 2 presents the results of the regression of “own what” variable categories on the dependent variables. Recall again from chapter 4 that my theory predicted that ownership restrictions would have no effect on economic growth. Strong support would be that neither the law variables nor the constant term, representing no restrictions would be significant.

The results presented in table 2 show weak support for my hypothesis. Column 1 shows that most of the law variables measured are not significant. However, the “mineral all” variable, representing the state restricting ownership of all minerals found on private property is significant, and negative. The results suggest that states which prevent the ownership of all minerals on land are associated with 1.3% less growth of GDP per capita than the reference category. Contrarily, the constant term, representing no restrictions on land ownership is positive and significant. However, as with the models in table 1, this coefficient may be inflated due to the skew of some of the variables. The probability value on the F-test of joint significance on this model was .05, suggesting that the coefficients on these variables are significantly different from zero.

The other variables behave in a manner similar to the model presented in column 1 of table 1. Both the customary land indicator and the log of time are

negative and significant. Similarly, the log of GDP 2000 is negative and significant and the coefficient on the literacy variable is positive and significant. None of the variables are significant predictors of growth in labor or fixed capital as a percentage of GDP. However, the “mineral all” variable is a significant and negative predictor of total factor productivity, though as in the model from table 1, this is suggestive rather than conclusive due to the low N. The probability value on the F-test of joint significance on this model was .22, suggesting that the coefficients on these variables are not significantly different from zero.

Table 10: Models Regressing Own What Categories on GDP Growth, log of Labor Growth, log of Capital Growth and TFP (in order of restrictiveness)

VARIABLES	(1)	(2)	(3)	(4)
	Average Growth	Log of Labor	Log Fixed Capital	Total Factor Productivity
Water All	-0.391 (0.524)	-0.0125 (0.0214)	-0.103 (0.124)	-0.108 (0.669)
Water Some	-0.500 (0.481)	0.00870 (0.0124)	-0.0308 (0.0956)	-0.333 (0.538)
Mineral All	-1.269* (0.510)	0.00674 (0.0150)	0.0863 (0.0962)	-1.153* (0.517)
Mineral Some	-0.0140 (0.542)	0.00533 (0.0157)	0.0711 (0.105)	-0.317 (0.500)
Log of Time	-0.810** (0.293)	-0.00461 (0.00896)	-0.0133 (0.0420)	-0.284 (0.231)
Customary	-2.157** (0.555)	-0.0277+ (0.0153)	0.125 (0.135)	-1.570+ (0.854)
Log of GDP 2000	-1.127** (0.268)	0.0183+ (0.00931)	-0.0301 (0.0626)	-0.829+ (0.416)
Literacy	5.392* (2.453)	-0.0667 (0.0607)	0.523 (0.455)	1.849 (3.837)
Rule of Law	-0.304 (0.464)	-0.0130 (0.0135)	-0.161 (0.0995)	0.251 (0.495)
Civil	-0.410 (0.602)	-0.0210 (0.0212)	0.0765 (0.102)	-0.977 (0.689)
Constant	11.45** (2.435)	-0.0460 (0.0650)	-0.141 (0.500)	8.479** (1.945)
Observations	64	64	64	47
R-squared	0.617	0.244	0.282	0.395

Standard errors in parentheses
** p<0.01, * p<0.05, + p<0.1

“USE”

The theory presented in chapter 4 predicted that restrictions on the use of land would be associated with a decrease in GDP growth per capita. Thus, it is expected that all of the coefficients on the use variables will be negative and significant. Weak support of the hypothesis would exist if the constant term, representing no such restrictions, was positive and significant. The results provide weak support for my theory.

In column 1 below, two of the use variables are negative, though not significant. The constant term was positive and significant, providing weak support for the theory advanced in chapter 4. The coefficient suggests that, controlling for other factors in the model, having no use restrictions is associated with a 12% increase in the growth of GDP per capita, though the coefficient may be inflated due to skew of some of the variables. The variable “Gov Non-use”, a law whereby the government will divest an owner of his land after a period of non-use of that land, is positive and significant at the 10% level. The coefficient on this variable suggest that a country that has this type of law will have a .9% higher average growth rate than a country with no use restrictions. This could suggest that a more nuanced theory is needed than that presented in the preceding chatpers, as some types of use restrictions may be beneficial to growth. It might also be an artifact of the theory of convergence. If countries with lower levels of initial GDP will grow faster and converge with more developed countries than laws associated with those countries

might also be associated with higher levels of growth. Many of the countries with this type of law in place are also countries with the lowest levels of initial GDP. The probability value on the F-test of joint significance on this model was .12.

In column 3, two of the two of the law variables are negative and significant predictors of growth in the log of fixed capital. “Unit Use All”, representing a law that contains specifications about how all plots of land are to be used, is significant at the 10% level. This variable is also strongly significant in column 4, though again, the model in column 4 is only suggestive. “Unit Use Some”, representing a law containing specification about how some types of land are to be used, is significant at the 5% level. “Government Non-Use” is a positive predictor of growth in the log of fixed capital, and is significant at the 1% level. The coefficient on the reference category, representing no restrictions, is not significant. The probability value on the F-test of joint significance on the models in columns 3 and 4 were .004 and .01 respectively.

Table 11: Models Regressing Use Categories on GDP Growth, Log of Labor, Log of Fixed Capital and TFP
(variables presented in order of restrictiveness)

VARIABLES	(1)	(2)	(3)	(4)
	Average Growth	Log of Labor	Log Fixed Capital	Total Factor Productivity
Amount	-0.721 (0.481)	-0.00975 (0.0161)	-0.0351 (0.125)	-0.594 (0.764)
Unit Use All	-0.647 (0.586)	0.00252 (0.0181)	-0.171+ (0.0922)	-3.029** (0.851)
Unit Use Some	0.0190 (0.436)	-0.000548 (0.0182)	-0.197* (0.0973)	-0.448 (0.550)
Gov Non-use	0.869+ (0.453)	-0.00425 (0.0155)	0.271** (0.0803)	0.683 (0.713)
Log of time	-0.440* (0.173)	-0.00423 (0.00547)	-0.0285 (0.0366)	0.190 (0.195)
Customary Land	-1.425**	-0.0456**	0.0563	-2.390**

	(0.521)	(0.0131)	(0.129)	(0.739)
Log of GDP 2000	-1.235**	0.0149+	-0.0271	-1.478**
	(0.267)	(0.00828)	(0.0736)	(0.310)
Literacy	7.802**	-0.0362	0.500	7.399+
	(1.447)	(0.0536)	(0.309)	(3.691)
Rule of Law	0.301	-0.0161	-0.153	0.802*
	(0.358)	(0.0108)	(0.0989)	(0.331)
Civil	0.268	-0.0148	0.0562	-1.205+
	(0.377)	(0.0103)	(0.0841)	(0.646)
Constant	6.991**	-0.0379	-0.0695	6.809**
	(2.048)	(0.0600)	(0.511)	(2.008)
Observations	60	60	62	45
R-squared	0.674	0.354	0.421	0.622

“SALE”

The table below presents a regression of sale variables on different growth outcomes. In chapter 4, I hypothesized that restrictions on sale would decrease growth. Strong support for this theory would be negative and significant law variables. Weak support would be a positive and significant constant term. The results of the model provide weak support for my hypothesis.

The constant term in the regression of the variables on GDP growth per capita (column 1) is significant and positive. Controlling for initial growth, literacy, rule of law, customary land, and civil law, countries that have no restrictions are associated with 7% higher growth rate of average GDP per capita. Additionally, the coefficient on the variable “sale with permit” is negative and significant. This suggests that countries which permit sale of land only with permission of the government are associated with a .73% lower GDP growth per capita than countries with no restrictions. The coefficient on the variable “other sale” is positive and significant. This category represents a mixture of other, more stringent restrictions on sale. The

results suggest that countries in this group are associated with a .8% higher GDP growth per capita than countries with no restrictions . The sale variables are not significant for the labor or capital models. With the exception of the reference category, the variables that were significant in the average growth model are similar in significance and magnitude in the TFP model. This suggests that the mechanism through which these variables are affecting growth could be through TFP. The probability value on the F-test of joint significance on the models in columns 1 and 4 were .05 and .004 respectively.

Table 12: Models Regressing Sale Categories on GDP Growth, Log of Labor, Log of Fixed Capital and TFP

VARIABLES	(1) Average Growth	(2) Log of Labor	(3) Log Fixed Capital	(4) Total Factor Productivity
Sale with Permit	-0.726* (0.305)	-0.000615 (0.0146)	-0.0147 (0.0657)	-0.659* (0.298)
What Sold	0.162 (0.491)	0.00649 (0.0260)	0.0201 (0.107)	0.455 (0.549)
Other Sale	0.791+ (0.458)	0.0191 (0.0213)	-0.0358 (0.100)	0.814+ (0.441)
Log of time	-0.462** (0.163)	-0.00455 (0.00734)	-0.0224 (0.0354)	-0.228 (0.215)
Customary Land	-1.481** (0.445)	-0.0274+ (0.0155)	0.0413 (0.115)	-2.032** (0.325)
Log of GDP 2000	-1.189** (0.239)	0.0216* (0.0101)	-0.0184 (0.0668)	-1.111** (0.305)
Literacy	7.541** (1.766)	-0.0385 (0.0602)	0.162 (0.435)	0.412 (2.576)
Rule of Law	0.348 (0.401)	-0.0154 (0.0139)	-0.180+ (0.0988)	0.917** (0.303)
Civil	0.140 (0.441)	-0.0262 (0.0220)	0.0771 (0.0967)	-0.744 (0.488)
Constant	7.092** (1.829)	-0.0963 (0.0701)	0.179 (0.409)	10.72** (1.032)
Observations	61	60	63	44
R-squared	0.666	0.265	0.331	0.701

Robust standard errors in parentheses

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

Robustness Check

In order to check the robustness of the results, I ran regression using alternate measures of both dependent and control variables. These alternate models relied on alternative measures of GDP growth, namely using the geomean of growth rather than the average growth over time, as well as using growth calculated from the PENN world tables. In addition, I used models in which the dependent variables were growth averaged over 5 years, and growth averaged over 15 years. In addition, for control variables, I used alternative measures of human capital. That is rather than using literacy, I used primary and secondary enrollment in the starting years of the model. Rather than using the World Bank measures of rule of law, I substituted a measure derived from the popular ICRG database. Finally, I added several variables in the last models, presented in column 9 of the tables in the appendix. These variables were derived from the traditional growth models used by Barro, modern government expenditures, and a proxy for price of investments. In addition, in this model, I added controls for civil law systems as well as natural disasters. The results are presented in Appendix 4.

Own Who

For the “own who” model, the constant term, representing no restrictions on ownership, remains significant in all of the models. The coefficient on the constant term changes substantially in half of the models. This is a likely reflection of the skew of some of the variables used in the original regression model. Of note is that in three of the models, “no ownership” becomes significant. Thus in these models, not

permitting ownership of land is associated with a 1.1-1.5% decrease in the growth of GDP per capita as compared to the reference category. In two of these models, enrollment was substituted for literacy, and in the third model, presented in column 9, additional control variables were added. One interpretation of this is that in the original models, “no ownership” was capturing additional information about government activity in the economy that was later subsumed by the other variables.

Additionally, “foreign permit some” becomes significant in the models in which enrollment was substituted for literacy, as well as the model for which the ICRG measure was substituted for “rule of law”. Again, this might suggest some degree of overlap between these variables and government regulation of some types of land.

Finally, it is worth making note of the models for which the law variables are regressed on growth measures at 5 years and 15 years. Of particular interest is the dynamics between the law variables and the control for legal system. At 5 years both the rule of law variables and the control for legal family (the civil law variable) are significant. None of the individual law variables are significant. The reference category is significant but its coefficient is small. At 10 years, one of the law variables is significant, and the constant term is much greater. But both rule of law and the civil law control variable are no longer significant. At 15 years, two of the law variables are significant, the constant term is smaller and the rule of law and civil control variables remain insignificant. One explanation for this is that for shorter periods, perhaps rule of law and legal family are more important to growth. That is, the strength of

institutions is significant. Over longer periods, the affects of law become more important than the institutions.

Own What

Similar to constant term in the “own who” models, the constant term in the “own who” models remains significant in all of the alternate models except one, and the coefficient on the constant term varies between the models. “Mineral all” remains negative and significant in all of the models except four: those relying on the PENN data, those in which the time frame of the average growth was altered and the model where primary school enrollment was substituted for literacy. “Water all” is significant in the PENN model, and in the model where the length of time is 5 years, “water all”, “water some” and “water all” become significant at the 10% level.

In the PENN model, and those models where time frame of the dependent variable changes, the coefficient on the log of time also diminishes noticeably in these models. This might suggest that the relationship between the effectiveness of laws on growth is parabolic. Earlier on when laws are first enacted, and they have not had a chance to infiltrate society, the significance of the restrictions is diminished. As rules become more established, their significance increases. However, perhaps beyond a certain time they lose their effectiveness, either because they no longer suit the needs of society or because people figure out ways to avoid their impact. Nevertheless, the changes in significance of this variable do suggest a cautionary interpretation of this variable in the original model is warranted.

In the “own who” models, there was a trade off between the significance of the law variables and that of the institutional controls, “rule of law” and “civil” when alternative time frames were examined. That pattern is not present in the “own what” models. Like the “own who” models, the variable for civil law becomes significant in the 5 year model and insignificant in the 15 year model. However, unlike the “own who” models the law variables are also significant in the 5 years model, and the “rule of law” variable is not.

Use

The results of the use model appear to be robust to some alterations in the variables. “Government Non Use” is positive and significant in 4 of the models. Only when literacy is dropped or when the time period under consideration changes does it become insignificant. In three of the models, “Amount” becomes significant and in two “Unit Use All” is significant. The constant term, representing no use restrictions, is positive and significant in all models. These results suggest that there is some relationship between land use restrictions and growth.

Sale

The sale variables are also robust to alternative models. The coefficient on the constant term, representing no restrictions is positive and significant across all of the models. Additionally, “sale with permit” is significant and negative in all of the models except for those where growth is averaged over different periods. Finally, “other sale” is significant in both models where enrollment is substituted for literacy (primary and secondary) as well is in the first model (discussed above in this chapter)

and the model using geomean. As for the institutional controls, these models are somewhat similar to the “own who” models, in that both rule of law and the control for the civil law legal family are significant at 5 years but not at 15.

INTERPRETATION

The general theory advanced by this dissertation is that different rights are important contributors to different types of economic outcomes, and as such, different rights have distributional outcomes which can help to explain cross-country differences in state property right institutions. Consequently, analyzing rights as conglomerate or worse, conflating property rights with other constructs diminishes our capacity to understand how property rights affect economic outcomes. The specific hypotheses outlined in chapter 4 were derived mathematically from the Solow growth model. Namely, these hypotheses were that ownership restrictions do not have an effect on growth, while both restrictions on the use of land and restrictions on the transferability of land have a negative effect on growth. The regression results of the models in general provide some support for two of the specific hypotheses derived from chapter 4, while collectively the results support the general theory that different rights are important contributors to different types of economic outcomes.

The results of the “own who” models suggest that having no restrictions on who may own land is associated with growth of GDP per capita. However, the results also suggest that different types of restrictions impact capital accumulation. For

example having laws restricting ownership to citizens is a significant and positive predictor of capital accumulation. Having laws restricting the ownership of some land to those foreign persons who obtain a permit are significant predictors of the average GDP growth per capita. The fact that “foreign permit some” is a positive and significant predictor while the other variables are not may suggest that a certain degree of control is beneficial. Having no restrictions on ownership though associated with growth, may induce too much competition, while disallowing ownership altogether may not provide enough employment. The in between state of regulating those foreigners who wish to own land in a country may provide sufficient employment while also providing labor with an avenue to influence the choice of who is permitted to own land.

The constant term in the “own what” growth model was positive and significant. However, none of the “own what” variables were significant, except for the “mineral all” variable. Minerals represent what might be the most valuable part of an individual’s land. The significant and negative coefficient on this variable might suggest that where a state dispossesses a user of the most valuable part of the land, growth is lower than it would be without any restrictions. The effects on labor and capital are not expected to be direct because most states which claim ownership of all minerals on land control the leasing of mines on land and provide labor to workers and benefits to the owners of capital in this way. Thus, the ownership of minerals represents a type of restriction which might uniquely harm the land owner, rather than other interests in society. On the other hand, given that in the models were

growth was averaged over different time periods, as well as the model where primary education was substituted for literacy warrants further investigation.

Overall, these results suggest that in the case of ownership restrictions, having no restrictions is positively associated with growth. However, in the growth model, the specific type of legal restriction may be irrelevant. On the other hand for the components of growth, the specific type of restriction is significant. This supports the overall theory of the dissertation that variation of rights matters in different ways. Further, this suggests an added layer of complexity to the effects of property rights. Specifically, not only do different types of rights effect growth in different ways, but also that different degrees of the same rights effect different sources of growth.

The use models provide some support for the hypothesis outlined in chapter 4 and for the overall theory of this dissertation. The constant term was positive, suggesting that having no use restrictions (at least of the type coded here) is associated with GDP growth. In addition, “amount” is significant and negatively associated with growth in several for the robust check models. “Government non use” is positively associated with both growth and capital. While this may seem to contradict the theory, it may also suggest that having land in some sort of use is more beneficial than having no restrictions. Thus, countries that disinvest an owner of land for non-use are but place no restrictions on the type of use may experience higher growth. On the other hand, as discussed above, the positive and significant coefficient on the “government non use” variable could be attributed to the

correlation of this type of law with countries with lower initial levels of GDP.

Restrictions on the how both some types of land and all types of land are use is associated with lower levels of fixed capital growth than those countries with no restrictions. These results suggest, again, that while restrictions in use are associated with lower growth, in support of the theory, different types of laws contribute to different components of growth.

The sale models provide support for the hypothesis discussed in chapter 4. The coefficient on the constant term was positive and significant, suggesting that having no restrictions on sale is positively associated with growth. The “sale with permit” variable was negative and significant, providing further confirmation for the hypothesis. However, the “other sale” variable was positive and significant. This suggests that this peculiar class of restrictions is beneficial for growth. Unfortunately, the data is not rich enough to broaden the types of restrictions in this category and investigate which of them is positively associated with growth. This type of investigation, however, might provide more insight as to why this category of laws was contradictory to the hypothesis outlined in chapter 4. Further, more data, particularly in the TFP category would be necessary to confirm which component of growth these variables relate.

While the data collected here is unique and represents a significant advance in developing a theory of property rights, it is limited. The models would benefit from the addition of more countries. This improves the coefficients as well as the standard errors on the variables in the models. In addition, the addition of more countries

would perhaps mitigate the number and influence of countries exerting leverage over the regression line. While the robust standard errors alleviated some of this, an ideal scenario would have used richer data to avoid alteration to the model in this way. Further the addition of more countries would enable more conclusive results to be drawn.¹⁰⁶

In addition, the models would have benefited from a finer grained analysis of the types of laws. Limitations of time required that only a limited number of broad categories of laws be used. However, the variation within these categories can be quite substantial. For example, the use categories only coded for specific types of government intervention in the use of land. However with the proliferation of planning and environmental regulations, this category did not capture the true richness of the variety of use laws. Such data, if available, would have enabled more conclusive results to be drawn.

In spite of the limitations of the data however, this analysis did provide some support for two of the hypothesis from chapter 4, on use and sale restrictions, as well as support for the theory that different types of laws can affect different parts of the growth process. In the next section, I conduct additional analysis to test the hypothesis on how interest groups influence the presence of these laws.

¹⁰⁶ To address the potential problem of endogeneity, I used an instrumental variables regression. The results suggested either that the instruments are weak, or that the causal direction I assert is incorrect. Future work would collect more data in order to parse these two possible conclusions.

Part Two: The Political Economy of Property Rights Laws

Chapter 3 presented several hypotheses about the roles of interest groups in determining the type of laws. The theory articulated was that because different laws have different distributional outcomes, different groups will have preferences over different laws. The owners of land, labor and capital will prefer different laws depending on their perceived benefit from the return on their factor of production. The hypotheses are repeated here:

H1: Owners of land will prefer ownership and eschew use restrictions

H2: Owners of labor will eschew all three types of property right restrictions

H3: Owner of capital will prefer restrictions in all three types of property rights.

Unfortunately, data limitations prevent direct testing of these hypotheses. The theory and hypotheses suggest that the key variable of interest is the return on the factor of production. However, data on land prices, as well as wages is difficult to obtain. As far as the author is aware, as of the writing of this dissertation, there is no database containing information on land prices worldwide. Such data is understandably hard to generate as even within countries land prices vary considerably. In addition, data on wages is also difficult to obtain. The only organization of which the author is aware that attempts to collect such wage data is the ILO. However, this data did not contain a sufficient number of countries in the author's data set to be of use.

An alternative, and admittedly less satisfactory method of testing these hypotheses is to proxy the preferences for the size of the group. For example, a country has a large presence of laborers, then one may argue that, controlling for other factors, those laws predicted to be beneficial to labor will predominate. This method cannot establish a causal connection but rather an association or correlation. However, if such a correlation is established it does provide support for the hypotheses.

Additionally, the theory suggested that constitutional design will also have an influence on the content of laws.

H4: *Presidential systems will have more restrictions on property rights than parliamentary systems*

Both because of the implications of theory and for practical reasons, for all of the models rather than regress the variables on the individual types of laws, the variables are regressed on aggregates of the laws. Specifically the dependent variable in all of the models is a sum of the types of restrictions. Because the variance on “sale sum” and “mortgage sum” was low, the last category is a summation of both, entitled “Transfer sum.”¹⁰⁷

The model in column 1 presents the results of the variables regressed on the “own sum” variable. The results suggest that presidential systems are positively associated with more restrictions on ownership. In addition, population density is negatively associated with “own sum”. Less land per person means fewer ownership

¹⁰⁷ This variable was transformed due to high skew and kurtosis.

restrictions. The capital variable is positive and but not significant, somewhat suggestive of the hypothesis that higher levels of capital are associated with more ownership restrictions. Generally, these results provide support for the hypotheses on the preferences of the owners of land, labor and capital, as well as the hypotheses on constitutional design. The rule of law variable is negative. This suggests that countries that have higher associations with the rule of law have fewer ownership restrictions. The control variable for legal family, “civil” is positive though not significant.

The model in column 2 presents the results of the variables regress on the “use sum” variable. As in the ownership model, the “presidential” variable is significant. Having a presidential system is associated with higher restrictions on the use of land. Additionally, “capital” is positive and significant. That is, capital contributing a higher amount to GDP is associated with an increase in the number of use law restrictions. This provides further support for the hypothesis that capital interests favor more use restrictions. Contrarily however, “population density” is significant but positive. This does not support the hypothesis that labor interests disfavor use laws.

In the last model, both “capital” and “presidential” were significant and positive predictors of mortgage and sale restrictions. Additionally, “population density” was a significant and negative predictor of these restrictions. This model provides support for all of the hypotheses.

Table 13: Models Regression Political Variables on Law Content

VARIABLES	(1) Own Sum	(2) Use Sum	(3) Sqrt Transfer
Presidential	0.650* (0.259)	0.598* (0.259)	0.322* (0.158)
Population Density	-0.000127** (3.89e-05)	0.000157** (3.65e-05)	-5.92e-05* (2.23e-05)
Capital	0.0256 (0.0155)	0.0341* (0.0159)	0.0193* (0.00946)
Rule of Law	-0.336** (0.122)	-0.287* (0.119)	0.0284 (0.0817)
Civil	0.0389 (0.236)	0.208 (0.255)	0.378* (0.144)
Constant	1.710** (0.377)	-0.364 (0.376)	-0.0752 (0.218)
Observations	64	64	63
R-squared	0.341	0.350	0.197

Robust standard errors in parentheses

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

Interpretation

The results of the political models provide support for the hypotheses derived from chapter 3. Presidential systems, or in terms of the theory, those systems in which interest groups are more likely to have access to law making authority, are associated with more restrictions on all types of laws. Additionally, the interest groups in the model are associated with greater restrictions on different types of laws. Capital is associated with higher use restrictions and transferability restrictions. While labor is associated with a decrease in the number of ownership restrictions and transferability restrictions. However, labor was also associated with an increase in the number of use restrictions. Although the data was not rich enough to test the

full implications of the theory, these results do provide support for the initial hypotheses.

Conclusion

This dissertation presents a detailed analysis of the relationship between property rights, economic growth and politics. I theorize that contrary to the assumptions of much of the economic literature, property rights are not uniform across countries. Given that in reality (if not in legal theory) property rights represent a “bundle,” states can and do choose different aspects of the bundle of rights to enact as law. These different pieces of the bundle have different economic results, and can, in part explain differences in economic growth. The pieces of the bundle that are chosen in a state are in part, the result of attempts by groups seeking to control scarce resources, and the manner in which their attempts become legitimized through the political process.

Using a unique data set, described in chapter 5, this chapter presented the results of regressions testing hypotheses derived from this theory. The models in the first part of the chapter showed that different parts of the bundle of rights do affect growth differently. While the absence of restrictions was predictive for growth in all models, some types of restrictions mattered significantly while others were insignificant. For example, “mineral all” was negative and significant in the “own what” models, while some of the other law variables were not significant. In addition, the robustness estimates showed that it is possible that some types of

restrictions may encourage growth. For example, restrictions on what may be sold were positively associated with growth in some of the models in the robustness checks.

Finally, the attempts at disaggregating the models suggested that different rights may matter for different aspects of growth. Thus, for capital, restricting land ownership to citizens was beneficial. If these results do suggest that different components of property right are important to different aspects of growth, and in particular growth of labor or capital, then it is easy to see how economic interest groups may develop preferences over them.

The second part of this chapter provided support for the hypotheses that those systems with greater interest group access are associated with more restrictions on the each of the three components examined (ownership, use and transferability). Further, the data supported a hypothesis that the more prevalent are different groups in society, the higher the association with specific types of rights. Taken as a whole, this chapter has presented a more dynamic conception of property rights than has existed in previous work.

Chapter 7: Conclusion and future research

This dissertation has presented a theory about the variable nature of property rights and its effect on politics and growth. The introduction chapter stated the theory that property rights are not uniform, and can have distributional consequences for different groups. Because of this, different groups will advocate for specific components of the property rights bundle. This not only helps to explain the variation in the content of laws but also the variation in cross-country growth. The second chapter provided an overview of the literature, highlighting the intellectual contribution of this dissertation. It also provided a critical analysis of the macroeconomic literature that analyzes property rights and growth. The results of this examination showed that property rights in economic literature is either not well defined or mis-specified, and consequently most of the knowledge that we have on property rights and growth is about either property rights protection and growth, or good governance and growth. Little is still about actual property rights themselves and their relationship to growth.

Chapter 2 also provided a meta analysis of the case study literature. This type of analysis is useful for several reasons. First, the case study literature on the effect of

property rights in land is substantial. Few studies attempt to analyze the literature in aggregate, and this chapter provided such an analysis. In doing so, the chapter showed how the studies, in aggregate reveal conflicting information about the effects of property rights on microeconomic outcomes until one begins to consider the content of laws. Once the content of laws is considered, and the distributional consequences of the laws for the owners of land, labor and capital is also considered, the studies appear to be less conflicting.

Chapter 3 specified the theory of property laws, economic growth and political institutions. The first part of the chapter uses economic relationships and graphical representations to outline the manner in which property rights can have consequences for the owners of the different factors of production. Incorporating the content of property laws into economic models is important for clearly specifying the logical consequences of those laws. Following this, the chapter showed how political institutions through which these groups must initiate the requests for different rights, help to determine which rights are enacted into law.

Chapter 4 relied on an economic model to demonstrate that different parts of the property rights bundle can affect output and growth. Restrictions on ownership, use and sale are theorized to diminish output. However, the components of the bundle contribute differently to growth. While use and sale restrictions diminish growth, ownership restrictions were predicted to have no effect on growth.

Chapter 5 then presents the data used to analyze these hypotheses. The chapter describes a unique dataset in which the land laws of 70 countries were

analyzed and coded. It draws from two comparative law methodologies and presents a method for empirical analysis of laws.

Chapter 6 presents the empirical analysis of the relationships hypothesized in chapters three and four. I find that the content of laws does have an effect on growth. The absence of restrictions is strongly correlated with growth in all models. These results are robust to the inclusion of other variables and measures. In addition, different types of laws have more of an effect on growth than others. Additionally, in some instances, when the data was rich enough, it was possible to see that different laws matter for the different components of growth, labor, capital and total factor productivity

The second part of the chapter analyzes the hypotheses about the relationships between property laws and political institutions. The regression models support the theories of chapter 3. Namely, presidential systems are more likely to be associated with restrictions on property. In addition, different groups are associated with different types of restrictions.

Implications of Theory

This work as presented an argument as to why countries have variation on the content of their property rights legislation and in their economic growth outcomes. The owners of land, labor and capital have different interests in types of property rights laws. The owners of land will favor ownership and use restrictions, the owners of labor will not favor restrictions on ownership, use or transferability, and the owners of capital will favor all three types of restrictions in property rights.

These groups compete with each other in the political arena and their interests are mediated through the constitutional design of this arena. Presidential systems, permit more interest group access, will experience greater restrictions in rights. Because of differences in the preferences of the interests groups and in constitutional design, countries will have differences in the content of their property rights legislation.

While restrictions in all rights lead to lower output in the short run, in the long run, only restrictions in use and transferability are hindrances to growth. The empirical portion of this dissertation has provided support for this theory, although more work is needed to further confirm the theory, there are several bodies of work to which this work contributes.

Contributions

One area this research contributes to is political economy, specifically that which addresses the political economy of property rights. As discussed in earlier chapters, in this literature, property rights are identified as essential to economic growth (North, 1981; North and Weingast, 1989). However, the empirical testing of these theories of property rights has relied upon overly broad measures. Typically, these studies use composite measures of “the rule of law”, and measures of “property rights enforcement” to capture the relationship between property rights and growth. As argued earlier, such measures, while advantageous for their ability to aid in cross-national comparisons, are not nuanced enough to address the particularities of property rights protections. Further, because of the opaqueness of

their methods, it is not clear what aspects of property rights they may be measuring. As a result of these measurement problems, these studies may not be conclusive as to the relationship between property rights and economic growth. This study proposes a more reliable method of measuring property rights, based upon the content of laws, and further offers a unique dataset that uses this method.

Policy Significance

In addition to the relevance to institutional and political economy literature, this project has implications for the policy arena. First, political conflict frequently occurs over questions of property rights. This is particularly evident in wars and inter-ethnic conflict over land. For example, in countries such as Kenya, land remains a salient issue, and some believe the lack of resolution over land helped to fuel the recent electoral violence. In addition, the study of property rights is significant because conflict over property rights is costly and time consuming to resolve. Negotiations and peace agreements would be easier if there were a theoretical understanding of the different incentive structures that property rights create. Also, many emerging economies are now grappling with issues of property rights. For countries such as these which are dually concerned with revising laws and promoting economic growth, the theory developed here may be particularly helpful. That is, by understanding the preferences that groups have over different types of rights, countries may be better able to mitigate conflict over rights.

Second, developing a theory of property rights is significant because many policies are implemented on the basis of existing assumptions of property rights, and

these policies have not produced expected results. Advancing a theory of property rights could potentially avoid failed policies. In addition, several scholars have suggested that property rights distribution have an effect on the poor (Fandino, 1995; Flores, 2008). Those organizations which seek to advance the interests of the poor would benefit from understanding how different rights might affect the poor, particularly if the poor are predominately laborers.

Finally, issues of property rights are constantly emerging as new technology is developed. Conflicts over property have resulted over the internet, music, pharmaceuticals, and other intellectual property. With the furtherance of explorations into space, one can only imagine that the final frontier will only be a new domain over which potential issues of property rights will emerge. Understanding the economic and political consequences of rights distribution will be a new and emerging problem which this work may help to resolve.

Unexpected Findings

This study has revealed several unexpected findings, which though tangential to the issue of property rights and economic outcomes, are nevertheless worth noting. The first of these findings is a possible relationship between the importance between the institutions such as rule of law and the importance of the content of laws. In several of the models presented in chapter 6, where the rule of law variable was significant the variables representing the content of law were not significant, and vice versa. Where the variables representing the content of law were significant, the rule of law variable was not. Though these results are not conclusive, as they

were not the object of this study, this does suggest that there may be an inverse relationship between the importance of enforcement institutions and the content of the law itself in some circumstances.

An additional unexpected finding was the relationship between customary law and economic growth. In almost all models, the customary law variable was negative and significant. One possible explanation for this is that the presence of an area of customary law is authoritative may detract land and labor resources from the state. Further research is needed to explore this relationship.

A further unexpected finding was the relationship between time a law was in operation and economic growth. In many of the models, time was negative and significant. However, in some of the models where the length of time of the outcome variable was altered to 5 years or 15 years, time was not significant. This may suggest a parabolic relationship between time and economic growth. When laws are first enacted, time is not significant; however, when laws have been enacted for an extended period of time, they begin to exert a small and negative impact on growth. However, beyond a certain time, the time of the law is insignificant. As with the other unexpected findings, this needs further evaluation and analysis.

Finally, an unexpected finding was that in many cases the variable representing legal type was insignificant. This addresses the debate referenced earlier in this dissertation about which type of legal system is better, common or civil law. Perhaps the answer is that the system is irrelevant if the content of law is taken into account. Further work is needed to explore the implications of this finding.

Future Research

The limitations of the data suggest avenues for future research. Because the dataset only contained 70 observations, and was subject to influential points, it was difficult to draw clear inferences about the results of the models. Future research would involve not only additional observations, but also a finer grained analysis of the types of rights. For example, the use variables were necessarily broad, given the time limitations. However, expanding this variable to capture the wide array of use restrictions that countries place on land ownership, including zoning and environmental regulations would greatly advance this work.

In addition, expanding the time period under observation and creating a time series- cross sectional dataset would greatly increase the explanatory power of the data. Additionally, future work would consider judicial interpretations of the law, particularly in common law countries, as well as regulations and executive orders in other countries, in order to further assess how the law in all of its forms impacts economic outcomes. However, in spite of these limitations, the models gave credence to the theory developed in this dissertation. Not only does the content of laws matter, but it matters in a variety of ways which could enhance our understanding of both growth and politics.

Appendices

Appendix 1: List of Countries Used

1. Albania
2. Antigua and Barbuda
3. Argentina
4. Armenia
5. Australia
6. Austria
7. Bahamas
8. Belgium
9. Belize
10. Bhutan
11. Brunei
12. Bulgaria
13. Cambodia
14. China
15. Cyprus
16. Denmark
17. Egypt
18. Eritrea
19. Estonia
20. Finland
21. France
22. Germany
23. Ghana
24. Greece
25. Guyana
26. Iceland
27. Indonesia
28. Ireland
29. Israel
30. Italy
31. Jamaica
32. Kenya
33. Kiribati
34. Korea, DPR
35. Lao
36. Lesotho
37. Liberia
38. Lithuania
39. Luxembourg
40. Malawi
41. Malaysia
42. Maldives
43. Mongolia
44. Nepal
45. Netherlands
46. Norway
47. Papua New Guinea
48. Philippines
49. Poland
50. Portugal
51. Samoa
52. Singapore
53. Slovenia
54. Solomon Islands
55. South Africa
56. Spain
57. Sri Lanka
58. Sweden
59. Switzerland
60. Tanzania
61. Thailand
62. Tonga
63. Trinidad & Tobago
64. Uganda
65. United Kingdom
(England)
66. Vanuatu
67. Vietnam
68. Zambia

Appendix 2: Sample Coding Sheet

ZAMBIA



Table of Laws Used and Legislative History

<p>Title of Law Agricultural Lands Act of 1960 (CAP 187)¹⁰⁸</p>
<p>Description This act regulates the control of “state lands”, those land formerly designated for European settlement, for the purposes of commercial farming. It establishes and regulations the governance of an agricultural board, and provides for the alienation, and conditions of use of agricultural land.</p>
<p>Amendments and Statutory History By acts 42 of 1963 and 13 of 1994</p>

¹⁰⁸ Note that Roth 1995 has this listed as chapter 292 where as the on-line resource <http://www.saflii.org>, has the chapter as 187.

By Government Notice 227 of 1964 And by Statutory Instrument 65 of 1965
Title of Law The Land (Conversion of Titles) Act of 1975
Description This act vests all land in the president, and converts all freehold land into leasehold. It also regulates the alienation, leasing and use of this land. According to Roth, 1995, this act applies to land not “scheduled” under the Agricultural Land Act. “As Bruce and Donner (1982) suggest, there is no logical basis for this distinction between ‘scheduled’ and ‘unscheduled’ State Land, and consolidations is advised.” (16)
Amendments and Statutory History REPEALED BY <i>the Land Act 1995</i>
Title of Law The Lands Act (1995) (CAP 187)
Description This act vests all land in the President, and provides for its use and administration. Additionally, it repeals The Land (Conversion of Titles) Act of 1975, as well as the Zambia (State Land and Reserves) orders 1928 to 1964, governing Reserve and Trust land.
Amendments and Statutory History By Act 20 of 1996
Title of Law The Water Act 1949/2006 (CAP 198)
Description Regulates the use and control of water
Amendments and Statutory History By Acts 5 of 1950, 39 of 1950, 14 of 1955, 19 of 1959, 69 of 1965, 47 of 1970, 13 of 1994 And by Government Notices 277 of 1964 and 497 of 1964 And by Statutory Instrument 55 of 1964
Title of Law Mines and Minerals Act 1995 (CAP 213)
Description Regulates the control of mines and minerals
Amendments and Statutory History Acts 41 of 1996, 1 of 1997, 8 of 1997, 8 of 1998, 5 of 1999, 2 of 2000, 5 of 2003, 4 of 2006
Title of Law Lands and Deeds Registry Act 1914/1994 (CAP 185)
Description Regulates the registration of titles
Amendments and Statutory History By acts 1 of 1925, 5 of 1926, 7 of 1937, 5 of 1943, 53 of 1950, 50 of 1951m 17 of 1954, 20 of 1957, 31 of 1958, 25 of 1959, 9 of 1967, 46 of 1969 and 47 of 1970 By Government Notice 274 of 1964 By Statutory Instrument 65 of 1965 And By Acts No. 38 of 1994, and 13 of 1994

Secondary Resources

1. Roth, Michael, ed. (1995) *Land Tenure, Land Markets and Institutional Transformation in Zambia*. LTC Research Paper 124
2. Adams, Martin (2003) *Land tenure policy and practice in Zambia: issues relating to the development of the agricultural sector. Draft.*
<http://aec.msu.edu/fs2/zambia/resources/Land1.pdf>
3. Von Loenen, Bastiaan (1999) *Land Tenure in Zambia*.

Location of Laws

The South African Legal Information Institute (SALII)

(http://www.saflii.org/zm/legis/consol_act/) contains copies of *The Lands Act*, 1995, and the *Agricultural Lands Act* 1960. When last accessed (April 24, 2012), the database was last updated July 30, 2009. Laws are also available from the government of Zambia (<http://www.parliament.gov.zm/downloads/VOLUME%2012.pdf>)

Relevant Legal History

Property law in Zambia is a mixture of treaty remnants, customary law and English common law. In the 1880s and 1890s, the British South Africa Company (BSAC) made treaties with various chiefs in Zambia. In exchange for mineral rights, the company guaranteed rights of Africans to areas of tribal land. These treaties gave the company administrative control over the various territories. Different treaties for an area in Zambia known as Barotseland gave it territory special protection. For example, in 1899, the Barotseland North-Western Rhodesia Order in Council of 1899 designated special areas for the *litanga* people in exchange for mining and trading rights in their territory.

In 1900 the North-Eastern Rhodesia Order in Council was enacted, and gave the BSAC control over the north eastern part of the territory. In 1911, under the 1911 Northern Rhodesia Proclamation Act of August 17, 1911, the existing two territories were consolidated, and control over the administration of the territory was given to the BSAC, subject to British authority. The 1911 Order in Council also required the BSAC to give African sufficient land for use. 1924, the BSAC relinquished control of the territory to the British government in exchange for mineral rights.

In 1928 the Northern Rhodesia Order in Council reserved areas of land for white settlement (Crown land), governed by English law, and areas for African settlement, governed by customary law. Between 1926 and 1928, the government forcibly resettled African populations from the Crown lands onto the African reserves.

Due to overcrowding on the African reserves and undersettlement of crown lands, the policy was reversed in 1947. The 1947 Order in Council re-scaled the amount reserved for white settlers and transferred approximately 100 million acres (57% of the land in the country) into African reserves, calling the new African reserves "Trust Lands." Unlike the African reserves, the new trust lands could be leased to non-Zambians. However, like the Reserves, the Trust land was subject to customary law. Until 1995, both the Trust and Reserve lands were governed by the Zambia (State Land and Reserves) Orders 1928 to 1964.

"Under these orders, the land was set apart for the sole and exclusive use of the indigenous peoples of Zambia, although the President could make grants of land to

Zambians and rural councils for periods up to 99 years. Under the Zambia (Trust Land) Orders 1947 to 1964, which was also repealed by the Lands Act of 1995, the President could grant a right of occupancy of up to 99 years to a non-Zambian and demand rent for the use of the land. While Zambians and District Councils could own title, non-Zambians were also allowed to do so provided that they qualified as investors or were approved by the President, who normally made such grants in the form of leasehold. Either by oversight or design, the laws governing the granting of Reserve and Trust Land by the President (in effect the Commissioner of Lands) were not repealed by the Land (Conversion of Titles) Act 1975. The practical effect was that land matters in Reserves and Trust Lands continued to be interpreted in the light of the Orders of the colonial government.” (Adams, 7)

By 1944, in Crown lands, the colonial government reversed the policy of granting freeholds in Crown lands, and granted long-term leaseholds to new settlers instead. However, the Colonial government enacted the Land Ordinance of 1956, which permitted settlers to upgrade to freeholds if they used the land satisfactorily.

Zambia attained independence in 1964. By this time, there were 5 different types of land, under four different administration schemes. These types were leasehold crown land and freehold crown land were governed by English common law and the administrative laws of the territory, African Reserves and Trust land were both governed by customary and administrative law, with different rules applying to the lands, finally, Barotseland, was governed by a different set of regulations due to the 1899 order in council.¹⁰⁹

Adams (2003) describes the post-independence land politics of Zambia. The United National Independence Party (UNIP) adopted a socialist platform with visions of a classless society, viewing land as the property of the people. Individual rights existed only in the right to use land. Land was not to be alienated or used for private commercial gain. Thus, after the UNIP became the sole party in a one-party state, it enacted the Land (Conversion of Titles) Act of 1975. The Act established that all land is vested in the President on behalf of the people. All freeholds are converted into leaseholds. While the 1995 Lands Act repealed the Land (Conversion of Titles) Act of 1975, much of the effect of the law remains unchanged.

Coding Sheet & Interpretation Notes

OWNERSHIP RIGHTS AND RESTRICTIONS

RESTRICTIONS ON AMOUNT & WHO

5. Does the law specify that all land is owned by the state (coded as no ownership in the database)?
 - a. **YES**
 - i. See *Land Act*, 1995, article (3)
 1. “3. (1) Notwithstanding anything to the contrary contained in any other law, instrument or document, but subject to this Act, **all land in Zambia shall vest absolutely in the President and shall be**

¹⁰⁹ While the 1964 Barotseland Agreement, as well as the Constitution of 1964 recognized the control of the *litanga* over Barotseland, the Western Miscellaneous Provisions) Act 1970, vested all land in the President of Zambia.

held by him in perpetuity for and on behalf of the people of Zambia. (2) Subject to subsection (4) and to any other law, the President may alienate land vested in him to any Zambian. (3) Subject to any other provisions and procedures relating to alienation of land, the President may alienate land to a non-Zambian under the following circumstances:..."

b. CODED AS "1"

- i. Although this suggests that the President may alienate land, the use of the word "alienate" does not imply a loss of control. Section 6 of the law indicates that alienation means lease.
 - 1. "(6) The President shall not alienate any land under subsection (2) or (3) for a term exceeding ninety-nine years unless..."

- ii. But see Agricultural Lands Act

- 1. 25. (1) A lessee whose lease was granted by virtue of paragraph (b) of subsection (1) of section twelve shall be entitled to obtain an option to purchase his holding where all the following conditions have been fulfilled: Option to purchase a holding (a) not less than seven years have elapsed since the date of commencement of his lease; (b) all the provisions of this Act which are applicable to him and all the terms and conditions of his lease have been complied with; (c) permanent improvements valued by the Board at not less than K20,000 have been effected on his holding: Provided that, where the holding is less than 1,000 acres in extent, the minimum value of the permanent improvements for the purposes of this paragraph shall be K10,000 or such amount as bears the same proportion to K20,000 as the hectareage of the holding bears to 1,000, whichever is the greater.

c. If not, is there is a state leasing scheme?

- i. **YES, CODED AS 1**

- ii. What is the longest time limit of the lease permitted?

- 1. **99 years**

- a. See *Lands Act*, 1995, Section 3(5)

- i. "(5) All land in Zambia shall, subject to this Act, or any other law be administered and controlled by the President for the use or common benefit, direct or indirect, of the people of Zambia. (6) The President shall not alienate any land under subsection (2) or (3) for a term exceeding ninety-nine years unless(a) the President considers it necessary in the national interest or in the fulfilment of any obligations of the Republic; and

(b) it is approved by a two- thirds majority of the members of the National Assembly.”

6. If ownership is allowed, are there restrictions on the amount of property that may be owned?
NO, CODED AS “0” (ownership not permitted)
 - a. If yes, what is the size allowed?
 - i. **N/A**
7. For ownership or use, are there restrictions by gender?
 - a. **NO, CODED AS “0”**
8. For ownership or use, are there restrictions by ethnicity?
 - a. **NO, CODED AS “0”**
9. For ownership or use, are there restrictions by residency?
 - a. **NO, CODED AS “0”**
10. For ownership or use, are there restrictions by citizenship?
 - a. **NO, CODED AS “0”**
11. Are there exceptions to citizenship by the ethnicity or country of origin of the intended owner?
 - a. **NO, CODED AS “0”**
12. Must foreigners obtain permission from the government before acquiring ownership or use?
 - a. **YES**
 - i. See *Lands Act*, 1995, section 3(3)
 1. “(3) Subject to any other provisions and procedures relating to alienation of land, the President may alienate land to a non-Zambian under the following circumstances: (a) where the non-Zambian is a permanent resident in the Republic of Zambia; (b) where the non-Zambian is an investor within the meaning of the Investment Act or any other law relating to the promotion of investment in Zambia; (c) where the non-Zambian has obtained the President's consent in writing under his hand; (d) where the non-Zambian is a company registered under the Companies Act, and less than twenty-five per centum of the issued shares are owned by non-Zambians; (e) where the non-Zambian is a statutory corporation created by an Act of Parliament; (f) where the non-Zambian is a co-operative society registered under the Co-operative Societies Act and less than twenty-five per centum

of the members are non-Zambians; (g) where the non-Zambian is a body registered under the Land (Perpetual Succession) Act and is a non-profit making, charitable, religious, educational or philanthropic organization or institution which is registered and is approved by the Minister for the purposes of this section; (h) where the interest or right in question arises out of a lease, sub-lease, or under-lease, for a period not exceeding five years, or a tenancy agreement; (i) where the interest or right in land is being inherited upon death or is being transferred under a right of survivorship or by operation of law; (j) where the non-Zambian is a Commercial Bank registered under the Companies Act and the Banking and Financial Services Act; or (k) where the non-Zambian is granted a concession or right under the National Parks and Wildlife Act”

- a. **Note:** As all of the provisions except (h) and (i) require some form of registration or consent by the government, this is coded as **F Permission All**.

- b. Is this for all land or some land? (if some, list type of land)
 - i. **ALL**

13. Restrictions on businesses (also corporations, entities, etc)?

- a. **YES, CODED AS BUSINESS ALL**
 - i. See above notes for question 8

14. Other restrictions of note?

- a. **No**

RESTRICTIONS ON WHAT

1. Does the State recognize customary land?

- a. **YES, CODED AS 1**

b. If yes, what is the percent of land in the country that is customary?

1. **93%**

1. See Adams , page 4

- a. “18. While Zambia covers a total landmass of 75 m ha State Land comprises only 4.5 m ha (6%), and Customary Land comprises the rest (93.9%) (formerly consisting of Reserve Land, 27.2 m ha, 36.2%, and Trust Land, 43.3 m ha, 57.7%). See Table 1” 19. The area of each category tends to vary as records in the Land and Deeds Registry are said to be in some disarray (e.g. piecemeal conversion of Customary Land to State Land by way of leasehold since ca

1985 does not seem to have been taken into account in the 1993 data).”

2. Does the State claim ownership of valuable resources on a person’s property (such as minerals, etc.)?
 - a. Yes
 1. See Mines and Minerals Ct 1995/2006
 1. 3. (1) All rights of ownership in, searching for, and mining and disposing of, minerals are hereby vested in the President on behalf of the Republic. (2) The provisions of this section have effect notwithstanding any right, title or interest which any person may possess in or over the soil in, on or under which minerals are found
 2. **CODED AS “1” MINERALS ALL**
3. Does the law claim ownership of natural bodies of water, or similar, such as shorelines, rivers, etc. that might otherwise be part of a person’s land?
 - a. Yes
 1. See article 5 Water Act, 1949/2006
 1. ‘5. The ownership of all water is vested in the President. The use, diversion and apportionment of all water shall be made in terms of this Act: Ownership of all water vested in President Provided that a landowner shall have the right to take free of charge such private water occurring on his land as he may need for his own primary secondary or tertiary use.’”
4. Other restrictions of note?
 - a. **NO**

USE RIGHTS & RESTRICTIONS

RESTRICTIONS FOR PUBLIC BENEFIT

5. Does the law have a specified unit use (defined as restrictions on how a person’s land must be used aside from zoning and general requirements- these may include required agricultural yields, technology usage, etc.)?
 - a. **Yes, for agricultural land**
 1. See *Agricultural Lands Act*, article 21
 1. “21. (1) Every lessee shall take up effective personal residence on his holding within six months after the date of commencement of his lease, or within such longer period as may be approved by the Board, and shall beneficially occupy his holding. (2) Beneficial occupation in respect of any holding shall mean- (a) from the date of taking up effective personal residence as required by subsection (1)- (i) in the case of an individual lessee, personal

residence on the holding, and in the case of a company, personal residence on the holding by a manager who is in charge of farming operations and who is approved for that purpose by the Board; (ii) the practice of sound methods of good husbandry; (iii) the proper care and maintenance of all improvements effected on the holding; (b) before the expiration of a period of three years after the date of the lessee taking up effective personal residence as required by subsection (1)- (i) the annual cultivation of such proportion of the area of the holding as may be laid down by the Board; (ii) the maintenance of stock as laid down by the Board; (iii) the provision for the numbers of stock maintained under the provisions of subparagraph (ii) of dipping or stock spraying facilities, paddock fencing or ring fencing and water supplies, in each case considered adequate by the Board; (iv) the provision of a habitable house and such farm buildings as may be reasonably necessary for the purposes of the proper working of the holding; (v) the provision of permanent improvements, whether required by or under the preceding provisions of this section or not, valued by the Board at not less than such sum as may have been laid down by the Board.”

2. See also, article 23

- a. **“23.** (1) A lessee shall have the right to cut down and use such indigenous trees on his holding as he may from time to time require for his own farming and domestic purposes, but he shall not be entitled, except with the prior written approval of the President, to sell or remove any timber from the holding. (2) Any lessee who sells or removes any timber in contravention of the provisions of subsection (1) shall be guilty of an offence and shall be liable to a fine not exceeding three thousand penalty units. *(As amended by S.I. No. 65 of 1965 and Act No. 13 of 1994)*”

b. **CODED AS “SPECIFIED UNIT USE SOME”**

6. Does the law have a specified general use (i.e. a zoning scheme outlined in the law)?

- a. NO
b. **CODED AS “0”**

7. Regardless of ownership, does the law have a minimum or maximum use requirement?

Minimum or maximum?

Size?

- a. **NO**
b. **CODED AS “0”**

8. Does the law have restrictions on non-use (if property is not used for a certain period of time, it may be taken away)? **YES**

a. State-taking or adverse possession?

1. **STATE TAKING**

1. See Agricultural Holdings Act

a. "36. (1) For the purposes of this section, land comprised in a State Grant shall be deemed to have been abandoned if the owner fails- (a) for a period exceeding three years, to maintain occupation of the land in person or through a tenant or manager; or (b) for a period exceeding three years, to maintain on the land, to the satisfaction of the Board, a reasonable standard of agricultural production, having regard to the character, extent and situation of the land and the general level of agricultural production being maintained at the time on agricultural holdings of similar character in the neighbourhood. (2) In the event of the abandonment of any land comprised in a State Grant, the Board may serve notice on the owner thereof requiring such owner within such period, not being less than twelve months from the date of the notice, as may be specified in such notice, to reoccupy or arrange for the reoccupation of such land, and such notice shall state in detail the steps which the owner is required to take in order to comply therewith."

b. How long is the period of non-use (indicate below)

1. **3 YEARS**

9. Are there other use restrictions not mentioned above?

a. Yes

1. See Agricultural Holdings Act

1. Need approval before making certain improvements to land

a. 40. (1) A tenant who proposes to effect at his own expense any of the improvements set out in the Second Schedule shall seek the prior approval of the Board which shall consider whether such improvements are reasonably required for the management, improvement or development of the holding."

SALE OF LAND

10. Does the law outright forbid SALE of land?

a. NO

b. **CODED AS 0**

11. Does the law forbid SALE of land without permission or notice?
- a. Yes
 1. See *Land Law* 1995, article 5(1)
 1. "5. (1) A person shall not sell, transfer or assign any land without the consent of the President and shall accordingly apply for that consent before doing so."
 - b. **CODED AS "1"**
12. If yes, is this for all land or some land (if some, list type)
- a. **ALL**
13. If yes, whose permission is required (government, neighbor, tenant, etc.)
- a. **GOVERNMENT (PRESIDENT)**
14. Are there restrictions on WHAT may be sold?
- a. NO
 - b. **CODED AS 0**
15. If yes, what type of land is restricted?
- a. **N/A**
16. Are there other restrictions on SALE of land?
- a. NO
 - b. **CODED AS 0**

REGISTRATION/RECORDING

17. Does the country have a registration law?
- a. Yes
18. What must be registered?
- a. See Lands and Deeds Registry Act
 1. "4. (1) Every document purporting to grant, convey or transfer land or any interest in land, or to be a lease or agreement for lease or permit of occupation of land for a longer term than one year, or to create any charge upon land, whether by way of mortgage or otherwise, or which evidences the satisfaction of any mortgage or charge, and all bills of sale of personal property whereof the grantor remains in apparent possession, unless already registered pursuant to the provisions of "The North-Eastern Rhodesia Lands and Deeds Registration Regulations, 1905" or "The North-Western Rhodesia Lands and Deeds Registry Proclamation, 1910", must be registered within the times hereinafter specified in the Registry or in a District Registry if eligible for registration in such District Registry: Provided that if a document creating a floating charge upon land has been registered under the provisions of section *ninety nine* of the

Companies Act or section *thirty-two* of the Co-operative Societies Act, it need not be registered under the provisions of this Part unless and until such charge has crystallised or become fixed.”

19. What is the minimum period of requirement for lease registration?

a. **1 YEAR**

1. See above

20. Is the system one of titling or deeds or does the country have both?

a. Does the state provide a guarantee of the validity of the registered documents or does registration provide indefeasibility of title?

1. **DEEDS**

a. See Lands and Deeds Registry Act

i. “21. Registration shall not cure any defect in any instrument registered or confer upon it any effect or validity other than that provided by this Part.”

b. See also next section

i. 22. (1) Subject to such regulations as the Minister may make from time to time, the Register may during the usual office hours be searched and examined by anyone and certified copies of any entry may be obtained, if required, upon payment of such fees as may be prescribed. Registry open for search (2) Where a register or part of a register is kept other than in the form of a book, it shall be made available for search in a convenient written form, as a printed document or by means of an electronic device. (As amended by G.N. No. 274 of 1964 and Act No. 38 of 1994)

21. What is the effect of registration?

a. Does the registration complete the transaction (i.e. is registration required for the transaction to become effectual)?

1. See Lands and Deeds Registry Act, 6

1. “ 6. Any document required to be registered as aforesaid and not registered within the time specified in the last preceding section shall be null and void: Provided that- (i) the Court may extend the time within which such document must be registered, or authorise its registration after the expiration of such period on such terms as to costs and otherwise as it shall think fit, if satisfied that the failure to register was unavoidable, or that there are any special circumstances which afford ground for giving relief from the results of such failure, and that no injustice will be caused by allowing registration; (ii) the probate of a will required to be

registered as aforesaid, and not registered within the time specified in the last preceding section, shall be null and void so far only as such will affects land or any interest in land.”

2. CODED AS “1” COMPLETES TRANSACTION

22. Does registration protect *some* third parties (good faith purchases for value, without notice) or *all* third parties?

a.

1. See Lands and Deeds Registry Act,

1. “58. Except in the case of fraud, no person contracting or dealing with or taking or proposing to take a transfer or mortgage from the Registered Proprietor of any estate or interest in land in respect of which a Certificate of Title has been issued shall be required or in any manner concerned to inquire into or ascertain the circumstances in or the consideration for which such Registered Proprietor or any previous Registered Proprietor of the estate or interest in question is or was registered, or to see to the application of the purchase money or of any part thereof, or shall be affected by notice, direct or constructive, of any trust or unregistered interest, any rule of law or equity to the contrary notwithstanding, and the knowledge that any such trust or unregistered interest is in existence shall not of itself be imputed as fraud.”

2. See also next section

1. “59. Nothing in Parts III to VII shall be so interpreted as to render subject to action for recovery of damages, or for possession, or to deprivation of any land in respect to which a Certificate of Title has been issued, any purchaser or mortgagee bona fide for valuable consideration of such land on the ground that his vendor or mortgagor may have become a Registered Proprietor through fraud, or error, or under any void or voidable instrument, or may have derived from or through a Registered Proprietor through fraud or error, or under any void or voidable instrument, and this whether such fraud or error consists in wrong description of the boundaries or of the parcels of any land, or otherwise howsoever.”

b. **CODED AS 1 “PROTECTS SOME”**

23. Other restrictions not listed above

a. None

MORTGAGE

24. Does the law outright forbid the MORTGAGE (or use of collateral) of land?

a. **NO**

b. **CODED AS "0"**

25. Does the law outright forbid the MORTGAGE of land without government permission?

a. **NO**

b. **CODED AS "0"**

26. Are there restrictions on WHAT may be Mortgaged?

a. *Yes Agricultural Lands Act*

1. "24. (1) A lessee shall not- Restraint on Alienation (a) assign, sublet, mortgage, charge or in any manner whatsoever encumber, or part with possession of his holding or any part thereof or interest therein or concerning the same; or (b) attempt so to assign, sublet, mortgage, charge, encumber or part with possession; or (c) enter into any partnership for the working of his holding; without the prior written consent of the President, and every application for such consent shall be made in writing to the Board. Any contravention of the provisions of this subsection shall be deemed to be a failure to comply with a requirement of this Act. (2) Nothing in this section shall be construed to prevent a lessee from incurring any debt or any charge upon his holding under the provisions of the Natural Resources Act or of any other written law under the provisions of which debts or charges may be imposed upon a landholder without his consent. (As amended by S.I. No. 65 of 1965)"

b. **CODED AS "1"**

27. Are there restrictions on to what institution the land may be mortgaged?

a. **NO**

b. **CODED AS "0"**

28. Are there other restrictions on MORTGAGE of land?

a. **No**

29. Type of Mortgage

a. Transfer of property a lender by title or lease subject to a right to redeem (title theory)

b. Lien on property (lien theory requires Court Action)

1. See Lands And Deeds Registration Act , section 65

1. "A mortgage of any estate or interest in land shall have effect as security and shall not operate as a transfer or lease of the estate or interest thereby mortgaged, but the mortgagee shall have and shall be deemed always to have had the same protection powers and remedies (including a power of sale, **the right to take proceedings to obtain possession from the occupiers** and the persons in receipt of rents and profits or any of them and, in the

case of land held in leasehold, the right to receive any notice relating to the land the subject of the mortgage which under any law or instrument the mortgagor is entitled to receive) as if the mortgage had so operated as a transfer or lease of the estate or interest mortgaged. (No. 31 of 1958)”

- c. Mortgage entitled to possession upon default before foreclosure (intermediate theory)

TIME AND TYPE OF LAWS

30. How long have the laws been operational (original)?

- a. Ownership
 - 1. *Land Act 1996*
 - 1. 2009-1996=13
 - 2. **CODED AS 13 Years**
 - 2. *Mines and Minerals Act 1949*
 - 1. 2009-1949=50
 - 3. *Water Act 1995*
 - 1. 2009-1995= 14
- b. Use
 - 1. Agricultural Lands Act, 1960
 - 1. 2009-1960=49
- c. Sale
 - 1. *Land Act 1996*
 - 1. 2009-1996=13
 - 2. **CODED AS 13 Years**
 - 2. Agricultural Lands Act, 1960
 - 1. 2009-1960=49
- d. Mortgage
 - 1. Land and Deeds Registry Act 1914
 - 1. 2009-1914=95
 - 2. **CODED AS 95 YEARS**
- e. Registration
 - 1. Land and Deeds Registry Act 1914
 - 1. 2009-1914=95
 - 2. Agricultural Lands Act, 1960
 - 1. 2009-1960=49
 - 2. **CODED AS 95 YEARS**

31. How long have the laws been operational (consolidated/last amended)?

a. Ownership

1. *Land Act 1996*
 1. 2009-1996=13
 2. **CODED AS 13 Years**
2. *Mines and Minerals Act 2006*
 1. 2009-2006=3
3. *Water Act 2006*
 1. 2009-2006=3

b. Use

1. Agricultural Lands Act, 1965
 1. 2009-1965=44
 2. **CODED AS 44 YEARS**

c. Sale

1. *Land Act 1996*
 1. 2009-1996=13
 2. **CODED AS 13 Years**
2. Agricultural Lands Act, 1965
 1. 2009-1965=44

d. Mortgage

1. Land and Deeds Registry Act 1994
 1. 2009-1965=44
 2. **CODED AS 15 YEARS**

e. Registration

1. Land and Deeds Registry Act 1994
 1. 2009-1994=15
2. Agricultural Lands Act, 1965
 1. 2009-1965=44
 2. **CODED AS 15 YEARS**

32. Type of legal system

(juriglobe) **Common/customary**

a. If common law, what is the name and date of the application statute?

1. The English Law (Extent of Application) Act (Cap 11), 1963

1. "2. Subject to the provisions of the Constitution of Zambia and to any other written law- (a) the common law; and (b) the doctrines of equity; and (c) the statutes which were in force in England on the 17th August, 1911 (being the commencement of the Northern Rhodesia Order in Council, 1911); and (d) any statutes of later date than that mentioned in paragraph (c) in force in England, now applied to the Republic, or which hereafter shall be applied thereto by any Act or otherwise; and (e) the Supreme Court Pracice [sic] Rules of England in force until 1999:"

Appendix 3: Control Variable Descriptions

Main Models

GDP Growth

The outcome variable is gross domestic product (GDP) growth per capita. The primary source of the data on GDP growth per capita used was the World Bank's (hereinafter Bank) *World Development Indicators* measure of GDP in constant 2000 U.S. dollars. The Bank measures GDP as the "sum of gross value added, at purchaser prices converted at market exchange rates to current U.S. dollars, by all resident producers in the economy plus any product taxes (less subsidies) not included in the valuation of output."¹¹⁰ The data are obtained from statistical organizations and central banks of individual countries. Data from "high-income" countries are obtained from the Organization for Economic Co-operation and Development (OECD).¹¹¹ I used the banks data on population to calculate the GDP per capita for each year, and used the results of these calculations to calculate Growth of GDP per capita. Of special note is that data on North Korea is unavailable. While the advantage of

¹¹⁰ World Bank, 2008, "Quick Reference Tables"

¹¹¹ Although the Bank has a preference for use of GNI, I choose GDP because GNI includes the calculation of net receipts of primary income from abroad. These receipts of income from abroad do not pertain to my theories about land within the geographic boundaries of a country, and may have the effect of overstating estimates of the production of goods and services as they relate to land laws.

using the Bank's data lies in the depth of its cross-national coverage, there are several disadvantages.

One disadvantage from using the Bank's data is the possibility of measurement error. The Bank's measure of GDP, by definition (stated above), does not take into account depreciation of some capital assets, and thus may overstate the GDP, and ultimately in my analysis, overstate the effect of land laws on output. Additional problems with this data arise from different use of different accounting methods for value added across different industries in different countries, from inability to take into account improvements in quality as part of the calculation of value added, and from inability to take into account activity in the informal sector, particularly in developing countries.

An additional disadvantage was the need to supply missing data with data from other sources, which necessarily were not measured in the same manner as the Bank's data. GDP growth data for four observations was not available from the Bank, and consequently obtained from other sources.

Following much of paradigm of much of the growth literature (Barro 1991, 1997; Mauro, 1995; Zak and Knack, 2001;), in this paper, GDP growth per capita was averaged over a period of years. Although I primarily rely on GDP growth per capita averaged over 10 years, later, when checking for robustness, I consider the average at both 5 and 15 years.

Initial level of GDP

Initial GDP is the level of GDP that a country began at during the period under analysis.

Human Capital

The importance of human capital as a source of variation in growth rates has been confirmed by multiple studies. These measures are obtained from UIS estimations or country estimations. An alternative measure used by others (Romer, 1989) is initial literacy rate. The World Development Indicators Database literacy rates are obtained from UNESCO. The measures are sporadically collected (not available every years). In addition, as Barro (1991) also observes there is inconsistent methodology across countries for collecting the information. For example, the information is collected via household declarations as part of census information, surveys conducted by international organizations (UIS, UNICEF, and MLS) and some nation-specific surveys (as in Eritrea, Lao and the Philippines). In some instances, more than one method is employed within a single country for different years (see for example, Albania and South Africa). Another problem with the literacy measure obtained from the World Bank was the magnitude of the missing data.

As an alternative, I also obtained literacy measures from the CIA world Factbook. Although few countries had reported rates that were current, there was much more information available. GDP growth is correlated with the World Bank literacy value (averaged over 10 years) at a level of .19, and with the CIA value at .01.

Time

A variable for time that the law was in operation was also included. This variable measures time (from 2009) since original enactment.¹¹²

¹¹² This coding was not as straight-forward as it may appear, and some decisions were made as to which law was most relevant to be used as the basis for the time variable. For further explanation on the coding for each country, please see Appendix X.

Civil

It was important to control for of the extra-legislative effects that may be a natural part of a legal system. For example, as briefly discussed in the Appendix 1, outside of the structure of the law, there are operational differences between common and civil law countries.

Previous studies have argued that legal system type is important for the quality of enforcement of rights (La Porta, et. al., 1998), governing institutions (La Porta, et. al., 1999), and the degree of regulatory activity by the government (Djankov, et. al., 2003). Thus, I used the *JuriGlobe* classification, and added controls for legal type. Because of a concern about over-fitting the variables in cases where there were only a few observations in a category, I chose only to include in the model, the largest categories: civil law.

In the dataset set it is an indicator variable with a value of “1” where a country is *purely* civil (rather than a combination of civil and some other family), and “0” elsewhere.

Rule of Law

This measure is compiled by Kaufmann, Kraay and Zoido-Lobaton (see Kaufman, Kraay, and Zoido-Lobatón, 1999; Kaufmann, Kraay, and Zoido-Lobatón, 2002; Kaufmann, Kraay and Mastruzzi, 2003; Kaufmann, Kraay and Mastruzzi, 2005; Kaufmann, Kraay and Mastruzzi, 2006; Kaufmann, Kraay and Mastruzzi, 2007; Kaufmann, Kraay and Mastruzzi, 2009; Rodrik, 2002; Easterly and Levine, 2003;)¹¹³ These scholars compile an index of governance

¹¹³ The following sources used in the Kaufman, Kraay, and Zoido-Lobatón (2003) index purport to measure property rights: Business Environment and Enterprise Performance Survey under the rubric Rule of Law poses a question of “Are property rights protected; The Country policy and Institutional Assessment (World Bank) measures property rights as a category of rule of law; the Economists Intelligence Unit asks questions about private property and intellectual property rights protection as part of “Rule of Law”; Freedom House asks “Are there personal social freedoms, which include such aspects as gender equality, property rights, freedom of movement, choice of residence, choice of marriage, size or family” (73); the Global Competitiveness Survey

measures using a composite of 14 different sources¹¹⁴ The authors then compile the surveys and polls to create six composite measures of governance: voice and accountability, political instability and violence, government effectiveness, regulatory burden, rule of law, and graft. This measure is now known as the World Bank's "Rule of Law" measure.

Robustness Models

Geomean

This is the geometric mean.

PENN

This is the average growth rate of the rgpl2 data (), from the PENN World Tables.

asks, "Is intellectual property weak? (78); the Heritage Foundation/Wall Street Journal assesses property rights as part of the Rule of Law category; the Institute for Management Development surveys about Rule of Law, which includes asking whether "Personal security and private property are not adequately protected" (85); PriceWatersCooper (PWC) has a measure of opacity is defined as "the lack of clear, accurate, formal, easily discernible, and widely accepted practices" in the following areas: corruption in government bureaucracy, laws governing contracts or property rights, economic policies, accounting standards, and business regulation (88); the World Business Environment Survey has survey questions on the rule of law which includes "Confidence in judicial system today in insuring property rights"(90)

Kaufmann, Kraay and Zoido-Lobaton produced several versions of this dataset with larger bases of sources. However, in each of the versions reviewed (*Governance Matters* [1999], *Governance Matters II* [2002], *Governance Matters III* [2003], *Governance Matters IV* [2005], *Governance Matters V* [2006], *Governance Matters VI* [2007], *Governance Matters VII* [2008], *Governance Matters VIII* [2009] the changes to the property rights measurement were minor. In 2005, measures from the African and Asian Development Banks, and the Bertelsmann Transformation Index were added. All of these databases measured property rights as a component of the rule of law. Also in 2005, the Global Competitiveness Survey, was subsumed into a different measure.

In 2006, the Price Waters Cooper Index was discontinued. In 2007, the Freedom House measure was altered and the World Business Environmental Survey was dropped. In 2008, the Bertelsmann Transformation Index was discontinued, and in 2009, the Business Environment and Performance survey was altered.

¹¹⁴ The sources include five different risk consultancy groups, such as the aforementioned BERI and PRS, in addition to other sources such as the World Bank, Wall Street Journal, Heritage Foundation and Freedom House

ICRG 10

One of the most popular data sources is the International Country Risk Group (ICRG) (see Knack and Keefer, 1995; Barro, 1996; Clague, Keefer, Knack and Olson, 1996; Keefer and Knack, 2001). The ICRG is a subscription service of the Political Risk Services (PRS) Group. It reports on business and investment risks on 22 indicators for countries around the world. The on-line subscription service produces monthly reports and risk ratings. The Researcher's dataset is a yearly assessment of the risk ratings, and contains ratings on different aspects of risk that may be important to investors, such as law and order, bureaucratic quality, democratic accountability, corruption, etc. Each country is assigned a numerical rating for different categories analyzed. The numerical ratings are based on statistical models used by PRS Group.

The most frequently used ICRG measures to capture the concept of property rights are "Expropriation Risk", "Repudiation of Contracts by Government", "Corruption in Government", "Quality of Bureaucracy" and "Rule of Law". Several scholars use combined versions of ratings to measure property rights. Knack and Keefer (1995) use the International Country Risk Guide (ICRG) to measure property rights institutions¹¹⁵. They combine scaled versions of the above mentioned measures to create a "property rights

¹¹⁵ They also rely on the Business Environmental Risk Intelligence (BERI) services to measure property rights institutions.

The BERI is like the ICRG a subscription service which collects political, social and economic data on countries, evaluates the countries on a variety of measures in order to assess the risk of investment in a given country. However, the BERI did not perform as well in the regressions as did the ICRG, and since it is sufficient for the purposes of this literature review to only discuss the ICRG, the BERI will not be examined in detail.

index”. Specifically, they create an additive measure of “Expropriation risk”, “Repudiation of contracts by government”, “Corruption in government”, “Quality of bureaucracy” and “Rule of law”.¹¹⁶

In the 2010 ICRG Researcher’s Data Set, two of the variables used in the composite “property rights variable”, “Expropriation Risk”, “Repudiation of Contracts by Government”, compiled by Knack and Keefer were not available. Instead, “Investment Profile”, seems to have replaced those two variables. “Investment Profile” is a measure of contract viability or risk of expropriation, profits repatriation and payment delays.

¹¹⁶The “Expropriation Risk” is measured on a scale of 0 to 10 and purports to capture the risk of “outright confiscation” or “forced nationalization”.

The “Repudiation of Contracts by Government” is also measured on a scale of 0 to 10. It measures the risk of changes in contract (repudiation, postponement or diminishing) due to fiscal pressures, “indigenization pressure”, changes in government or changes in government priorities.

The “Corruption in Government” measure is scored on a scale of 0 to 6. Low scores are indicative the “high government officials are likely to demand special payments”, “illegal payments are generally expected throughout lower levels of government” and of the existence of “bribes connected with import and export licenses, exchange controls, policy protection and loans.”

The “Quality of the Bureaucracy” measure is also scored on a scale of 0 to 6 and measures “autonomy from political pressure”, “strength and expertise to govern without drastic changes in policy or interruption in government services”, and an “established mechanism for recruiting and training.”

The ICRG measure of “Rule of Law” is also on a 6 point scale. Researchers at ICRG assign up to three points for the degree to which citizens generally obey the law, and 3 points are given to a country for the perceived strength and impartiality of the legal system.

The use of “Expropriation Risk” and “Rule of Law” are proxies for security of property and contract rights. In addition, “Repudiation of Contracts by Government” measure is used because the authors reason that if private parties cannot rely on the government to keep contracts with them, then parties cannot rely on government enforcement of contracts between two private parties. “Repudiation” is used because if officials have the power to repudiate contracts, they will be likely to influence other types of economic activity. Finally, “Corruption in Government” and “Quality of Bureaucracy” are used as proxies for efficiency in the provision of government services, and for the extent of rent-seeking behavior. Officials in weak bureaucracies are likely to engage in rent-seeking behavior. In addition, they reason that weaker bureaucracies will not protect against infringement of property rights.

The two measures, the ICRG composite score and the World Bank measure compiled by Kaufmann, et. al. are highly correlated. Averages of the scores over a period of 10 years are correlated at the .9675 level. As more data was available for the rule of law estimate, than was for the ICRG measures, I use the rule of law estimate in the in primary analysis, and the ICRG measure in the robustness check.

Enrollment

I used secondary and primary school enrollment rates obtained from the World Development Indicators database. The gross measures represent the ratio of the total population enrolled to the population of students corresponding to the level of education.¹¹⁷ As Barro (1991) observes, there is an endogeneity problem with the initial level of enrollment as a proxy for the initial capital stock. For it could be that the measures reflect the investment in human capital (that flows from having higher growth rates) rather than an initial stock of human capital.

Modified Government Expenditures

Barro (1991) argues that the ratio government expenditure on items outside of education and defense to real GDP reduces growth through increases in taxes or other effects. Thus, government spending should be negatively associated with GDP growth. I collected the government spending data from the Bank's World Development Indicators. The Bank defines General government final consumption expenditure as "General government final consumption expenditure (formerly general government consumption) includes all

¹¹⁷ For Philippines, Sri Lanka, Papua New Guinea and Thailand, data from the closest year to the year of interest was imputed. For Singapore, gross enrollment rates were obtained from a UNESCO report (http://www.childinfo.org/files/IND_Singapore.pdf, last accessed 9/3/2011).

government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defense and security, but excludes government military expenditures that are part of government capital formation.”¹¹⁸

Data on education expenditures was taken from the *World Development Indicators*. The variable measures “current and capital public expenditure on education includes government spending on educational institutions (both public and private), education administration as well as subsidies for private entities (students/households and other private entities),”¹¹⁹ and is obtained from UNESCO. Almost all countries had missing data for a substantial number of years, so it is expected that there will be some measurement error associated with this variable, which could impact the estimates of the other coefficients to a small degree.¹²⁰

Data on military expenditures was also obtained from the World Development Indicators.

This variable is measured as a percentage of GDP and also consists of “all current and capital

¹¹⁸ See *Meta Data* long description, for the variable. Data was missing for Kiribati, North Korea and Samoa. Information on Kiribati available from the Kiribati Statistics Office for the years 1998-2008 (<http://www.spc.int/prism/Country/KI/Stats/Economic/GFS/Consolidated-Exp&Rev.htm>, last accessed 9/3/2011). I divided the current government expenditure by the current GDP reported to obtain the ratio of government spending to GDP. Similarly, information about government expenditures in Samoa for the years 1996-2010 was available from the Samoa Bureau of Statistics (<http://www.sbs.gov.ws/Statistics/Economic/GovernmentFinanceExpenditureCurrent/tabid/3328/language/en-NZ/Default.aspx>, and http://www.sbs.gov.ws/Portals/138/PDF/Finance/2011/Table%203_Cental%20Govt%20Expenditure%20by%20type.pdf, last accessed 9/3/2011). Information on GDP was available from the website only from 2003 to 2008, thus I only have data on Government expenditures as a percentage of GDP from 2003 to 2008. Information on North Korea was not obtained.

¹¹⁹ WDI

¹²⁰ The following countries had missing data for the 10 year period under examination: China, Papua New Guinea, Solomon Islands and Sri Lanka. (<http://www.oclc.org/reports/escan/economic/educationlibraryspending.htm>, last accessed 9/3/2011). For both Solomon Islands and Sri Lanka, 1998 estimates were used. For Papua New Guinea, the Education Policy Data Center (www.epdc.org) had data on education expenditure as a percentage of GNI (rather than GDP), for the year 2002. Because this includes GNI it might overestimate the data point.

expenditures on the armed forces, including peacekeeping forces; defense ministries and other government agencies engaged in defense projects; paramilitary forces, if these are judged to be trained and equipped for military operations; and military space activities. Such expenditures include military and civil personnel, including retirement pensions of military personnel and social services for personnel; operation and maintenance; procurement; military research and development; and military aid (in the military expenditures of the donor country)."¹²¹ The Bank obtains this data from NATO and the Stockholm International Peace Research Institute.

There was missing data for this variable for all of the years under consideration for a number of observations.¹²² These cases were supplemented with data from the CIA World Factbook and other sources.¹²³ The value I used in the analysis is the average government expenditure less average expenditures on education and defense.

PPIDEV

Barro (1991), Knack and Keefer (1995) measure market distortions as standard deviations from the average price of investment goods. The prices of investment goods were obtained

¹²¹ WDI

¹²² These countries were: Antigua and Barbuda, Bahamas, Bhutan, Kiribati, North Korea, Maldives, Samoa, Tonga and Vanuatu.

¹²³For North Korea, Kiribati, Samoa and Vanuatu, the CIA did not have data available. In the cases of both Kiribati, the Statistics Office publications of government expenditure for both countries had categories for law and order, but not military expenses. I therefore estimated the military expenses to be zero.

For North Korea, the Center for Arms Control and Non-Proliferation reports that North Korea military expenditures in 2007 as 6.6 billion (in constant 2009 dollars). Based on calculations (discussed above) for GDP in North Korea, I estimated GDP in North Korea in 2000 constant dollars to be 572.78. After converting this figure to 2009 dollars, I arrived at the estimate for military spending as a percentage of GDP.

For Vanuatu, I examined reports on government expenditure as well as a report ECORYS on government expenditure and openness and found no listings for military expenditures. Further, the ECORYS report discussed areas of underreporting for expenditures in Vanuatu, and military expenditures were not discussed as an area of underreporting.

from Penn World Tables, and the standard deviation for all countries in the data set was calculated for each of the 10 years.

Disasters

Although not often taken into account in growth models, natural disasters can have a significant impact on the economy. Such disasters, if substantial enough can significantly affect the population and investment. Taking into account the effect of disasters was particularly important in this analysis because of the implicit analysis of the effect of land on growth.¹²⁴ In this analysis, *Disasters* is an interval variable indicating the estimated amount of monetary damage done by natural disasters, averaged over 10 years. A natural disaster for the purpose of this dataset is defined to include an earthquake, flood, drought, hurricane or volcano. Data on natural disasters was obtained from EM-DAT: The OFDA/CRED International Disaster Database at the Université Catholique de Louvain in Belgium. Data is coded as a natural disaster if at least one of the following conditions is true: 10 or more people are reported killed, 100 people reported affected, there is a declaration of a state of emergency or there is a call for international assistance. In this sample, the mean of *Disasters* was \$493,499,500. China is an outlier with a substantial influence over the *Disasters* variable.

¹²⁴ Not taking disasters into account may result in a lower coefficient on the law variable.

Appendix 4: Robustness Checks of Economic Growth Models

Table 14: Robustness Check of Ownership Who Variables

VARIABLES	(1) Average Growth	(2) Geomean of Growth	(3) Average Growth (PENN)	(4) Average Growth (5 years)	(5) Average Growth (15years)	(6) Average Growth	(7) Average Growth	(8) Average Growth	(9) Average Growth
No Ownership	-1.006 (0.636)	-0.421 (0.859)	-0.00478 (0.00815)	-0.00133 (0.00802)	-0.0110+ (0.00580)	-1.534* (0.589)	-1.187* (0.567)	0.206 (0.747)	-1.192+ (0.616)
Citizen Plus	0.630 (0.459)	0.00305 (0.538)	0.000196 (0.00667)	0.00205 (0.00509)	0.00382 (0.00578)	0.540 (0.591)	0.393 (0.511)	0.799+ (0.462)	0.324 (0.407)
Some Foriegn	-0.225 (0.490)	-0.629 (0.447)	-0.00921+ (0.00545)	-0.00129 (0.00445)	-0.00564 (0.00601)	-0.225 (0.460)	-0.179 (0.457)	0.160 (0.426)	-0.429 (0.383)
Foreign Permit All	0.481 (0.476)	-0.118 (0.569)	-0.00119 (0.00558)	-0.00192 (0.00547)	0.00454 (0.00510)	0.659 (0.453)	0.842+ (0.423)	-0.0909 (0.558)	0.439 (0.426)
Foreign Permit Some	1.163* (0.533)	0.391 (0.508)	0.00361 (0.00752)	-0.00218 (0.00536)	0.0118+ (0.00691)	1.017+ (0.554)	1.027+ (0.521)	1.015+ (0.552)	0.546 (0.470)
Log of time	-0.305 (0.245)	-0.283 (0.258)	-0.00346 (0.00267)	-0.00390 (0.00258)	-0.00499+ (0.00261)	-0.366+ (0.213)	-0.371+ (0.207)	-0.231 (0.227)	-0.566* (0.224)
Customary Land	-1.545** (0.500)	-2.100** (0.610)	-0.0112+ (0.00611)	-0.00679 (0.00492)	-0.0162** (0.00572)	-1.594** (0.561)	-1.197* (0.487)	-1.229* (0.528)	-1.517** (0.424)
Log of GDP 2000	-1.454** (0.261)	-1.760** (0.314)				-1.147** (0.422)	-1.562** (0.336)	-0.992** (0.290)	-1.378** (0.233)
Literacy	5.468** (1.959)	7.553* (2.883)	-0.00336 (0.0267)	-0.00686 (0.0213)	0.00240 (0.0214)			7.288** (2.675)	7.656** (1.787)
Rule of Law	0.657 (0.443)	1.070* (0.477)	-0.00809+ (0.00418)			0.414 (0.576)	0.675 (0.447)		0.555+ (0.323)
Civil	0.520 (0.550)	0.374 (0.574)	0.00822 (0.00631)	0.00883+ (0.00474)	0.00549 (0.00578)	0.888 (0.533)	1.071* (0.472)	0.201 (0.500)	0.369 (0.478)
Log of PENN 2000			-0.00477* (0.00236)						
Log of GDP 2005				-0.00644** (0.00130)					
Rule of Law (5 years)				-0.00690* (0.00312)					
Log of GDP 1995					-0.00650**				

Rule of Law (15 years)					(0.00235)					
					-0.00105					
					(0.00319)					
Primary Enrollment 2000						0.0111	0.0146			
						(0.0174)	(0.0172)			
Secondary Enrollment 2000							0.0150			
							(0.00950)			
ICRG (10 years)								-0.0991		
								(0.263)		
Modified Government Expenditures 2000										-0.0474
										(0.0333)
PPI DEV 2000										-0.000415
										(0.0251)
Disasters										-3.12e-07
										(3.47e-07)
Constant	9.964**	11.09**	0.0902**	0.100**	0.0930**	11.38**	12.82**	5.431*		9.096**
	(2.095)	(3.078)	(0.0323)	(0.0261)	(0.0230)	(2.920)	(2.786)	(2.294)		(1.646)
Observations	65	65	65	61	63	60	58	49		58
R-squared	0.606	0.619	0.364	0.593	0.459	0.576	0.676	0.677		0.729

Robust standard errors in parentheses

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

Table 15: Robustness Table of "Own What" Variables

VARIABLES	(1) Average Growth	(2) Geomean of Growth	(3) Average Growth (PENN)	(4) Average Growth (5 years)	(5) Average Growth (15years)	(6) Average Growth	(7) Average Growth	(8) Average Growth	(9) Average Growth
Water All	-0.242 (0.548)	0.421 (0.411)	0.00995* (0.00477)	0.00938+ (0.00472)	0.00185 (0.00513)	-0.0439 (0.716)	-0.642 (0.587)	0.149 (0.414)	0.277 (0.411)
Water Some	-0.510 (0.462)	-0.116 (0.420)	-0.00277 (0.00500)	-0.00879+ (0.00511)	-0.00712 (0.00515)	0.0376 (0.529)	-0.545 (0.511)	-0.447 (0.397)	-0.380 (0.401)
Mineral All	-1.197* (0.514)	-1.348** (0.504)	-0.00227 (0.00549)	-0.00584 (0.00643)	-0.00466 (0.00587)	-0.510 (0.589)	-1.283* (0.600)	-1.215* (0.490)	-1.024* (0.416)
Mineral Some	-0.148 (0.488)	-0.154 (0.496)	-0.00763 (0.00694)	-0.00933+ (0.00486)	-0.00870 (0.00615)	0.308 (0.563)	0.0369 (0.624)	-0.107 (0.485)	0.131 (0.543)
Log of time	-0.539* (0.213)	-0.523* (0.241)	-0.00580+ (0.00295)	-0.00153 (0.00229)	-0.00359 (0.00254)	-0.538* (0.239)	-0.630* (0.258)	-0.474* (0.222)	-0.688** (0.230)
Customary Land	-1.694** (0.484)	-2.292** (0.555)	-0.0164** (0.00505)	-0.00346 (0.00531)	-0.0140* (0.00636)	-1.258+ (0.667)	-2.098** (0.592)	-1.780** (0.521)	-1.715** (0.397)
Log of GDP 2000	-1.142** (0.243)	-1.468** (0.294)				-0.809* (0.358)	-1.318** (0.336)	-1.208** (0.271)	-1.036** (0.205)
Literacy	6.642** (2.087)	8.964** (2.060)	-0.0205 (0.0186)	-0.0211 (0.0278)	-0.0129 (0.0208)			7.977** (2.727)	6.822** (1.800)
Rule of Law	-0.270 (0.423)	0.194 (0.432)	-0.00606 (0.00390)			-0.0732 (0.529)	-0.397 (0.495)		0.00209 (0.308)
Civil	0.0785 (0.511)	-0.154 (0.572)	0.0110 (0.00675)	0.0187** (0.00609)	0.00962 (0.00653)	1.019 (0.672)	0.0431 (0.644)	-0.120 (0.593)	0.0370 (0.526)
Log of PENN 2000			-0.00481* (0.00211)						
Log of GDP 2005				-0.00538** (0.00110)					
Rule of Law (5 years)				-0.00520 (0.00487)					
Log of GDP 1995					-0.00304* (0.00145)				
Rule of Law (15 years)					-0.00425 (0.00349)				
Primary Enrollment 2000						0.0322 (0.0304)	0.000418 (0.0167)		
Secondary Enrollment 2000							0.0270*		

ICRG (10 years)							(0.0107)	-0.0480 (0.168)	-0.0481 (0.0288)
Modified Government Expenditures 2000									-0.0172 (0.0253)
PPI DEV 2000									-5.24e-07* (2.38e-07)
Disasters									8.776** (1.522)
Constant	9.071** (1.985)	9.338** (2.012)	0.107** (0.0238)	0.0920** (0.0252)	0.0800** (0.0191)	7.360 (4.712)	14.89** (2.334)	8.420** (1.947)	
Observations	62	62	62	60	62	60	59	48	58
R-squared	0.619	0.677	0.559	0.554	0.367	0.431	0.603	0.692	0.743

Robust standard errors in parentheses

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

Table 16: Robustness Table of Use Variables

VARIABLES	(1) Average Growth	(2) Geomean of Growth	(3) Average Growth (PENN)	(4) Average Growth (5 years)	(5) Average Growth (15years)	(6) Average Growth	(7) Average Growth	(8) Average Growth	(9) Average Growth
Amount	-0.721 (0.481)	-0.760 (0.496)	-0.0162* (0.00716)	0.000768 (0.00659)	-0.00387 (0.00817)	-1.077 (0.774)	-1.352+ (0.691)	-0.561 (0.585)	-1.079+ (0.549)
Unit Use All	-0.647 (0.586)	-1.006+ (0.510)	0.00604 (0.00729)	-0.0147* (0.00662)	-0.00390 (0.00702)	0.547 (0.598)	-0.187 (0.812)	-0.960 (0.621)	-0.611 (0.621)
Unit Use Some	0.0190 (0.436)	-0.284 (0.449)	0.00282 (0.00898)	-0.00524 (0.00675)	-0.00270 (0.00749)	0.504 (0.636)	0.120 (0.568)	-0.450 (0.595)	-0.377 (0.452)
Government Non Use	0.869+ (0.453)	0.748+ (0.407)	0.00370 (0.00663)	-0.00392 (0.00527)	-0.00669 (0.00571)	0.549 (0.701)	0.918 (0.597)	0.986+ (0.583)	1.026* (0.466)
Log of time	-0.440* (0.173)	-0.433* (0.183)	-0.00484* (0.00222)	-0.00323 (0.00211)	-0.00538* (0.00261)	-0.476* (0.233)	-0.443+ (0.225)	-0.405* (0.197)	-0.537** (0.186)
Customary Land	-1.425** (0.521)	-1.601** (0.538)	-0.0132* (0.00574)	-0.00641 (0.00624)	-0.0128* (0.00586)	-1.660* (0.673)	-1.591* (0.636)	-0.978 (0.582)	-1.395** (0.463)
Log of GDP 2000	-1.235** (0.267)	-1.471** (0.246)				-0.843* (0.326)	-1.232** (0.342)	-1.135** (0.197)	-1.122** (0.232)
Literacy	7.802** (1.447)	9.132** (1.594)	-0.00107 (0.0261)	0.0199 (0.0211)	0.0160 (0.0260)			10.83** (2.365)	7.371** (1.796)
Rule of Law	0.301 (0.358)	0.463 (0.379)	-0.00824* (0.00381)			0.0579 (0.514)	0.0327 (0.466)		0.200 (0.351)
Civil	0.268 (0.377)	0.297 (0.397)	0.00694 (0.00463)	0.00741 (0.00460)	0.00278 (0.00525)	0.894+ (0.455)	0.678 (0.449)	0.0650 (0.516)	0.248 (0.421)
Log of PENN 2000			-0.00702** (0.00189)						
Log of GDP 2005				-0.00662** (0.00127)					
Rule of Law (5 years)				-0.0114** (0.00343)					
Log of GDP 1995					-0.00400** (0.00124)				
Rule of Law (15 years)					-0.00700* (0.00341)				

Primary Enrollment 2000						0.00288	0.00226		
Secondary Enrollment 2000						(0.0174)	(0.0176)		
ICRG (10 years)							0.0221*		
Modified Government Expenditures 2000							(0.00876)	-0.0712 (0.132)	-0.0879**
PPI DEV 2000									(0.0294)
Disasters									0.00893
Constant	6.991** (2.048)	7.711** (2.119)	0.112** (0.0301)	0.0802** (0.0239)	0.0695** (0.0245)	10.36** (2.919)	11.97** (2.882)	4.186* (1.805)	(0.0241)
Observations	60	61	60	60	61	58	57	49	-2.19e-07 (3.45e-07)
R-squared	0.674	0.703	0.482	0.634	0.377	0.549	0.612	0.707	7.746** (2.003)

Robust standard errors in parentheses

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

Table 17: Robustness Table of Sale Variable

VARIABLES	(1) Average Growth	(2) Geomean of Growth	(3) Average Growth (PENN)	(4) Average Growth (5 years)	(5) Average Growth (15years)	(6) Average Growth	(7) Average Growth	(8) Average Growth	(9) Average Growth
Sale with Permit	-0.726* (0.305)	-0.832* (0.320)	-0.00912* (0.00389)	-0.00355 (0.00416)	-0.00223 (0.00503)	-0.853* (0.359)	-0.721* (0.333)	-0.861** (0.304)	-0.892** (0.303)
What Sold	0.162 (0.491)	-0.202 (0.468)	-0.0124 (0.00791)	-0.000436 (0.00580)	-0.00395 (0.00860)	0.896 (0.642)	0.504 (0.636)	0.0142 (0.497)	0.0413 (0.482)
Other Sale	0.791+ (0.458)	0.811+ (0.434)	0.00630 (0.00608)	0.000604 (0.00471)	0.000512 (0.00631)	0.980+ (0.523)	1.337** (0.474)	0.265 (0.473)	0.231 (0.459)
Log of time	-0.462** (0.163)	-0.453* (0.187)	-0.00948** (0.00251)	-0.00452+ (0.00248)	-0.00533+ (0.00289)	-0.362+ (0.206)	-0.430* (0.204)	-0.443* (0.166)	-0.441** (0.143)
Customary Land	-1.481** (0.445)	-1.902** (0.550)	-0.0149** (0.00444)	-0.00626 (0.00536)	-0.0111+ (0.00620)	-1.233* (0.588)	-1.082* (0.499)	-1.342* (0.570)	-1.251** (0.415)
Log of GDP 2000	-1.189** (0.239)	-1.563** (0.307)				-0.826** (0.298)	-1.246** (0.274)	-1.107** (0.225)	-1.212** (0.182)
Literacy	7.541** (1.766)	9.225** (2.104)	-0.00910 (0.0180)	-0.00770 (0.0203)	0.00190 (0.0239)			7.439** (2.331)	6.282** (1.607)
Rule of Law	0.348 (0.401)	0.733+ (0.433)	-0.00696+ (0.00387)			0.210 (0.511)	0.306 (0.386)		0.597* (0.279)
Civil	0.140 (0.441)	0.0308 (0.468)	0.00663 (0.00495)	0.00894+ (0.00471)	0.00661 (0.00528)	0.600 (0.513)	0.583 (0.479)	0.383 (0.442)	0.767+ (0.412)
Log of PENN 2000			-0.00501* (0.00231)						
Log of GDP 2005				-0.00647** (0.00144)					
Rule of Law (5 years)				-0.00727* (0.00313)					
Log of GDP 1995					-0.00360* (0.00159)				
Rule of Law (15 years)					-0.00397 (0.00359)				
Primary Enrollment 2000						0.00108 (0.0160)	-0.000403 (0.0149)		
Secondary Enrollment 2000							0.0220* (0.00931)		
ICRG (10 years)								0.00373 (0.181)	

Modified Government Expenditures 2000									-0.0606*
									(0.0300)
PPI DEV 2000									-0.0384
									(0.0253)
Disasters									-2.93e-07
									(2.32e-07)
Constant	7.092**	8.692**	0.117**	0.104**	0.0729**	10.22**	12.05**	6.614**	9.233**
	(1.829)	(2.172)	(0.0194)	(0.0217)	(0.0202)	(1.847)	(1.595)	(1.952)	(1.364)
Observations	61	62	62	60	61	59	58	48	58
R-squared	0.666	0.672	0.578	0.593	0.327	0.577	0.683	0.737	0.760

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<.10

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