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Institutional design and the economy: disentangling the effects of judicial independence and judicial review on economic development

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INSTITUTIONAL DESIGN AND THE ECONOMY: DISENTANGLING THE EFFECTS OF JUDICIAL INDEPENDENCE AND JUDICIAL REVIEW ON ECONOMIC DEVELOPMENT

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DEDICATION

This dissertation is dedicated to my best friend and husband Mark Seale. Though the words are mine, this accomplishment is ours.

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ABSTRACT

Scholars, politicians, and economic leaders widely believe that an independent, efficient judiciary facilitates economic growth. However, relatively few empirical studies have been conducted to evaluate the relationship between the judiciary and the economy. As a result, we have a limited and an ambiguous understanding of the effect of courts. In this dissertation, I provide insight into the relationship between the judiciary and economic growth by disentangling judicial independence and judicial review and evaluating their effects using a large-n, comparative research design. I empirically demonstrate that judicial independence and judicial review are conceptually distinct and have independen and varying effects on economic growth. Specifically, I find that increased levels of judicial independence have a significant, positive effect on growth while increased levels of judicial review power have a significant negative effect. However, I find that the effect of judicial review becomes positive if a country's constitution explicitly protects economic rights. Thus, the effect of judicial review is dependent upon extra-judicial, institutional features.

With this study, I provide empirical support for the belief that judicial independence facilitates growth; however, I also show that the relationship between the judiciary and the economy is complex and contingent on both the nature of the judiciary and other institutional features. Further, I highlight the importance of conceptually separating judicial characteristics, specifically judicial independence and review, and evaluating their impact independently to understanding the effect of courts.

CHAPTER 1: INTRODUCTION

A country's judicial system is widely recognized as being important, if not fundamental, to the economic and social well-being of a country. The importance of the judiciary is so widely accepted that international organizations, such as the World Bank and UN Development Program, have allocated billions of dollars for improving the judicial systems in developing democracies with the aim of providing economic and social stability to such countries. For example, the World Bank loaned Romania 130 million dollars, to be distributed from 2005 through 2011, to put towards structural reforms of its judiciary specifically geared towards establishing an independent and efficient judiciary (Romania Judicial Reform Project 2005). This loan was motivated because "a weak judicial system, poor accountability, and widespread perception of corruption in particular were seen as negatively impacting the business sector and therefore private sector investment and growth" (id. 1). Improvements to the judicial sector have, therefore, been the main focus of the Romanian Government's reform plan and received substantial support from the World Bank. Similarly, the World Bank has allocated 21.6 million dollars to Azerbaijan, spread from 2006 to 2001, for the purpose of modernizing their court system to facilitate growth (Judicial Modernization Project 2006). The World Bank also allocated 100 million dollars towards improving "the performance of the Russian Legal System in areas key to the functioning of market institutions," which includes increasing the efficiency and transparency of the judicial system in order to reduce corruption (Legal Reform Project 2001, 1).

Despite the attention given to improving judiciaries, we have little understanding of how judiciaries impact economic growth; specifically, no consensus has been reached concerning *which* characteristics of judiciaries facilitate economic growth. In general, three judicial characteristics are commonly posited to have an influence: judicial efficiency, legal tradition, and judicial independence. Judicial independence, in particular, has been hypothesized to have an important effect on growth.

Indeed, North and Weingast (1989) go so far as to argue that independent judiciaries were established for the purpose of fostering economic development.

Anecdotal evidence provides support for the theoretical importance of judicial independence. For instance, Uganda is viewed as being illustrative of effect of poor judicial institutions on economic growth. In 1971, when Idi Amin assumed control of the government, the rule of law and judicial independence was at an extreme low with a chief justice and many lawyers murdered by the state, and Amin introducing new courts to overtake the functions of original courts. With this complete lack of legal restraint, Amin proceeded to expel the Asians within the country and distribute their property among his cronies. As a result, economic investment stagnated because people did not feel as if their property was secure, which caused economic decline. However, when the National Resistance Movement restored order and the rule of law in the 1980s and 1990s, the Ugandan economy recovered quickly. The quick rebound of the economy was substantially facilitated by the reinstitution of an independent judiciary (Rugege 2005, 416). Uganda thus serves as an example of the potential effect that an independent judiciary can have on the economy.

Though the belief that judicial independence is beneficial, if not necessary, for economic growth is fairly widely accepted, empirical support for the relationship has been inconsistent. One of the potential reasons for the lack of empirical consistency is that the measurements of judicial independence vary across studies producing variations in results. Additionally, and somewhat more problematically, judicial characteristics not associated with judicial independence, which may have different theoretical effects on economic growth, are frequently included in measures of judicial independence. The conflation of different concepts into a single measure can result in inaccurate and un-interpretable results. In particular, judicial review is often grouped into measures of judicial independence even though judicial independence is not conceptually defined by review. Furthermore, I argue that judicial independence and judicial review should have different effects on economic

growth, and, as a result, merging the two concepts into a single measure can result in misleading conclusions and may be responsible for inconclusive empirical studies.

1.1. Theoretical Argument

In my dissertation, I contribute to the literature examining the effect of judicial systems by disentangling judicial independence from judicial review and then empirically testing both of their effects on economic growth. Unlike previous studies, I argue that judicial independence and judicial review are conceptually distinct and must be separated if we are to understand the role of the judiciary. More precisely, I argue that, with regards to economic development, judicial independence should have a significant impact on economic growth; whereas, judicial review should have no relationship. Judiciaries are theorized to affect development through two channels: 1) serving as the government's credible commitment to property rights, and 2) serving as a low cost means of contract enforcement.

Judiciaries are theorized to facilitate economic growth by serving as a signal of the government's commitment to property rights. Investors are more likely to be willing to invest in an economy when their property rights are protected because then they have confidence that the government will not arbitrarily seize their assets and profits (Bardhan 2006). In order to have confidence that the government will respect their rights, investors look for signals that the government is committed to the protection of property. Judiciaries, by acting as an external mechanism that binds the governments' hands and prevents them from expropriating property or otherwise violating rights, can serve as such a signal (North and Weingast 1989). The creation of a judiciary with the ability to prevent the seizure of property sends a clear signal to investors that the government is so committed to the protection of rights that it is willing to limit its own powers to infringe by creating an extra institution. Since the creation of institutions is costly, the presence of a judiciary can be a strong signal and, as such can facilitate economic growth by serving as the government's credible commitment to property rights.

Likewise, judiciaries are theorized to facilitate economic growth by serving as low cost means of contract enforcement. Economic growth rates are accelerated when efficient, long-term contracts are established between firms because they increase productivity, decrease costs, and thus increase profitability; however, efficient contracting will only occur when both parties have an expectation that the other party will abide by the terms of the contract (Williamson 1995). To have confidence in the contract, firms must have a means through which to compel one another to uphold their end or obtain compensation. Moreover, these means must be relatively low cost or else the contracting becomes inefficient. Courts potentially facilitate efficient contracting because they serve as a relatively low cost means of enforcing contracts. As such, judiciaries increase peoples' willingness to enter into long term contracts, which otherwise might be too risky, and by doing so facilitate economic growth.

In my dissertation, I argue that judicial review and judicial independence have separate and distinct effects on economic growth. Specifically, I contend that judicial independence is important for both of the judiciary's roles but judicial review (or the power to declares acts of the government unconstitutional) is important only in the first channel (credible commitment), and only when the constitution contains *enumerated economic rights*.[1] I argue that in order for the judiciary to serve as a signal of the government's credible commitment to property rights, it must be independent of the government; otherwise, it cannot serve to restrain the government from arbitrarily seizing property. Similarly, for the judiciary to serve as a low cost means of contract enforcement, it must be independent of litigants appearing before it and thus willing to adjudication based upon the terms of the agreed upon contract. If the judiciary lacks independence and can be subjected to extralegal influence from either party, the cost of enforcing contracts increases which negates the benefit of the

[1] Limited research supports the idea that judicial independence is more important than judicial review in the economic realm. Specifically, La Porta, etet al. (2004) find that judicial independence affects economic rights protections but judicial review has no significant impact.

judiciary as means of enforcement. Because of this, I contend the judicial independence facilitates economic growth.

Contrastingly, judicial review, alone, does not serve as a signal of the government's credible commitment to property rights because it does not work to bind the government's hands in the appropriation of property rights. Providing courts the power to nullify acts that conflict with the constitution does not provide them with a channel to prevent government from expropriating property and thus does not enable courts to serve as a credible commitment affect subsequent growth. However, when the existence judicial review is accompanied by constitutionally enumerated economic rights protections, it does provide courts with the legal authority to stop the government from expropriating. As such, in the presence of constitutional, economic rights, judicial review can permits courts to serve as the governments credible commitment to property rights and thus facilitate growth. Additionally, judicial review does not aid courts in their role as a low cost means of contract enforcement because constitutions are not used as the basis of contracts and thus judicial review does not decrease the cost of contracting. Because of this, I argue that in the judicial review alone has no direct effect on economic growth; however, in the presence of economic rights, higher levels of judicial review is associated with economic growth.

I, thus, test three hypotheses in my dissertation. First, I hypothesize that higher levels of judicial review are associated with higher rates of economic growth. Second, judicial review has no independent effect on economic growth. Third, the effect of judicial review is contingent on the presence of enumerated economic rights.

To test the first two hypotheses, I construct a model of economic growth based on the endogenous economic growth model and test the direct effects of judicial independence and judicial review. I examine 116 countries over 12 years, from 1990 to 2002, thus I conduct a cross-sectional, time-series analysis. Before examining the impact of judicial independence, however, I first construct

and test the validity of two measures of independence. For both measures, I examine *de jure*, or legal, judicial independence based on constitutional characteristics of the countries in the analysis. For the first measure, I follow the example of prior studies on the effect of the judiciary on society and the economy (e.g. Feld and Voigt 2003; Camp Keith 1999) and construct an additive measure of judicial independence based on seven constitutional characteristics. While such additive scales are widely used, their construction is based upon the assumptions that all of the components of the scale should be equally weighted and all measure a single underlying dimension. If either of these assumptions is violated, the additive approach is unreliable. Because of this, I create a second measure using principle-axis factor analysis (PAF) to test the validity of these assumptions as well as generate a measure that does not require them. I then test for the effects of judicial independence using each measure in order to test the validity of the measure and the robustness of my findings

As a preliminary test of the third hypothesis, I examine a sample of 57 countries for which I coded the presence of constitutionally enumerated rights for a single year, 2002. Because the data are cross-sectional, I conduct an ordinary least squares regression analysis. Economic rights are measured using an additive index to determine the extent to which a constitution explicitly guarantees rights. I also include an interaction term between judicial review and economic rights which allows me to test the effect of judicial review based upon variations in rights protections.

I find empirical support for my first hypothesis but do not find support for my second. Using either measure, independence is significantly and positively associated with economic growth. A shift from the lowest level of judicial independence to the highest is associated with almost a three point increase in economic growth, which is substantial enough to move growth from negative to positive. Thus, I conclude that judicial independence is associated with economic growth. I do not, however, find that judicial review is unassociated with economic growth. Rather, controlling for judicial

independence, as measured by the factor score, judicial review is negatively associated with growth.[2] I cannot, therefore, conclude that they are not related; rather, my results suggest that, contrary to common belief, judicial review may be harmful to economic development. While I speculate about the cause of this relationship, it is a potentially an interesting unexplored area for further research.

The test of my third hypothesis supports the theory that the effect of judicial review is conditioned on the presence of economic rights. Judicial review alone is negatively associated with growth. However, the conditional effect of review is significantly positive, indicating that the higher the level of economic rights protections within a system, the more judicial review facilitates, as oppose to harms, growth. The conditional effect of review is large enough that when economic rights are higher than average the overall effect of judicial review is positive. These results suggest that not only is the influence of judicial review conditioned on rights protections but that higher levels of economic rights protections can move the effect of review from being harmful to beneficial.

The findings from my dissertation suggest that while judicial institutions affect economic growth, their effect is more nuanced than previously theorized. Stating that judiciaries generally facilitate economic growth is inaccurate and overbroad. While I find that judicial independence has a positive relationship with economic growth, I also find judicial review has a negative effect unless a country constitutionally guarantees economic rights. Overall, this study suggests that the effect of judicial institutions varies based upon the characteristics of the judiciary and may be conditioned upon other features of a system. As a result, when considering the effect of the judiciary within a country, multiple judicial characteristics must be considered separately otherwise the relationship may not be fully or accurately understood.

[2] For all other tests, no statistical relationship between judicial review and economic growth was found.

1.2. Chapter Summary

My dissertation proceeds as follows. Chapter 2 provides an overview of the relevant literature, develops my theory, and states the hypotheses I will test. Chapter 3 discusses the costs and benefits of using *de jure* institutional measures as opposed to *de facto* measures and details how I measure judicial independence, judicial review and economic rights. Chapter 4 describes my model specification including descriptions of all the variables included. Chapter 5 explains my methodological choice and presents my analyses and findings. Chapter 6 summarizes my findings and describes the implications and limitations of my dissertation.

CHAPTER 2: THE JUDICIARY AND ECONOMIC GROWTH

2.1. Literature Review

Scholars and political officials have long recognized the importance of an independent judiciary to the social and economic growth and survival of a democratic government. Mention of the need for a judiciary can be traced as far back to the fourth century B.C. when Aristotle[3] described the importance of three agencies of government: the general assembly, the public officials, and the judiciary. Aristotle's idea of a three-part government and the importance of a judiciary gained greater prominence in the 17th century with John Locke's *Two Treatises of Government* (1689, Ch. XII) in which he argued that different branches of government should be vested with "legislative", "executive", and "federative" powers. Although Locke does not explicitly discuss the judicial branch, he argues that the presence of a third-party adjudicator to settle disputes about rights is one of the fundamental reasons people live in a civil society as opposed to a state of nature. This argument of Locke's becomes one of the fundamental rationales for the existence of a judiciary (Russell 2001). In *Spirit of the Laws,* Montesquieu (1748) further expanded the view of a three-part government and elaborated the importance of an independent judicial branch for the protection of individual liberties. Specifically, he argued that

> [t]here is no liberty, if the judiciary power be not separated from the legislative and executive. Were it joined with the legislative, the life and liberty of the subject would be exposed to arbitrary control; for the judge would be then the legislator. Were it joined to the executive power, the judge may behave with violence and oppression (152).

Constitutional development in America was highly influenced by these early notions of separating governmental power and establishing an independent judiciary. John Adams, in particular, felt strongly that an independent judiciary was fundamental to the functioning and survival of the government arguing that

[3] *Politics,* book IV, ch. 14.

> [t]he dignity and stability of government in all its branches, the morals of people, and every blessing of society depend so much upon an upright and skillful administration of justice, that the judicial power ought to be distinct from both the legislative and executive, and independent upon both, that so it may be a check upon both, as both should be checks upon that (Adams 1776, 193).

Modern scholars continue to recognize the importance of a judiciary to a democratic government (e.g. Linz and Stepan 1995; Staton, Reenock, and Radaen 2008; Elster and Slagstad 1993; Maravall and Przeworski 2003; O'Donnell 1998)**.** Most fundamentally, scholars contend that the judiciary is a fundamental component of a democratic government because it is necessary for the protection of the rule of law. As an ideal, the "rule of law" is a characteristic of a political-governmental regime intended to promote equal treatment in which no person or agency is above the rules made by political representatives. These rules are to be pre-established, formalized, neutral, and objective (Yu and Guernsey N.d.; Fallon 1997). The ideal of the rule of law is widely viewed as essential to democracy because it prevents those who govern from arbitrarily violating the basic rights and principles of a democratic system (Warren 2003; Chavez 2003).

Despite broad agreement concerning the importance of the rule of law, the concept lacks a precise, universal definition within the literature. Chavez (2003, 417), for instance, defines the rule of law as requiring "that any individual or sector that exercises significant power submit to the law" and requiring "an effective system of horizontal accountability composed of independent government institutions that hold one another accountable to the law and to the public." Cristi (1984) meanwhile defines the rule of law as a separation of power between civil society and the state and a separation to powers and competencies within the state that limit its own power. Cass (2001, 4) defines the rule of law as a system "characterized by fidelity to rules of principles and predictability derived from valid authority external to government decisions makers."[4] The International Commission of Jurists' (1959,

[4] Cass (2001) provides a more detailed discussion of his definition of the rule of law discussing components such as the determinacy of legal rules, legitimate sources of law, etc.

196) adopt a much broader definition: "the law itself is based on respect for the supreme value of human personality."

In the context of understanding the role of the judiciary, a fairly simple definition of the rule of law is appropriate. Specifically, I follow Weingast (1997) and define the rule of law as a set of stable political and economic rules and rights applied impartially to all citizens and agencies and adhered to by all actors. Under this definition of the rule of law, a well functioning judiciary, which is capable of restraining actors from violating the rules or laws of society, is essential to the maintenance of the rule of law.

In the absence of an independent judicial body, legislative or other governmental agencies are granted the power to apply laws according to their preferences, so no guarantee exists that laws will be applied consistently across all citizens. Rather, legislative agencies or actors are more likely to apply laws in a manner that provides them with the most benefit. Furthermore, without any external restraints, governments have little incentive to abide by the rules. The existence of a judiciary with the power to check the other governmental actors, however, is better able to apply laws consistently across citizens and can serve as an incentive for the government to follow the law. So, unless a judiciary is able to ensure that disputes are adjudicated fairly and consistently in accordance with the law, there is little assurance that the government will not arbitrarily violate the rules governing society and the democratic form of government. Thus, there will be no guarantees that laws will be stable and applied impartially, and there will be no rule of law.

A judicial system is viewed as so fundamental to the rule of law that some scholars define the rule of law by the nature of the judiciary. For example, Copperidge (1961) defines the rule of law as an arrangement in which an independent judiciary has the final say in disputes over the law between individuals and individuals and the government. Similarly, Dicey (1959, 187) argues that the rule of law is defined by absolute supremacy of regular law rather than arbitrary law, equality of all before the

law and subjection of all people to regular law as administered by courts, and, finally, he states that constitutional law is a consequence of individual rights as defined and enforced by courts. Likewise, Linz and Stepan (1995, 10) partially define the rule of law as "a clear hierarchy of laws, interpreted by an independent judicial system and supported by a strong legal culture in civil society."

Since the rule of law is essential for democratic governance, the presence of a well functioning judiciary is likewise vital to the well-being of a democracy. Partially because of this, the international community has invested billions of dollars to help developing countries reform their judiciaries. For instance, the United States, the UN Development Program, and the European Union have provided substantial grants to developing countries to aid and improve the judiciaries, while the World Bank, the InterAmerican Development Bank, and the Asian Development Back have invested over $800 million in loans for judicial reform programs (Messick 2002).

A reform program "typically consists of measures to improve the operation of the judicial branch of government and related entities such as bar association and law schools" (Messick 2002, 4) and have four main aims: strengthen the judicial branch, speed the processing of cases, increase access to dispute resolution mechanisms, and professionalize the bench and bar. For example, the World Bank loaned Armenia $11.4 million in 2000 and $22.5 million in 2007 to assist the government in establishing an efficient, independent, and effective judiciary by "1) improving court administration, 2) rehabilitating court infrastructure; 3) training judges and court personnel; 4) supporting the Ministry of Justice in enforcing court decisions; and 5) improving access to legal information for judges, government officials, legal professionals, and the public" (Messick 2002, 11). By loaning this money, the World Bank sought to "provide the country's judicial system with the administration, quality facilities and expanded capacity that are necessary to improve the efficiency, reliability and transparency of judicial operations" (World Bank 2009, 1).

Despite the broad consensus over the importance of the judiciary, scholars have only recently begun to empirically assess the actual impact of a judiciary on the functioning of a government within society. Though the judiciary is viewed as fundamental for a democracy, the empirical evidence supporting this belief is largely anecdotal or non-existent (Staton, Reenock, and Radaen 2008). Indeed, empirical studies on democratic regime survival and order tend to ignore legal institutions (e.g. Boix 2003; Cheibub 2007; Linz 1994; Przeworski, et al. 2000) or mention their importance but never test for an effect (e.g. Linz and Stepan 1996).[5]

Staton, Reenock, and Radaen (2008) make the first attempt to conduct a large-n study of the effect of legal institutions on democratic order, stability, and longevity. They argue that courts help preserve democratic order and stability by resolving a democracies' commitment problem over social and economic rights. They then assess the influence of effective legal systems (measured using Clague, et al.'s (1996) contractive intensive money score) using measures of order (e.g. frequency of violent domestic political event) and stability (e.g. democratic breakdown).

Staton, Reenock, and Radaen (2008) find that effective legal institutions increase the likelihood of democratic regime survival and decrease the occurrence of violent political events. Moreover, they find that the influence of legal institutions is conditioned on factors within the social and political system. Specifically, legal institutions are most effective in heterogeneous societies with higher levels of religious fractionalization, because minorities are at greater risk of rights violations, and in societies with substantial asset mobility, because property rights require greater commitment. Thus, they conclude that effective legal institutions significantly increase democratic order and regime survival, especially in states where rights are most vulnerable. Besides Staton, Reenock, and Radaen's

[5] Empirical studies, namely case studies, have acknowledged and attempted to assess the importance of the rule of law (e.g. Elster and Slagsted 1993; Linz and Stepan 1996; Marvall and Przeworski 2003; O'Donnell 1998); however, they have largely ignored the role of the judiciary in establishing and maintaining the rule of law.

(2008) preliminary study, no attention has been devoted to empirically assessing the impact of judiciaries on democratic governments.

A greater number of empirical studies have focused on how characteristics of judiciaries impact the level of respect for human rights within a country; however, even this area of inquiry has received only limited attention. Judicial systems have been long recognized as potentially playing an important role in securing individual human rights. Legal scholars, political scientists, international organizations, and human rights activists have even asserted that the judiciary is "the indispensible link in the machinery for securing individual protections against states' human rights abuses" (Camp Keith 2002, 195). Dating back to Alexander Hamilton and Alexis de Tocqueville, judiciaries have been viewed as a necessary check on the power of elective officials that serves to protect the interests and rights of minorities, and this notion has been strongly emphasized by international organizations such as the Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights, and the United Nations.

The studies of this relationship have tended to support the importance of a judiciary for the protection of human rights, though they paint a complex picture of the nature of the judiciary's impact. For instance, Camp Keith (2002) examines the effect of seven constitutional provisions[6] for judicial independence on respect for human rights from 1976 through 1996 and finds that each provision significantly increases a country's level of respect for human rights. She concludes that formal judicial independence has an impact on a state's human rights behavior. Likewise, Camp Keith, Tate, and Poe (2009) find that nations with constitutional provisions protecting judicial independence, as well as regulating states of emergencies, are less repressive with regards to human rights.

Abouharb and Schmidt (2008) similarly examine the impact of judicial independence on respect for human rights from 1981 through 2003 but devote their attention to looking at *de facto*

[6] The seven provisions are guaranteed terms of office, finality of decisions, exclusive authority, fiscal autonomy, separation of powers, enumerated qualifications, and ban on exceptional courts.

independence as opposed to *de jure.* They find that judicial independence has both direct and indirect effect on governments' respect for human rights. Specifically, they argue that the judiciary indirectly affects human rights by triggering an increase in popular protests and in the level of threat the government feels when it chooses to interfere with the judiciary. This increase in protests and threat level leads government to engage in fewer human rights violations. Directly, the judiciary increases levels of respect for the human rights of citizens by restraining the government and forcing them to abide by human rights protections. Thus, they find that the judiciary is important to human rights in a more complex manner than hypothesized by Camp Keith.

Powell and Staton (2007) posit an even more complex relationship between the judiciary and respect for human rights. They examine the relationship between domestic judiciaries and the adoption and compliance with human rights treaties from 1987 through 2000. Powell and Staton find that while effective judiciaries have the potential to increase respect for human rights when countries enter treaties by binding governments to the provisions of the treaties, they actually serve as a deterrent to countries joining human rights treaties and thus, in totality, do not affect human rights violations. When a country has an efficient judiciary, it is less likely join an international treaty and will continue to violate rights; however, when a country lacks an effective judiciary, it will join a treaty and will continue to violate rights. Thus, while judiciaries can constrain governments from violating rights, they may also serve to deter governments from even granting citizens those rights.

The limited research on judicial systems and respect for human rights indicates that a complex relationship between the two exists which requires substantially more empirical inquiry to understand. However, despite the potential importance of judiciaries' protection of human rights, scholars are just beginning to explore their actual impact.

Another burgeoning body of literature looks at the role of the judiciary in economic growth. Economists, political and legal scholars, and world leaders have widely recognized that the judiciary is

important, if not vital, to economic growth. Studies suggest that strong, effective judiciaries are beneficial for growth; however, only a limited amount of research has examined the relationship. For instance, Feld and Voigt (2003) find a positive correlation between the level of judicial independence and the level of economic growth. Islam (2003) finds that better developed courts lead to more developed credit markets and faster growth of large and small firms. Economic studies done by the World Bank (2004) have found that in developing nations, such as Argentina and Brazil, firms doing business in provinces with better courts have greater access to credit and tend to be larger and more efficient because they are more willing to invest financially.

Firms even acknowledge the importance of the judicial system on their willingness to expand and invest. For instance,

> firms in Brazil, Peru, and the Philippines report that they would be willing to increase investment if they had more confidence in their nation's courts. Firms in Albania, Bulgaria, Croatia, Ecuador, Moldova, Peru, Poland, Romania, Russia, Slovakia, Ukraine, and Vietnam say they would be reluctant to switch suppliers, even if offered a lower price, for fear they could not turn to the courts to enforce the agreement (World Bank 2004, 86).

Other surveys of firms have found that lack of confidence in courts results in a lower willingness to extend lines of credit or to do business with anyone besides those whom they know well (Dan 2006).

The importance of the judiciary to economic growth is believed to be so strong that some scholars even argue that legal systems were created for the *purpose* of fostering economic growth. In his seminal book *The Economic Interpretation of the Constitution of the United States*, Charles Beard (1911) argues that the United States Constitution was created as an economic document intended to protect the dominant interests of the day by securing and protecting property rights. He contends that the government was established in response to the demands of economic interests and that every component is geared towards increasing economic gain. In particular, the structure of the government reflects the dominant goal of fostering economic prosperity through the protection of property rights,

of which, *judicial control* is "the keystone of the whole structure" (161). Quoting Hamilton, Beard argues that the judiciary serves as a mechanism to prevent elected branches from expropriating property at the whim of the majority because it is independent of the other branches (and implicitly the masses) and has the power to determine the constitutionality of statutes. Thus, he argues that the intentionality behind the establishment of a judiciary was to protect property rights and foster economic growth.

Similarly, North and Weingast (1989) argue an independent common law court system was created in England following the Glorious Revolution of 1688 in order to foster capital investment and economic growth. The King needed individuals to invest capital to spark economic growth, but people needed reassurance that their private property and capital would be protected from expropriation by the Crown. As a result, North and Weingast argue, property rights institutions such as courts were adopted as a means of demonstrating the King's commitment to the protection of individual property. Klerman and Mahoney (2004) build upon North and Weingast and find that the creation of individual courts with life-tenured judges led to increased capital investment and economic growth in England. Thus, even the initial development of judiciaries may be intrinsically linked to economic growth.

2.2. Theoretical Effect of the Judiciary on Economic Growth

As with democracy studies, research on economic growth has largely ignored the potential importance of the judiciary. Traditional neoclassical models focus on factor accumulation to explain economic growth (e.g. Cass 1965; Koopmans 1965; Lucas 1988; Romer 1986, 1990; Solow 1956). They argue that capital accumulation, such as savings and investment, technological innovation, and human capital are responsible for economic growth. Later studies criticize this work for failing to provide a *fundamental* explanation for economic growth (North and Thomas 1973) and, instead, turn to

three alternative explanations: geography[7], culture[8], and institutions. Currently, the institutional theory of growth is one of the dominant explanations (Acemoglu, Johnson, and Robinson 2004). This theory argues that institutions[9] define the incentives and opportunities for individuals and organizations to maximize their wealth as well as the transaction costs of participating in the economy (Aron 2000; North 1990, 1991). The institutional structure of a system thus determines the profitability of capital investment by defining the costs of transactions.

The literature has explored a variety of institutional features that may impact economic growth; however, empirical studies have produced conflicting conclusions concerning their impact. In particular, much attention has been devoted to examining the effect of political regime type (democracy v. dictatorship) and central bank independence; however, studies have failed to produce solid conclusions concerning whether they have an effect (e.g. Przeworski, et al. 2000; Gerring, et al. 2005; Cukierman 1992; Cukierman, et al. 1992; Berger, et al. 2001; Hayo and Hefeker 2002).

Even more work has examined the impact of property rights institutions, which are a group of institutions that include the rule of law and the enforcement of property rights (Acemoglu, Johnson, and Robinson 2001). The importance of property rights institutions has long been noted within the literature, and a variety of studies have found evidence supporting the claim that property rights institutions are fundamental to economic growth (e.g. Alson, Lipcap, and Schneider 1996; Anderson and Hill 1975; Lebland 1996; Lunn 1995; North and Weingast 1989; North and Thomas 1973). The

[7] The geographical explanation argues that "geography is a key determinant of climate, endowment of natural resources, disease burden, transportation costs, and diffusion of knowledge and technology from more advances dares, [and so] it exerts … a strong influence on agricultural productivity and the quality of human resources (Rodrik, Subramanian, and Trebbi 2004)." See also Engerman and Sokoloff (2002); Sachs (2001), and Bloom and Sachs (1998).

[8] The cultural explanation argues that culture is the key determinant of values, preferences, and beliefs of individuals and societies, and these differences play a key role in shaping economic performance (Barro and McCleary 2003; Durlaug and Fafchamps 2003; Grief 1992; Knack and Keefer 1997; Landes 1998; Putnam 1993; Weber 1930).

[9] Institutions are defined as "humanly devised constraints that structure political, economic, and social interaction. They consist of informal constraints (sanctions, taboos, customs, traditions, and codes of conduct) and formal rules (constitutions, laws, and property rights)" (North 1991, 91).

importance of property rights is so widely acknowledged in political science and economic literatures that, according to Bardhan (2005, 499), "there is … a general impression in the literature … that if one can get the rule of law that protects property rights … the market will take care of much of the rest."

Property rights institutions are said to affect economic growth because they determine an individual's or firm's incentives to invest in an economic system. Investors are only willing to enter an economy if they can be confident that their investment is protected from arbitrary governmental seizure or interference. So, property rights lower the transaction costs and risks in investing capital, entering long-term contracts, and pooling or transferring capital to be used most efficiently; as a result, more long-term, efficient contracting occurs. Because economic growth is dependent on investment and transfers of capital, property rights aids growth by decreasing the costs of entering agreements.

Property rights can only exist when the government does not arbitrarily seize assets or radically alter their value through expropriation or policy changes. Oftentimes, however, the government receives short-term gains by seizing and redistributing assets. In this situation, governments have little motivation to respect individual property. Even at times when leaders are forward thinking and exercise restraint in seizing assets, a risk is constantly present that the government may suddenly revoke rights. If property rights are to be effective in aiding economic growth, governments must in some way demonstrate their commitment to respecting those rights. One method of doing this would be for rulers to exercise restraint over an extended period of time thereby establishing a reputation of respect. Problematically, however, proof by reputation takes time to develop and is in jeopardy anytime a regime change occurs.

Alternatively, governments can demonstrate their commitment to property rights by making rights self-enforcing through the creation of institutions that shackle the regime's powers to infringe. In this sense, the establishment of property rights institutions, or institutions that restrain the government, serve as a signal, or credible commitment, to investors that the government will respect

rights and investments even after a change in leadership. The establishment of this signal increases the incentives and decreases the potential costs of investment by reducing the transaction costs and risks involved by restraining the government from intruding. By reducing the costs and increasing the benefits, property rights institutions foster capital investment which increases economic growth.

Through property rights institutions are viewed as fundamental to growth because they serve to signal the government's commitment to the protection of rights, the effect of these institutions is still ambiguous in large part because "property rights institutions" is operationalized in empirical studies as a cluster of institutions, which often vary across studies, that are used to refer to a single concept. As Bardhan (2006, 3) notes, "what is often ignored in this literature is that the 'rule of law' [property rights institutions] actually involved a whole bundle of rights, and we need to 'unbundle' it." Generally, property rights institutions refer to two broad categories of institutions: the rule of law and law enforcement institutions (Acemoglu, Johnson, and Robinson 2001). The rule of law consists of the formal rules that protect private property such as intellectual property rights and constitutions (e.g. Pistnor and Wellson 1999; Jayasuriya 1999). Law enforcement institutions can refer to any number of institutional characteristics in a country that uphold property rights such as bureaucratic institutions (Knack and Keefer 1995), federalism (Weingast 1995), and judicial institutions (Messnik1999).

The effect of judicial institutions on growth is primarily viewed through the theoretical context of the "credible commitment theory" in which the judiciary serves as a type of property rights institution. In this sense, the judiciary provides a signal to investors of the government's commitment to adhere to the rule of law and respect property rights. Functioning judiciaries serve to restrain the government from violating property rights within a society by increasing the cost of such violations (e.g. North and Weingast 1989) or preventing the government from engaging in behavior that violates a higher law, such as constitutional law. As such, by establishing judicial institutions, governmental actors essentially limit their own ability to infringe upon property rights by vesting in another

institution the power stop them from violating rights. Thus, the existence of a judicial system serves as a clear signal to investors that the government is so committed to property rights that they are willing to bind their own hand in an effort to ensure the protection of property. Furthermore, the existence of judiciaries with statutory review power "locks in" legislation by increasing the cost associated with changing laws, thereby reducing the government's ability to engage in rent-seeking behavior via legislative changes (e.g. Landes and Posner 1975). With these two mechanisms, judiciaries allow investors to have greater confidence that they will be able to appropriate the profits from their investment without governmental interference and thus increase their willingness to invest. Increased investment aids economic growth.

In a second theory explaining the relationship between judiciaries and growth, judicial institutions can facilitate growth by serving as a low cost means of contract enforcement between private firms as well as firms and the government. When individuals or firms decide to enter a contract with another, they have an expectation that the other party will uphold its end of the agreement; however, a possibility always exists that the party will default. Parties will be more willing to enter into contracts as the possibility of the other defaulting decreases. Courts reduce the likelihood of defaults because they are a low cost channel through which one firm can compel another to abide by the terms of the contract.

Thus, in societies with functioning judiciaries, individuals face smaller risks and are more likely to enter into contracts, especially long term contracts. These agreements are necessary for economies to perform strongly and without them economic growth is slowed (Williamson 1995). In the absence of judiciaries, contracts are created based on reputational information and enforced through informal systems, such as family networks or extra-judicial systems, to provide some sort of security against defaulting (e.g. Dan 2006; World Bank 2004). These alternative systems can be unpredictable, costly, and narrow the scope of economic transactions resulting in a lack of, or

inefficient, investment (Ginsburg 2000; Landa 1981; Marr 1981; McMillian and Woodruff 1999). Judiciaries, thus, aid economic performance by increasing peoples' willingness to enter into beneficial contracts by serving as a low cost means of enforcement.

Though a strong relationship between economic growth and judicial systems is posited to exist, empirical studies have only recently emerged that explore the presence and nature of the relationship. As a result, our understanding of the actual impact of judicial institutions is limited. Recent studies have found a correlation between growth and judicial systems (e.g. Feld and Voigt 2003; Pinheiro 1996; Eyzaguirre 1996; Dan 1996; Jappelli, Pagano, and Bianco 2005); however, the literature is ambiguous about the fundamental question of *which* characteristics of a judiciary matter for economic growth. In particular, studies have identified three main characteristics that may impact the economy: judicial efficiency, legal tradition, and judicial independence.

One of the more widely studied characteristics of judiciaries is efficiency. Judicial efficiency is said to affect economic growth both through the credible commitment theory and contract enforcement theory. With regards to the credible commitment theory, the efficiency level of the judiciary helps determine whether courts actually serve as a significant constraint on the government's ability to expropriate wealth. Judiciaries can constrain the government only when courts are able to stop or restrict the government's actions quickly and before their consequences become far reaching and permanent. If judiciaries are unable to react in a timely manner, then the government can effectively ignore them knowing that they will obtain the short term benefits of expropriation well before the courts can react. Thus, inefficient judiciaries that cannot resolve disputes quickly do not credibly restrain the government and are a weaker signal of protected property rights (Dan 2006; Eyzaguirre 1996; Pinheiro 1996; North 1990, 1191).

Similarly, if courts are to serve as low cost means of contract enforcement, they must also be able to resolve disputes between private entities in a timely manner. Judiciaries increase investors'

willingness to enter contracts by providing a low-cost, coercive mechanism for compliance. Though courts are low-cost, they are not free, and the benefit they provide can be mitigated if utilizing them becomes too costly. Pinheiro (1996) formally demonstrates that the cost of judicial enforcement is directly related to the amount of time it takes for the dispute to be resolved. Thus, when courts are inefficient and dispute resolution is not timely, the costs of contract enforcement increases, so firms are less likely to enter contracts. Inefficient courts, then, negate the benefits of having a judiciary that enforces contracting.

Though judicial efficiency is theorized to impact economic growth, empirically assessing its effect is challenging to ascertain largely because efficiency is difficult to measure. An efficient judiciary is one that quickly and accurately resolves disputes brought to courts with certainty and without excessive expenditures on the part of litigants. Defining precisely how an "ideal" judicial system functions is difficult, however, because there is an inherent tradeoff between speed, accuracy, and costs (Sherwood, Sheperd, and Souza 1994). As a result, measuring judicial efficiency is difficult because it requires subjective judgments concerning what amount of each factor is important.

Scholars have attempted to measure judicial efficiency by looking at how long it takes for courts to process a case. Jappelli, Pagano, and Bianco (2005), for example, measure efficiency as the length of time of ordinary civil trials in the 27 judicial districts Italy. Dan (2006) looks at the average number of days it takes for a court to dispose of a case. Some have also looked at the number of pending cases per thousand people (Jappelli, Pagano, and Bianco 2005). The most ambitious attempt to measure judicial efficiency was conducted by the World Bank in cooperation with Lex Mundi, the largest international association of law firms (the "Lex Mundi study"). The Lex Mundi study presented law firms in 109 countries associated with Lex Mundi detailed hypothetical cases and asked them to describe all of legal procedures and law relevant to resolve each case as well as the expected

duration of the case from original filing to final enforcement (Djankov, et al. 2003). They then compile this information into an index of judicial formalism/efficiency.

Using these varieties of measures, studies have found that variations in judicial efficiency across countries significantly affect the economy, particularly credit markets. For instance, Jappelli, Pagano, and Bianco (2005) find that efficient judiciaries improve credit markets by affecting interest rates within a country and increasing aggregate lending. Similarly, Pineiro and Cabral (1998) and Cristini, Moya, and Powell (2001) find a significant impact of the judiciary on credit markets in Brazil and Aggentina, while Meador (1982) and Jaffee (1985) find mortgage interest rates in the United States are higher in states with less efficient judicial processes. Laeven and Majnoni (2003) argue that judicial efficiency is the main factor in interest rate spreads across 32 countries. Since credit markets directly affect the level of growth within a system, it is inferred that judiciaries, by affecting credit markets, affect economic growth.

Scholars have theorized that a country's legal origin affects the economy. La Porta, et al. (1997, 1998) argue that judiciaries vary systematically across legal traditions and these variations have important consequences on economic growth, specifically though property rights and contract enforcement. Broadly, La Porta, et al. (2008) argue that common law countries are more protective of outside investors than civil law countries, specifically, French civil law. In particular, common law countries have less formalism in their judicial procedures and greater contract enforcement and security of property rights. By contrast, civil law countries tend to be heavier handed in government regulation and ownership. This increased governmental interference is adverse to economic growth and results in greater levels of corruption, a larger unofficial economy, and higher unemployment. Empirically, La Porta, et al. (1997, 1998, 2008) find that a country's legal tradition, whether they descend from British common law, French civil law, or a socialist legal tradition, is significantly related to various aspects of the economy including growth, capital market development, government

regulation, and property rights protection. Thus, they conclude that legal origin impacts economic growth.

The third characteristic, judicial independence, though widely theorized to impact economic growth, has received little empirical attention. Judicial independence is hypothesized to be necessary for the judiciary to have an impact on economic growth because courts can only serve their credible commitment function and their contract enforcement function if they are independent of the parties involved, including the government. For courts to protect investors from government encroachment and thus serve as a signal of the government's commitment to property rights they must be able to make decisions independent of government influence; otherwise, they cannot protect investors. If the judiciary is not independent of the government, then it does not signal to investors that the government will protect rights; rather, it can actually aid the government in expropriation. Thus, for the judiciary to foster investment in a system, it must be independent of the government. This influence of judiciaries by restraining the government can be thought of as the *public law channel* of judicial influence (Feld and Voigt 2007).

Likewise, judiciaries must be independent of parties in a dispute over a contract if they are to serve as low-cost means of contract enforcement. Judiciaries decrease the cost of enforcing contracts and thus increase the credibility of all parties involved by arbitrating according to the terms of the agreement. This reduces the need for employing alternative, more costly means of enforcement or refraining from entering contracts altogether. As a result, more wealth-enhancing transactions will occur. However, for courts to serve this function and arbitrate following the terms of the contract, they must be impartial and thus independent from outside pressures coming from the parties involved. If they are biased or in any way linked to one or more of the parties involved, the transaction cost of enforcing the contract increases thereby mitigating the positive effect and having a negative effect on private transactions. For judiciaries to foster efficient contracting, they must be independent of private

parties. This influence can be thought of as the *private law channel* of judicial influence (Feld and Vogt 2007).

Though judicial independence is theoretically fundamental for a judiciary to impact growth, relatively little empirical work has focused on examining the effect of judicial independence. Most studies examining the relationship between judicial independence and economic growth do so indirectly or in conjunction with examining property rights institutions in general. Measures of judicial independence are often included in indexed measures of property rights institutions (e.g. Mauro 1995; North 1990; Acemoglu, Johnson, and Robinson 2001). These studies find that property rights institutions, judicial independence being one, significantly impact the level of growth within a system, thus they extrapolate that judicial independence affects growth. However, they do not directly test the relationship; rather, the judiciary is treated as a component of a larger measure.

Other studies (e.g. Ginsburg 2000; Perry 2000; Messick 1999) provide more direct tests of the relationship between the judiciary and growth; however, they also fail to isolate the impact of courts because they group judicial measures with legal measures. For instance, La Porta, et al. (1997, 1998) find that countries with better investor protections and common-law origins have stronger capital markets, which they conjecture is evidence of a relationship between judicial independence, market strength, and growth, though they never actually test the existence of such a relationship. Similarly, La Porta, et al. (2004) examine the effect of judicial independence and other institutions on the protection of economic and human rights in a system. They find a strong relationship between the two and speculate that judiciaries may impact growth through the protection of rights. However, again, they do not directly test the effect of the judiciary on growth.

A handful of studies have attempted to *directly* test the relationship between judicial systems and economic growth producing mixed results. Glaeser, et al. (2004) attempt to determine whether there is a causal effect of judicial independence on economic growth; however, they find no evidence

of such an effect. Rather, they conclude that judicial independence is the result of economic growth. In constast, Feld and Voigt (2003) find a strong effect of judicial independence on economic growth, measured by GDP growth per capita, by examining 56 countries using *de jure* and *de facto* measures of independence from 1960-2000.

As a follow up to their 2004 study, Feld and Voigt (2007) attempt to "unbundle" the effect of judicial independence by examining the mechanisms through which the judiciary impacts economic growth. Specifically, using cross-national data on 79 countries, they assess the effect of the judicial independence on the three components of the growth model: investment in human capital, investment in physical capital, and factor productivity, arguing that the judiciary has an indirect effect through these channels. They find that judicial independence significantly increases investment in human capital and in total factor productivity but has no impact on physical capital. Thus, they conclude that judicial independence aids economic growth by increasing human capital and productivity.

Klerman and Mahoney (2005) take a different approach to empirically examine the effect of judicial independence. Specifically, rather than conducting a large-n, cross-national study, Klerman and Mahoney examine the relationship using a single, historical case study of England. By tracing the growth of judicial independence and levels of economic growth (measured by equity prices) throughout English history, they find a strong relationship between independence and growth.

Though these studies are far from conclusive, overall, they tend to indicate that a relationship exists between economic growth and judicial independence. However, our understanding of the nature of this relationship is still limited and the topic remains understudied. One primary factor limiting our understanding of the role of judicial independence is the lack of a clear conceptualization or operational definition of the term. No clear consensus exists concerning the conceptual definition of judicial independence. Judicial independence is, generally, courts' ability to make decisions free from outside influence; however, the optimal level of independence stems largely from normative beliefs

concerning what factors should guide judges' decision making. As a result, conceptualizations of judicial independence vary based upon the normative approach to decision making adopted.

Definitions range from fairly narrow, specifying that judicial independence simply requires freedom from other governmental actors, to fairly broad ones, which specify judges to be influenced only by the facts and law. For example, Tridimas (2005) adopts a narrow definition in which "judicial independence is the ability of the courts to enforce legislation passed by the legislature without interference from the legislative or executive branches." Rosenburg (1992) similarly enumerates a fairly narrow definition saying that "the judiciary is independent … to the extent its decision-making is free from domination by the preferences of elected officials." Landes and Posner (1975) have a slightly broader view of independence in which they take into account influence from other governmental actors, as with the others, as well as other forms of political influence such as elections.[10]

Others have adopted even broader definitions of independence requiring that judicial decisions also be independent of non-governmental influence including personal preferences. For instance, the United Nations' (1985, 2) *Basic Principles on the Independence of the Judiciary* state that "the judiciary shall decide matters before them impartially, on the basis of facts and in accordance with the law, without any restrictions, improper influences, inducements, pressures, threats, or interferences, direct or indirect, from any quarter or for any reason." Ferejohn (1998) takes an even more narrow view stating that "judges should be autonomous moral agents who can be relied on to carry out their public duties independent of venal or ideological considerations."

For the purposes of my dissertation, the definition that I adopt differs from the more narrow definitions because I contend that judiciaries must be independent of sources of influence besides the government to positively affect economic growth; however, it also differs from the broadest

[10] "We define an 'independent' judiciary as one that does not make decisions on the basis of the sorts of political factors (for example, the electoral strength of people affected by a decision) that would influence and in most cases control the decision were it to be made by a legislative body such as the U.S. Congress (Landes and Posner 1975)."

definitions, such as Ferejohn's, in that I argue that judges cannot, and need not, be independent of their ideological considerations. Thus, for my purposes, a substantively independent judiciary is one in which judges make decisions free from political and venal pressures exerted by governmental officials and private citizens or firms. This definition is appropriate in light of the economic theories which argue that judicial independence aids growth by serving as protection from the government and from private individuals.

Though judicial independence is widely theorized to affect many aspects of a political and economic system, few empirical studies have evaluate its effect in part because difficulties with determining how to reliably measure independence. To directly measure the level of independence of a judiciary, we must be able to directly observe what factors influence a judge's decision in a case in order to ascertain whether the judge was inappropriately influenced. Problematically, decision making occurs privately in the thoughts of the judges(s) and cannot be observed; instead, we are only able to observe the final outcome, or results of the decision, not the actual process. Outcomes tend to be binary (for or against one party) and, as a result, different influences lead to the same observed outcome, which makes it impossible to determine which potential influence was relevant. For example, in a case decided in favor of the government, the court could have made its decision because of political pressures or the facts and the law could clearly be on the side of the state. In either scenario, the observed outcome is the same. Thus, we cannot directly observe whether case outcomes were the result of independent decision making and, as a result, we cannot directly measure judicial independence.

Because of this difficulty, scholars have developed indirect, or proxy, measures of judicial independence. Most commonly, the level of independence within a system has been measured by a composite index of different institutional characteristics of the judiciary (e.g. Camp Keith 2002; Feld and Voigt 2003, 2007; Staton, et al. 2008; Dan 2006). For example, La Porta, et al.'s (2004) measure

judicial independence with an index consisting of the length of high court judges' tenure, length of administrative judges' tenure, and whether judicial decisions are a source of law. Herron and Randazzo (2003), following Smithey and Ishiyama (2000), use an index consisting of six components of judicial power, including whether decisions can be overturned, the presence of priori review, judges' tenure, judicial selection, establishment of court procedures, and judicial removal.

Institutional characteristics are used to measure independent decision making because certain institutional features are theorized to safeguard independent judicial behavior. These institutions, such as life tenure and salary protection, insulate judges from outside influences by limiting the channels though which other actors could seek to affect their decisions. Life tenure, for instance, reduces judges' susceptibility to threats from other governmental actors because their job security cannot be compromised as a result of their decisions. Similarly, salary protection insulates judges from financial repercussion for their decisions as well as makes them less vulnerable to bribery.

Because institutional features tend to facilitate judicial independence, scholars assume that the presence of a greater number of institutional safeguards indicates a more independent court. This is because, theoretically, the greater numbers of institutions that insulate the court, the less susceptible judges are to other influences, so judges in systems with more protections should be more independent. As a result, an additive index of judicial institutions is a suitable proxy for measuring actual independence in decision making.

Though this measurement approach is the most widely accepted and utilized, using an index of institutional features is admittedly flawed. The first problem with this measure is that institutions do not guarantee behavior, thus institutional arrangements cannot be equated to independence. So, courts may be institutionally independent but judges may still feel outside pressures. This problem is inherent in any proxy measure of a concept, especially one in which institutions are used to measure behavior,

because the proxy is never a perfect substitute for the original. However, being unable to directly measure judicial independence, the proxy is the best available alternative.

Another fundamental problem with this approach is that currently no consensus exists concerning *which* institutional characteristics should be included in the index, so measures of judicial independence vary across studies. For example, Tridimas' (2005) index includes method of appointment, size of court, judicial tenure, fiscal autonomy, transparency of court deliberation, accessibility to courts, court jurisdiction, and finality of judicial rulings. La Porta, et al. (2004) create a far simpler measure with only three characteristics: tenure of supreme court judges, tenure of administrative court judges, and judicial decisions as law. Camp Keith (2002) follows the United Nations Principles on Judicial Independence and indentifies seven components of an independent judiciary (guaranteed terms, finality of decisions, exclusive authority, ban on military courts, fiscal autonomy, separation of powers, enumerated qualifications) in her examination of judicial independence and human rights protections.

Furthermore, in some measures, institutional features included in the indexes do not serve as protections of judicial independence. In particular, judicial review is often included in measures of judicial independence, or even treated as a measure of independence, even though it is conceptually distinct. In Camp Keith's 1999 study, her measure of independence includes nine judicial characteristics including judicial review. Similarly, Blasi and Cingranelli (1996) include judicial review amongst their eight characteristic index. Likewise, Feld and Voigt (2003; 2007) state that constitutional review is a crucial component of judicial independence and, accordingly, include it in their measure.

Judicial independence and judicial review are clearly related, though this relationship is not fully understood. Generally, though, judicial independence is believed to be necessary for a court to exercise effective judicial review (Rosenthal 1990; Ludwikowski 1996). For a court to be effectively

able to exercise judicial review and declare an action of another actor unconstitutional and thus null, it cannot be influenced by that actor or fear reprisal for its decision. Judges must be able to determine the constitutionality of the behavior of other actors without concern over the political or personal consequences. Thus, judicial independence is a prerequisite for courts to exercise judicial review power. Without judicial independence, courts may be unduly influenced by governmental actors and thus unable objectively determine the constitutionality of their behavior or safely nullify it.

Though intrinsically related, combining judicial review and judicial independence into a single measure of "judicial independence" is problematic for understanding the effect of the judiciary because they are conceptually distinct and have different theoretical impacts, especially on economic growth. Conceptually, judicial review is courts' power to nullify acts of other governmental actors if they are found to conflict with the constitution (La Porta, et al. 2004; Herron and Randazzo 2003), whereas judicial independence, as stated above, is courts' ability to make decisions free from political and venal pressures. Judicial review, essentially, makes judges the final arbiters of what is law (La Porta, et al. 2004, 447). Judicial independence ensures that judges can make decisions concerning the law without undue influence. Thus, the former concerns one specific power of courts, whereas the latter is concerned with features that influence the utilization of judicial power, including but not exclusively judicial review.

Judicial independence and judicial review also have very different historical evolutions. Scholars such as Dawson (1960), Hayek (1960), North and Weingast (1989), and La Porta, et al. (2004) have traced the growth of independent judiciaries through English history. In the 12th century, English courts exercised independent decision making through jury trials, in which independent peers decided judicial outcomes. The more modern of judicial independence is tied to the 1701 Act of Settlement in England which implemented institutional structures, such as life tenure of judges, to protect judges from outside influences and ensure independent decision making free from the Crown

and Parliament. England transplanted this notion of securing independent decisions through institutional safeguards to its colonies, most notably of which is the United States whose judicial system is hailed as the hallmark of independence. Thus, judicial independence was first established in England and transported around the world through colonialism (see La Porta, et al. 2004).

Alternatively, judicial review is foreign to England; it originated in the United States in the 18th century through a series of Supreme Court cases, most notably *Marbury v. Madison(1803)* (Dicey 1986; Hayek 1960; La Porta, et al. 2004). The power of judicial review is not stated in the US Constitution, and, indeed, the idea that the framers intended courts to have the power to nullify acts of the other branches is arguable (Bickel 1962; Treanor 2007). Nonetheless, judicial review has become one of the stalwart features of the US legal system and accepted as courts' fundamental and greatest power. Following the United States' example, other countries have granted courts the power of judicial review and made them final arbiters of constitutionality. In particular, post-colonial Latin American countries granted courts review power, and, following World War II, Western Europe followed suit (Fredrich 1968).

Judicial independence and judicial review are conceptually different components of a judicial system with different historical growth. These differences between judicial review and independence are important to account for when ascertaining the effect of a judicial system because they may have differential effects on economic growth. By including judicial review in measures of judicial independence, the literature is potentially missing an important nuance in the relationship between the judiciary and growth. La Porta, et al.'s (2004) study demonstrates the potential importance of disentangling the two concepts. They find that judicial independence is important for economic and political freedom within a country while judicial review only matters for political freedom. These finding support the idea that judicial review and judicial independence have differential effects on economic growth.

In line with their study, I argue that judicial independence should have a much greater effect on economic growth than judicial review, whose affect should be conditioned on the presence of economic rights. Specifically, the judiciary is theorized to improve economic growth through two mechanisms: as a low cost means of contract enforcement and as the government's credible commitment to property rights. Judicial independence is fundamental for the judiciary to fulfill either of these functions; however, judicial review only enables judiciaries to constrain the government from infringing on property rights under specific conditions, when the constitution enumerates economic rights. Judicial review alone does not impact courts' ability to enforce contracts.

2.3. Hypotheses

Judicial Independence. As discussed earlier, judiciaries must be independent if they are to serve as the government's credible commitment to property rights. For judiciaries to signal to investors that the government will respect property rights, courts must be able to make decisions concerning those rights without influence from governmental actors. Courts only serve as signals of the government's commitment to property rights when they have the ability to restrain the government because only then do they demonstrate the government's willingness to bind its own hands to prevent rights violations. However, courts can only restrain the government when they have the ability to make decisions independent of external governmental influence. If the judiciary is dependent upon, or susceptible to, governmental influence, it cannot stop governmental actions and, as a result, does not serve to demonstrate to investors that the government is committed to protecting their rights because it places no limitations on the government. Thus, only the existence of an independent judiciary can serve to limit governmental power and serve to reassure investors. Likewise, courts must be independent to serve as low cost means of contract enforcement. For courts are to fulfill the function of a low cost means of contract enforcement, the parties to the contract must be confident that the decision will be based upon the agreed terms. This can only occur when the judges are free from the

influence of any party. If they are not independent, then the transaction costs of enforcing a contract through the judicial system increases, and courts are unable to have any impact. Thus, judiciaries must be independent to impact economic growth through either the private or public law channel. *I, therefore, hypothesize (1) that higher levels of judicial independence are associated with higher rates of economic growth.*

Judicial Review. In contrast, the power of judicial review should have no impact on the courts ability to arbitrate disputes over contracts nor should it, independently, impact the governments credible commitment to property rights. Since judicial review is the court's ability to nullify acts of governmental officials if they conflict with the constitution, it should have no impact on the economy vis-à-vis the private law, or contract enforcement, channel. Constitutions are not used as grounds to enforce private economic contracts and so the power of judicial review does not change the role of courts in this legal realm. Judicial review, then, should not directly impact economic growth through the private law channel.

Likewise, judicial review is unnecessary for courts to prevent the government's infringement on property rights. Granting courts the power of judicial review, alone, does not provide them with the power to prevent governmental actors from infringing property rights and, as a result, does not serve to signal investors concerning the government's commitment. Because most economic policy is legislated by the government rather than by constitutional law (e.g. tax rates, interest rates); the judiciary's ability to declare actions unconstitutional cannot, alone, be used to limit the government. As such, by vesting in courts the power of judicial review, the government does not restrain its ability to violate rights and thus judicial review does not serve to signal the government's credible commitment to property rights. In the absence of judicial review, courts can still serve to protect economic rights through their statutory review powers by ensuring that the government abides by its own legislation and that the government does not reinterpret the laws to its own benefit. Furthermore,

with the power of statutory review, judiciaries may protect investors with their statutory review power by increasing the cost of passing legislation by "locking in" the long term implications of the policy through its statutory review power (Landes and Posner 1975). That allows investors to have greater confidence in the government's commitment to the policy because of the costliness in passing it. Thus, judiciaries serve as a signal of the government's commitment to property rights through their inherent statutory interpretation power regardless of whether they have the power of judicial review. Since judicial review is neither necessary for the judiciary to impact economic growth through the private law channel or the public law channel, *I hypothesize (2) that judicial review has no direct impact on economic growth.*

The only situation in which judicial review should impact economic growth is when the constitution contains enumerated economic rights protections that the judiciary can check the government's actions against. For judicial review to be utilized to protect economic rights, the constitution must contain some provisions protecting rights that the courts are vested to uphold. Without constitutionally enumerated economic rights, judicial review does not restrain the government's ability to violate economic rights and thus does not signal the government's credible commitment. However, when the power of judicial review is paired with the existence of constitutional economic rights, courts may use the power of judicial review to prevent the government from violating said rights since courts only use judicial review to check the government against articles of the constitution. Therefore, when governmental actors grant courts the power of judicial review *and* constitutionally enumerate economic rights protections, they are vesting in courts greater power to prevent government encroachment and thus they are taking greater steps to limit their own ability to violate rights. The combine presence of judicial review and economic rights protections, then, serve as a signal of the government's credible commitment and can then facilitate economic growth. La Porta, et al.'s (2004) finding that judicial review impacts the protection of political freedoms but not

economic freedoms is conducive to this proposition because political rights are more often constitutionally enumerated while economic rights are less often included. *Thus, I hypothesize (3) that stronger judicial review powers are associated with higher levels of economic growth in countries with constitutionally enumerated rights.*

Hypothesis 1: Higher levels of judicial independence are associated with higher levels of economic growth.

Hypothesis 2: Judicial review has no direct effect on economic growth.

Hypothesis 3: In countries with constitutionally enumerated economic rights, stronger powers of judicial review are associated with higher levels of economic growth.

CHAPTER 3: MEASURING JUDICIAL INDEPENDENCE, JUDICIAL REVIEW, AND ECONOMIC RIGHTS

To measure judicial independence and judicial review, I rely on *de jure* measures of judicial characteristics derived from countries' constitutions from 1990 to 2002. I rely on *de jure* measures because they are more readily available as well as more reliable and replicable than *de facto* measures. I generate two measures of judicial independence. For the first, I construct an additive index of seven judicial characteristics theorized to affect judicial independence. This measure assumes that the seven characteristics are measuring a single, latent concept, and that all of the characteristics are equally weighted. I test the validity of these assumptions in my second measure, which I construct by performing a principal-axis factor analysis. With this factor analysis, I find that the seven characteristics are indeed measuring a single concept; however, I generate a measurement of judicial independence in which the characteristics are weighed differently according to how much of the variation in them is explained by single factor. Next, I measure judicial review using a four-category, ordinal variable ranging from [-1, 2]. To measure economic rights, I create an additive index of the level of economic rights protections in countries' constitutions by coding the constitutions of a subsample of 51 countries for the year of 2002. The measure potentially ranges from [0, 10] with 10 indicating the highest level of property rights. In practice, however, no country obtained the highest possible level of property rights protections, so the practical range is from [0, 8.25].

3.1. De Jure v. De Facto

One difficulty in examining the influence of any institution, including the judiciary, is determining how to best operationalize the institution's characteristics. In particular, scholars frequently note the conceptual difference between *de jure* and *de facto* institutional characteristics and their effects (e.g. Gourevitch 2005; Hagger 1982; Norris 2003; Taylor 1992; Thabane 2006). *De jure* characteristics are formal rules that structure institutions and behaviors, while *de facto* characteristics are the structure or behaviors of institutions in practice. With regard to judicial independence, *de jure*

independence is comprised of the formal rules that insulate judges and enable them to make decisions based on how they see the law and the facts, while *de facto* independence is when judges make decision free of undue influence in practice (Rios-Figueroa and Staton 2008; Burbank and Friedman 2002). Similarly, *de jure* judicial review is a formal rule granting judges the power to nullify acts of other governmental actors if they conflict with the constitution, while *de facto* review is when judges exercise judicial review in practice and other actors abide by their decisions.

A country with *de jure* institutional characteristics may not evidence *de facto* characteristics. This is a problem that plagues all comparative studies on the effects of institutions including studies on the effects of democracy (Pzreworski et al. 2000), presidential versus parliamentary systems (Stepan and Skach 1993), and electoral laws (e.g. Jones 1999). For example, examining the effects of electoral laws on voter turnout, Norris (2003) argues that while compulsory voting laws are theorized to improve voter turnout, the effect of voting laws varies based on whether they are *de jure* compulsory or *de facto*. *De jure* compulsory voting laws are ones which formally require voting; whereas, *de facto* compulsory voting varies based on the level of enforcement. Countries that fail to enforce their *de jure* laws, regardless of the rigidness of the law, will, *de facto,* not have compulsory voting. Similarly, Pzreworski et al. (2000) argue that institutional characteristics that indicate that a system is a democracy do not adequately demonstrate whether it is a democracy *de facto.* Rather, they argue that a country is only a *de facto* democracy when a democratic change of power has occurred.

Because of *de jure* characteristics do not equate to *de facto*, testing institutional effects using *de jure* measures can be problematic because they may not capture the extent to which the formal institutions are actually respected (*de facto*) and thus do not perfectly capture the nature of political reality. A study attempting to understand the effect of institutional structure on some phenomenon using only a *de jure* measure may, therefore, come to inaccurate conclusions. As a result, some scholars contend that *de facto* measures are necessary to examine institutional effects since to

understand the true effect of institutional characteristics we must examine the characteristics in practice (e.g. Acemoglu and Robinson 2005).

Judicial institutions are not immune to challenges in determining whether to examine *de jure* or *de facto* characteristics. Judiciaries may possess a formal institutional structure that would indicate independence; however, in practice, judges may be unable to engage in independent decision making. For example, judges that are formally granted life tenure, which encourages independence by securing their positions, may in practice face strong pressure or threats to resign if they rule against a particular party resulting in *de facto* term limitations. Formal institutions, then, may not preserve the independence of judges because they are not respected in practice. As a result, courts that appear to be independent according to *de jure* measures may be heavily influenced in practice. This was the case in the Philippines under Ferdinand Marcos; the judiciary was firmly controlled by Marcos despite strong institutional protections (Haynie and Tate 1993).

Measuring judicial review using *de jure* characteristics presents a similar problem. Though a country's judiciary may be formally granted the power of judicial review, in practice it may be unable or unwilling to nullify acts of other actors. To exercise judicial review in practice, judges must declare acts of other actors invalid when they conflict with the constitution, and the governmental actors must abide by the court's decisions and cease engaging in those actions. Simply because a court has the formal power to stop the actions of other actors does not guarantee that it has the real ability or motivation. Judges may be intimidated into not exercising judicial review, even if the constitution clearly is being violated. Governmental actors may also choose to ignore rulings of courts, as happened in the United States in 1832 when Andrew Jackson and the State of Georgia ignored the Supreme Court's ruling preventing them from violating the rights of the Cherokee tribe (Perdue and Green 2004). In either situation, courts do not have the *de facto* power of judicial review though they may be given it *de jure*.

Furthermore, *de facto* judicial review can exist without *de jure* review. In other words, judicial review can exist in countries whose constitution does not expressly grant courts the power of review. In the United States, for example, the constitution includes no mention of judicial review; instead, the Supreme Court established this power overtime via court decisions. Despite the lack of *de jure* judicial review, US courts have recognized *de facto* review power. Though US courts are known to have and exercise the power to judicial review, using *de jure* measurement, would lead the United States to be coded as not existing. As illustrated by the case of the United States, *de jure* measures of judicial review may not capture its actual presence or practice.

Though in some ways *de jure* measures may present a superior test of the effect of institutions, measuring *de facto* institutions is not without its own set of problems. In particular, d*e facto* measures of institutions are extremely difficult to obtain. Unlike with *de jure* measures, informal institutions are rarely written down, thus, to obtain the information on *de facto* institutions, one must either be, or consult, an expert on each particular country because only experts on a country have the necessary level of understanding institutional functioning. Moreover, because of the specialized knowledge required for *de facto* measures, they are rarely replicable and thus their reliability is questionable. The problems are especially pronounced when examining judicial institutions because courts tend to be lower profile and less public since oftentimes their workings occur in secrecy with the public only observing the final product, the case outcome. As a result, *de facto* institutional information is even more difficult to acquire, less replicable, and less reliable.

Scholars have made numerous attempts to measure *de facto* judicial independence; however, these measures face limitations (Rios–Figueroa and Staton 2008). Feld and Voigt (2003) undertake one of the most thorough approaches to measuring *de facto* independence by surveying legal experts on a sample of countries; 56 useable responses were obtained. They asked respondents to complete a questionnaire inquiring into the actual practice of their country's judiciaries. For example, respondents

were asked the average length of tenure (as opposed to formal term limits), number of judges removed from offices, and level of compliance. All of these questions attempt to capture the extent to which judges may act independently. Feld and Voigt's approach offers a number of benefits, namely it directly measures *de facto* independence by consulting country experts, which is the most reliable way to get such information. Furthermore, by asking direct and specific questions, they maintain control over how variations across countries are interpreted, thus minimizing the amount of subjectivity in the measure and improving the measurements specificity concerning what features are being considered.

Problematically, however, Feld and Voigt's measure is limited to a relatively small, non-representative sample of countries within a single year. As a result, their measure cannot be used to examine the dynamic effect of institutions, and any findings based on the measure are necessarily limited because of the nature of the sample. Moreover, as a practical point, employing statistical methods of analysis using their measurement is problematic because the N is limited to well under 100. Additionally, because the method to obtain information used by Feld and Voigt is rather intensive, expanding their sample of countries would be highly difficult, time consuming, and expensive.

Other measures of *de jure* independence overcome the weaknesses of Feld and Voigt's (2003) measure by relying on reports from a third-party agency generated from expert knowledge. Cingranelli and Richards (2008), Tate and Camp Keith (2007), and Howard and Carey (2004) all develop three-category, ordinal measures of judicial independence using the United States State Department yearly human rights reports.[11] In the reports, State Department experts describe the nature of the judicial system in a narrative format describing the quality of the judiciary and explaining the reasoning for the assessment. The level of *de facto* independence is based on these narratives. These reports date back to the 1970s and cover most of the recognized countries of the world, so they can be

[11] The US State Department's country reports are annual reports made to Congress by the Department of State on the status of international human rights within various countries around the world. Short narratives concerning the status of the countries' judicial system with regards to criminal and civil trials are found within these reports and serve as the basis for these measures.

used to examine dynamic effects and a cover a wide enough range of countries that any conclusions should be generalizable.

While these measures do not suffer the weaknesses of Feld and Voigt's measure, they are problematic because the reports are subjective with regards to which information to report and, as a result, are difficult to translate into reliable measurements. The State Department reports do not uniformly include the same information about each court system across countries or time in part because the decision concerning what information to include is a subjective decision made by the experts. For example, the 2006 report on the Philippines includes information on corruption and inefficiency,[12] while the 2006 report on South Africa does not mention corruption or efficiency but instead discusses how courts are understaffed and underfunded and overburdened[13] (State Reports 2006). Furthermore, the reports are unclear about what an omission of information means. So, the fact that the report on the Philippines does not mention the resources available to courts may mean that they have plenty of resources or that the expert decided that other problems were more important. The subjectivity in the reports necessarily translates into measurements that vary with regards to what they are focusing upon.

To counteract the lack of consistency, Cingranelli and Richards (2008), Tate and Camp Keith (2007), and Howard and Carey (2004) specify similar criteria by which to translate the reports into a three-category ordinal variable; however, because the reports include inconsistent characteristics, the

[12] The 2006 State Department Report on the Philippines states:

> The law provides for an independent judiciary; however, the judicial system suffered from corruption and inefficiency. Personal ties and sometimes venality resulted in impunity for some wealthy and influential offenders and contributed to widespread skepticism that the judicial process could ensure due process and equal justice. The Supreme Court continued efforts to ensure speedier trials and to sanction judicial malfeasance and was in the midst of a five-year program to increase judicial branch efficiency and raise public confidence in the judiciary.

[13] The 2006 State Department Report on the South Africa states that "[t]he constitution and law provide for an independent judiciary, and while the judiciary was generally independent, it was understaffed, underfunded, and overburdened."

criteria are composed of very general rules.[14] This results in a lack of specificity regarding which characteristics are being included in the measurement and, paired with the subjectivity of the reports, throws into question whether the measurements are reliable for comparison. In other words, because varying characteristics are potentially being collapsed into a single measure, we cannot be certain that the same characteristics are being measured across countries and, thus, countries maybe incomparable. Rios-Figueroa and Staton's (2008) comparison of judicial independence measures lend evidence to the problem with these measures. They examine the relationship between a variety of measures of judicial independence including Cingranelli and Richards (2008), Tate and Camp Keith (2007), and Howard and Carey (2004), and though they find a significant correlation between the three measures, the size of the correlation is much smaller than would be expected based on the fact that they are all based on the same reports and specify very similar coding criteria.[15]

De facto measures of judicial review are even more difficult to obtain, and, to date, no measure has been published. The most fundamental difficulty in measuring judicial review is determining criteria by which to tell whether judicial review is practiced. Determining such a criterion poses a challenge because it is not possible to observe whether a judicial decision is actually an exercise of judicial review. It is often only possible to observe the final outcome: the decision. Because we are not privy to the decision making process, we must extrapolate whether judicial review was exercised based upon the final outcome of the case. On the surface, observing an exercise of judicial review is a straightforward task: if the court declares something unconstitutional then they have exercised review. Such a simplistic approach fails to capture the *de jure* presence of judicial review; for judicial review

[14] For example, under the Tate and Camp Keith (2004, 17) measure, a judiciary receives a '2' if "the judiciary is reported as 'generally independent', a '1' if "the judiciary is reported to be somewhat indepdent in practice with reports of some pressure from the executive 'at times' or with occasional reports of corruption", and a '0' if "the judiciary is reported as not being independent in practice; is reported to have significant or high levels of executive influence or interference; or is reported to have high levels of corruption."

[15] Correlation between Cingranelli and Richards and Tate and Camp Keith: .672, Cingranelli and Richards and Howard and Carey: .616; Tate and Camp Keith and Howard and Carey: .719.

to be exercised, governmental actors must abide by decisions of unconstitutionality even if it is counter to their personal preferences. Thus, in addition to observing an exercise of judicial review, we must also be able to observe the ruling being implemented. To truly know whether courts possess *de facto* judicial review power, we must be able to observe judges overturning actions of governmental actors based on constitutional grounds, and those actors respecting the court's decision despite the fact that the decision is unfavorable and runs counter to their personal and political preferences.

To gather such information on judiciaries, especially across countries and time, would be untenable. A *de facto* measure of judicial review would require expert knowledge on decisions being handed down by courts and their implementation for each country of interest and each year under examination. To gain this information, we would, first, need to determine whether each case decided by a court was 1) against a government actor and blocking their behavior and 2) based on constitutional grounds.[16] Then, we would have to examine the implementation of the case over time to see whether, in practice, the decision was respected. Gathering this information would require country specific expertise, often including language fluency, extensive court case information, and historical analysis of relevant cases. To date, we are far from obtaining such information on a single country let alone multiple countries over time. In particular, we have yet to be able to conclusively demonstrate the implementation of the exercise of judicial review within the United States let alone cross nationally. Attempts to examine the effect of court decisions have shown that actually observing the exercises of judicial review is extremely difficult and can be misleading (e.g. Rosenberg 1990). Because of the difficulty obtaining case information cross nationally and tracing the implementation of cases, measuring *de facto* judicial review is not feasible.

[16] The most ambitious attempt at this to date is the *Comparative Courts Dataset* (Haynie, et al. 2006) which codes all published decisions handed down by highest courts of nine countries over 30 years. Though this dataset provides extensive coverage of the countries included, the relatively small number of countries would prevent using the data for a cross-sectional analysis.

Moreover, while observing a judicial review decision and its implementation is evidence of the presence of *de facto* judicial review, failure to observe such a decision cannot be construed as evidence of a lack of judicial review power. Courts can have the power of judicial review but choose not to exercise it either out of personal preference or because actors happen not to violate the constitution. In this situation, courts, *de facto*, have the power of judicial review; however, observing their behavior would falsely lead to the opposite conclusion. Measurements of *de jure* judicial review based on observing court and government behavior would then fail to correctly account for courts that voluntarily refrain from exercising review which would result in an unreliable, biased measure. Overall, *de facto* measures of judicial review, in addition to being extremely difficult to obtain, face reliability problems.

As a result, though examining *de facto* institutional characteristics has theoretical benefits, I use *de jure* measures of judicial institutions for my study. I opt for *de jure* measures because the lack of reliability and replicability in existing *de facto* measures and the amount of resources required to develop new ones make examining *de facto* characteristics impractical. Though *de jure* characteristics may not perfectly capture the nature of judicial institutions, they do provide an indication of the nature of the judiciary and are, thus, an important component of understanding the workings of the judiciary. Indeed, many scholars have included *de jure* characteristics in their *de facto* measures of judicial independence (e.g. Feld and Voigt 2003; Blasi and Cingranelli 2008) arguing that they are fundamental to the workings of courts.

More importantly, regardless of the *de facto* nature, *de jure* characteristics in themselves may have an effect, especially with regards to economic growth. *De jure* institutional features capture the intent of political leaders, which is the basis of the theorized public law effect of the judiciary on economic growth. If the judiciary serves as the government's credible commitment to property rights, then *de jure* judicial characteristics have an important signaling effect. Moreover, investors, like

scholars, do not always have full information on the *de facto* workings of courts, and, as a result, when making decisions, they must also rely on *de jure* features. This is particularly the case when countries are undergoing regime transitions and no history of *de facto* workings exists. As such, it is reasonable to expect *de jure* features to have an influence on economic growth.

By employing *de jure* measures, I am undertaking a cautious test of the effect of the judiciary on economic growth. If I find support that *de jure* institutions have an impact, then I can be somewhat more confident that *de facto* measures would have a similar effect. Thus, I consider this study to be a rather stringent test of my theory but forewarn that my findings are limited to the effect of *de jure* institutions.

3.2. Judicial Independence

I create two measures of judicial independence in order to explore the consequences of different measurement approaches. First, I create an additive index of constitutionally expressed judicial characteristics, which is currently the most commonly adopted method in studies. Since the additive approach is based upon the assumptions that all characteristics are equally weighted and measure a single underlying dimension, I utilize a second approach which enables me to relax the assumptions thereby generating a potentially more reliable measurement. For my second measure, I use principle factor analysis to test the underlying structure of the relationship between the judicial characteristics and to determine the proper weight of each component of the index.

Determining which constitutional components to include in the measure of judicial independence is somewhat of a subjective process because no consensus currently exists concerning what characteristics are necessary for a judiciary to act independently. International organizations have suggested standards with which to guide the growth of independent judiciaries that can be used as a basis with which to measure independence. For example, the United Nations sets forth twenty standards, such as guaranteed tenure, for an independent judiciary in its *Basic Principles on the*

Independence of a Judiciary (1985).[17] Similarly the UN Special Rappteur (1995) recommends basic principles for judicial independence including that judicial independence be guaranteed by the constitution, judicial decisions be final, judicial terms be fixed, the court determine its own competence, as well as guidelines for selection and removal of judges.

Most of the existing measures of judicial independence are based on the standards specified by international organizations (e.g. Feld and Voigt 2003, Camp Keith 1995, 2002); however, a multitude of characteristics have been included to measure the extent to which the standards are met. As a result, a wide variety of measures have been utilized in studies, most of which are only weakly correlated (Rios-Figueros and Staton 2008), and there exists a lack of consistency in results across studies because of this utilization of varied measurements. Thus, because of the variety of measurements employed, the scholarly literature has difficultly coming to any general conclusions. In order to encourage consistency and comparability across studies, as well as for practical reasons of data availability, I follow Camp Keith (1999, 2002), Camp Keith, Poe, and Tate (2009), and Henisz (2000) and include seven components in my measure of judicial independence: guaranteed terms, finality of decisions, exclusive authority over competence, no military courts, fiscal autonomy, separation of powers, and enumerated qualifications.[18]

1) Guaranteed Terms. Judicial independence is increased when judges need not worry about the security of their positions because they are granted fixed lengths of tenure. Guaranteed terms insulate judges from being unduly influenced by threats to their judgeships or worries about reappointment, so they do not have to worry about a loss of livelihood if they displease the current ruling party. I, therefore, include a measure of the extent to which terms are guaranteed in the constitution. This variable is coded [0, 1] with '0' coded if terms are not guaranteed, '0.5' if terms are

[17] See *Appendix A* for full list.
[18] Camp Keith derives her measure from the UN guidelines as well as a measure by Blasi and Cingrinelli (1996).

somewhat guaranteed, and '1' if they are explicitly guaranteed. The average value of guaranteed terms is 0.551, and there is an increase in the percentage of countries with explicitly guaranteed terms, with the changes occurring prior to 1996. Table *3.1* reports the percentage of countries coded '1' or explicitly guaranteeing terms.

2) Finality of Decisions. Judges are better able to exercise independent decision making when they are confident that they are the final legitimate authority on the matter. If their decisions are subject to extra-judicial review, even if legal, they are more likely to be influenced by the other decision makers. When judges' decisions are subject to review, they will be more likely to take into consideration the preferences of those reviewing their decision in order to prevent being frequently overturned, potentially resulting in a loss of legitimacy. As such, judges will be more independent if they are not subject to extra-judicial review. To account for this, I include a measure of whether the decisions of the court are final and not subject to outside review. The measure ranges from [0, 1] with '0' indicating that the constitution does not provide for a finality of decisions, '0.5' indicates that it vaguely provides, and '1' if it fully and explicitly provides for finality of decisions. The average value is 0.37, and the percentage of countries that grants courts finality of decisions increases overtime. *Table 3.1* reports the percentage of countries coded '1' or explicitly guarantees.

3) Exclusive Authority. Judicial independence suffers if other actors have the power to determine what cases a court may hear. When other actors have the power to determine whether or not a case may be heard, they can limit the independence of a judiciary by restricting their jurisdiction, or legal domain. Courts, then, enjoy greater independence if they have exclusive authority to determine their own competencies; therefore, I include a measure of this in the index. The measure ranges from [0, 1] with a mean of 0.19 in which '0' means that the constitution does not provide for exclusive authority, '0.5' means that is somewhat provides for exclusive authority, and '1' means that it fully

provides for it. Countries with exclusive authority increased overtime from 1990 to 1996. *Table 3.1* reports the percentage of countries coded '1' or explicitly guarantees.

4) Ban on Military Courts. Judicial independence is strongest when the judiciary essentially has unlimited jurisdiction. When the government has the power to create exceptional or military courts to try civilians, they exert greater influence over the decision making process by determining who hears a particular case. Judicial independence is strengthened when these types of courts are banned. I include a measure of whether military courts are banned within a country and anticipate that a ban on such courts is associated with greater independence. The variable is coded from [-0.5, 1]. It is coded '-0.5' if the constitutions specifically allows citizens to be tried in military courts, '0' if it does not provide any limitations but does not explicitly provide for them to have jurisdiction over civilians, '0.5' if it vaguely bans them, and '1' if it fully bans military courts. The mean value is 0.19, indicating that most countries do not ban military courts, though the percentage of countries that banned them increased overtime. *Table 3.1* reports the percentage of countries coded '1' or explicitly guarantees.

5) Fiscal Autonomy. Judges have greater independence in decision making when they do not fear reprisal for their decisions in the form of a reduction of judicial salaries or budgets. Thus, courts are more independent when they have fiscal autonomy and their salaries and budgets are protected from reduction by other branches of government. The index includes a measure of whether the court has fiscal autonomy or protected budgets and salaries. This measure is coded '0' if the court does not enjoy constitutionally enumerated fiscal autonomy, '.5' if fiscal autonomy is vaguely provided, and '1' if it is fully and explicitly provided. This variable then ranges from [0, 1] and has a mean of .213. More countries have granted judiciaries' fiscal autonomy overtime. *Table 3.1* reports the percentage of countries coded '1' or explicitly guarantees.

6) Separation of Powers. For courts to be truly independent of governmental actors, judicial power must be completely separated from the other branches of government. If judiciaries are merely a subsection of a different branch of government, they will naturally be influenced by that branch. Judicial independence then requires that judicial power be housed in a separate branch from legislative and executive power. The index includes a variable coding whether the judiciary is separated from the other branches. This variable is coded from [0, 1] with '0' indicating that the constitution does not provide for a separation of judicial power, '.5' indicating that it vaguely/somewhat provides for a separation, and '1' that it fully and explicitly provides a separation of powers. The average value is 0.63 and increases over time. *Table 3.1* reports the percentage of countries coded '1' or explicitly guarantees.

7) Enumerated Qualifications. Independent judges should be free from loyalties or obligations to other actors; otherwise, those actors can exert influence over the judges. One mechanism that can help prevent the cultivation of loyalties and obligations is to implement a merit based selection system. Judges are more likely to be indebted to an actor when he or she facilitates their selection to the bench. They are more likely to be independent when their selection and career is based on merit such as qualifications, integrity, ability, and efficiency because judges who earn their positions are less likely to owe them to another actor. Systems that enumerate qualification for judges, then, should enjoy greater levels of independence. The presence of such enumerated qualifications is included in the index. Enumerated qualifications is coded on a scale of [0, 1] in which '0' indicates that the constitutions does not enumerate qualifications, '0.5' if it someone does, and '1' if it fully and explicitly enumerates qualifications. The mean score is .38 and increases overtime. *Table 3.1* reports the percentage of countries coded '1' or explicitly guarantees.

Table 3.1. Percentage of Countries with Explicit Provisions Overtime

Year	Guaranteed Terms	Finality of Decisions	Exclusive Authority	Ban on Military Courts	Fiscal Autonomy	Separation of Powers	Enumerated Qualifications	Judicial Review
1990	37.2	19.2	28.2	12.8	17.3	41.7	25.0	18.6
1991	38.2	23.1	33.9	15.0	16.2	45.7	25.4	24.9
1992	41.6	25.5	39.3	16.8	17.3	52.6	27.8	28.3
1993	43.8	30.1	42.6	17.1	17.1	55.7	29.6	31.8
1994	44.9	33.0	46.6	19.3	18.2	59.1	31.8	36.4
1995	46.6	34.7	48.9	21.6	19.3	60.2	33.5	37.5
1996	48.3	38.1	51.7	22.7	20.5	62.5	35.2	38.6
1997	48.3	38.1	51.7	22.7	20.5	63.1	35.2	38.6
1998	48.3	38.1	51.7	22.7	20.5	63.1	35.8	38.6
1999	48.3	38.1	51.7	22.7	20.5	63.1	36.4	38.6
2000	48.3	38.1	51.7	22.7	20.5	63.6	36.9	38.6
2001	48.3	38.1	51.7	22.7	20.5	63.6	36.9	38.6
2002	48.3	38.1	51.7	22.7	20.5	63.6	36.9	38.6
Average	45.4	33.3	46.3	20.1	19.1	58.3	32.8	34.4

The data on these characteristics comes from the *Cross-National Research on USAID's Democracy and Governance Programs (Phase II)* dataset (Finkel et al. 2007) which includes the data used in Camp Keith's 1999 and 2002 papers and are coded from the formal provisions found within the constitutions. This dataset codes countries' constitutions from Blaustein and Flanz's (1971) *Constitutions of Countries of the World,* which contains English translations of the most current constitutions updated annually.

Additive Index. The first measure of judicial independence is an additive index of the seven components and follows the traditional approach used within previous studies of the effects of the judiciary (e.g. Feld and Voigt 2003, 2007). The index ranges [-0.5, 7] with a mean of 2.86 and a standard deviation of 2.03. For example, the United States constitution provides for guaranteed terms for judges, fiscal autonomy via salary protection, and some separation of powers. As such, the United States is coded '2.5' on the additive index. Both the South African and Indian constitutions provide for all judicial protections except for exclusive authority to select cases, thus they are coded '6'. Contrastingly, neither the Saudi Arabian or Chinese constitutions provide any judicial protections, but they do not explicitly provide for military courts, and thus are coded '0'. *Table 3.2* presents the percentage of countries falling into each value of judicial independence each year.

Substantial variation in the level of judicial independence exists across countries. The countries are fairly evenly distributed across all categories; however, the distribution is bimodal with the largest percentage of countries having a value of '0' or '5'. *Figure 3.1* presents a graph of the average percentage of countries in each category. Overtime, the levels of judicial independence within countries have changed substantially with more countries moving towards higher levels of independence. The percentage of countries coded -0.5 through 2.5 decreased over the period of analysis, while the percentage of countries with the values 3.0 through 7.0 increased. For example, in 1990 only 4.49% of countries had a judicial independence score of 5.0 but by 2002 13.64% of

countries had such a score. On the other hand, 28.85% had a judicial independence score of 0 in 1990, while only 11.36% had the same score in 2002. Overall, substantial variation in judicial independence levels exists across countries as well as change across time.[19]

The additive index approach assumes that all of the characteristics included are measuring a single concept of judicial independence and that each component has an equal effect on independence. Theoretically, each component is strongly linked to judicial independence, thus the first assumption, which is a base assumption of any proxy measure, is defensible. The second assumption, equally weighing of all the components, is more questionable because no theoretical basis exists for the assumption that all included characteristics of the judiciary equally affect judicial independence. However, as Feld and Voigt (2003) note, by the same token, no theory argues that the characteristics have differential impacts on judicial review, and thus there is no clear theoretical foundation on which to base weighing some components more or less strongly. Thus, a simple additive index is an appropriate approach to measuring judicial independence.

Nonetheless, the possibility that the characteristics being included are all measuring a single concept remains untested as does whether that the characteristics included in the measure have a disproportionate weight. Problematically, if either assumption is violated, the additive index is an unreliable measure of judicial independence. Because of the possibility that one or both assumptions are violated, I employ factor analysis to create a second index of judicial independence that does not require the assumptions.

Factor Analysis. In order to relax the assumptions imposed with the additive index, I conduct an exploratory factor analysis of the seven components included in the index. Factor analysis is a statistical technique used to determine the underlying factor structure of a measure and test its internal

[19] *Appendix B* shows the average percentage of countries at each level of judicial independence broken down by regime type (coded from Cheibub and Gandi 2004) and region (coded from the United Nations Region codes).

Table 3.2. Percentage of Countries with Specified Additive Judicial Independence Score

Year	-.5	0	.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7
1990	1.92	28.85	7.05	6.41	3.85	8.97	8.33	8.33	2.56	4.49	7.05	4.49	1.92	5.13	0.00	0.64
1991	2.31	28.90	5.20	5.20	2.31	9.25	6.94	9.25	4.05	4.62	7.51	6.36	1.73	5.20	0.58	0.58
1992	1.16	24.28	4.62	5.20	2.31	9.25	6.36	9.83	6.36	5.20	6.94	9.83	2.31	5.20	0.58	0.58
1993	1.14	21.02	4.55	4.55	2.27	10.23	6.25	10.23	6.25	6.82	6.82	10.23	2.84	5.68	0.57	0.57
1994	1.14	19.32	3.98	3.1	2.27	10.23	5.68	10.23	6.25	7.39	6.82	12.50	3.41	6.25	1.14	0.00
1995	1.14	17.05	3.41	3.98	2.2	10.23	5.69	9.66	6.82	7.95	6.82	13.07	3.41	6.82	1.14	0.57
1996	1.14	13.64	3.98	3.98	2.27	10.80	5.11	9.66	6.82	7.95	7.39	13.64	2.84	7.95	2.27	0.57
1997	1.14	13.64	3.98	3.98	2.27	10.80	5.11	9.66	6.25	8.52	7.39	13.64	2.84	7.95	2.27	0.57
1998	1.14	12.50	3.98	4.55	2.84	10.80	5.11	9.66	6.25	8.52	7.39	13.64	2.84	7.95	2.27	0.57
1999	1.14	11.93	3.98	4.55	3.41	10.80	5.11	9.09	6.82	8.52	7.39	13.64	2.84	7.95	2.27	0.57
2000	1.14	11.36	3.41	5.11	3.98	10.80	5.11	9.09	6.82	8.52	7.39	13.64	2.84	7.95	2.27	0.57
2001	1.14	11.36	3.41	5.11	3.98	10.80	5.11	9.09	6.82	8.52	7.39	13.64	2.84	7.95	2.27	0.57
2002	1.14	11.36	3.41	4.55	4.55	10.80	5.11	9.09	6.82	8.52	7.39	13.64	2.84	7.95	2.27	0.57
Ave.	1.29	17.20	4.20	4.64	2.96	10.30	5.75	9.46	6.10	7.35	7.21	11.76	2.74	6.94	1.55	0.53

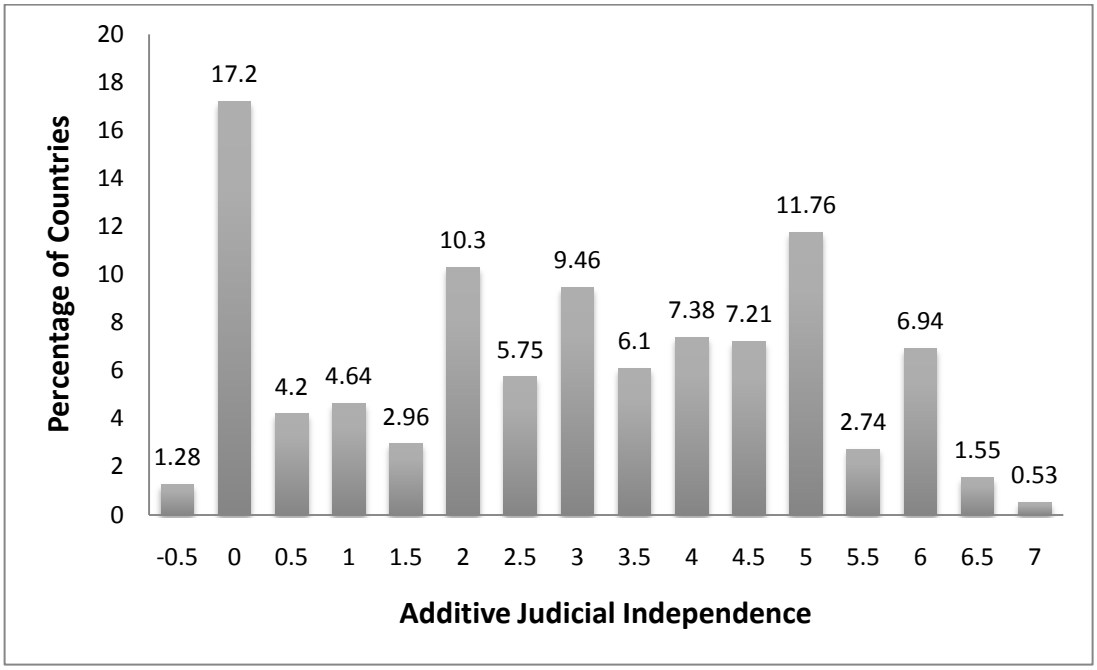

Figure 3.1. Average Percentage of Countries with Each Judicial Independence Value

reliability by modeling the covariance between components of factors (Kim and Mueller 1978a). Thus, factor analysis tests the first assumption that all components of an index are measuring a single underlying concept and tests the second assumption by determining the appropriate weight of each component of the index according to how strongly it loads onto each relevant dimension. Factor analysis is most appropriate when no there is hypothesis about the factor structure, meaning that it should be utilized when there is no strong theoretical argument concerning the number of dimensions that exist and the relative weights of each component. Judicial independence is well-suited for employing factor analysis because the literature is unclear regarding what components belong in a measure, how they should be weighted, and whether judicial independence may be considered a unidimensional concept (Rios-Figueroa and Staton 2008). From the results of the factor analysis, I generate a measurement of judicial independence in which each component is weighed separately. By using factor analysis to construct an alternative measure of judicial independence, I am able to test the assumptions required by the additive index as well as test the robustness of the measurement.

To determine the number of factors underlying my measure of judicial independence, I employ a principal-axis factor analysis (PAF). PAF is the appropriate method for testing the underlying structure of the factors because it calculates the values of the components of the measures based only on the covariance explained by the underlying factor structure (Gorusch 1997; McArdle 1990; Costello and Osborne 2005).[20] The results of the PAF are presented in *Table 3.3.* The eigenvalue, or variance of the first factor is 2.470; this factor explains 96.3% of the covariance between components. The other six factors have low eigenvalues and explain less than 5% of the variance. Thus, the first factor appears to strongly dominate the relationship between the manifest components.

Table 3.3. Principal-Axis Factor Analysis

	Eigenvalue	Proportion of Variance Explained
Factor 1	2.470	.963
Factor 2	.479	.187
Factor 3	.095	.037
Factor 4	.021	.008
Factor 5	-.070	-.0217
Factor 6	-.185	-.072
Factor 7	-.244	-.095

To determine the number of underlying factors to retain, I utilize two tests: the Kaiser-Guttman (KG) test and the scree test. The KG test specifies that a factor should be retained if it produces an

[20] Two other common methods are maximum likelihood (ML) and principal components factor (PCF) analysis (Costello and Osborne 2005). The ML approach is best suited when the data are normally distributed (Fabrigar, et al. 1999). Since my data are relatively bimodal, it is not an appropriate choice. Generally, however, ML and PAF produce similar results. PCF is not an appropriate approach because I am interested in examining the underlying structure of the factors, which PCF does not allow. Rather, PCF is a data reduction technique used to minimize the number of included variables while accounting for all of the variance. Since PCF includes all of the variance including that unrelated to the factor structure, it cannot be used to make statements concerning the structure (Floyd and Widam 1995).

eigenvalue greater than "1"(Guttman 1954; Kaiser 1960). According to the KG test, the results of my PAC indicate that the presence of only one factor since the strongest factor obtained an eigenvalue of 2.469 while the next strongest only obtained a .479. This criterion for retaining factors has been met with a great deal of criticism, and the literature has reached a broad consensus that it is an inaccurate method and results in over selecting the number of factors (Yeomans and Golder 1982; Velicer and Jackson 1990). Because of this criticism, I also conduct a scree test, which is widely accepted in the literature as an appropriate method for selecting factors (Cattell 1966; Gorsuch 1990). "A scree test involves examining the graph of the eigenvalues and looking for the natural bend or breakpoint in the data where the curve flattens out (Costello and Osborne 1995, 3)." The factors that are above the breakpoint are the ones to retain. A graph of my eigenvalues is presented in *Figure 3.2*. Clearly, the curve flattens out with factor 2 leaving factor 1 as the only factor above the break. Thus, the scree test also leads me to conclude that there is one latent factor. The results of the PAF thus provide evidence that judicial independence can be measured as single dimension. This partially validates my additive index by providing evidence that the index meets the first assumption.

To get a clearer picture of how the variables load onto the fact, I conduct an oblique promax rotation,[21] which enables me to determine which components to retain to ensure a clean measurement. The oblique rotation simplifies and clarifies the data structure maximizing the highest and minimizing the lowest loadings while allowing multiple factors, if present, to be correlated (Kim and Mueller 1978b). The results of the rotation are presented in *Table 3.4.* The first column of the table displays the correlation between each item, or manifest variable, and the retained factor. The second column

[21] Oblique rotation is used to allow factors to be correlated, which is most often the case with social scientific data; whereas, orthogonal rotation assumes that the factors are uncorrelated. The literature has yet to reach an agreement over whether an orthogonal or oblique approach is superior for rotating factor components. Employing orthogonal rotation with correlated factors can result in a loss of information; however, when the data are normally distributed, both approaches provide similar results (Costello and Osborne 2005). For the purposes on my analysis, however, since the data load strongly onto a single factor, the question between the two rotation methods is moot since both will produce the same results.

displays the amount of variance within each component not explained by the factor. According to convention, a clean factor structure is, in part, one in which all items load at a correlation .30 or above (Costello and Osborne 2005). By this criterion, the factor structure is relatively clear. The items all load with near or above a correlation of .30; the lowest correlation (.291) being between "Ban on Military Courts" and the factor, which is still extremely close to .30. The other items all load with extremely high correlations. The strongest correlation (.800) is with the "Separation of Powers" measure, thus indicating a very strong relationship between the presence of a Separation of Powers and the underlying judicial independence dimension. Importantly, however, while the first factor explains a substantial amount of the variance, residual variance remains indication that some of the variables are measuring non-judicial independence related characteristics. As a result, the additive index, by including the measure and weighing it equally, may potentially confound the effect of judicial independence with other phenomenon.

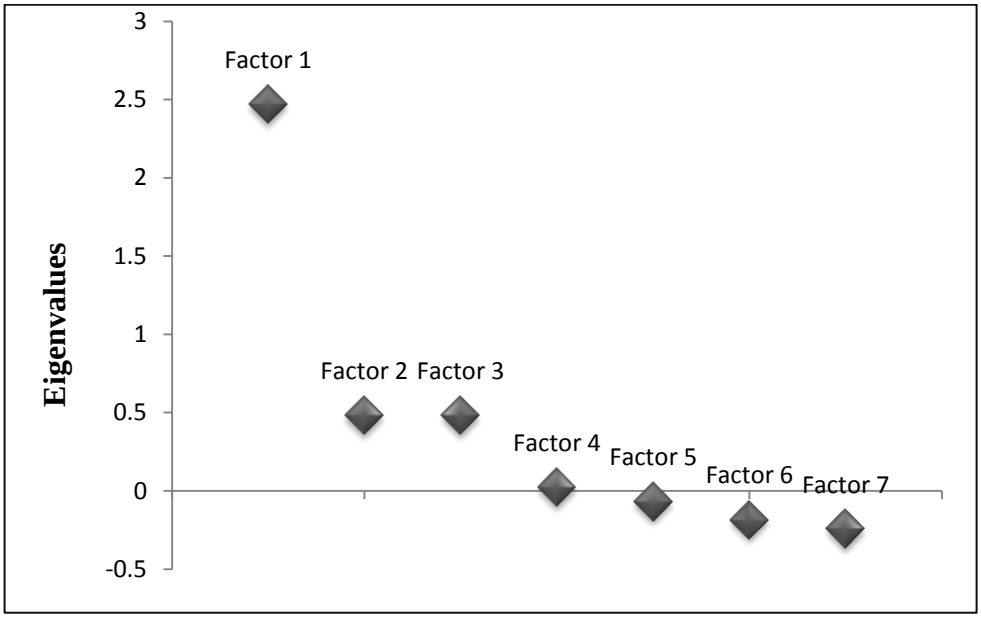

Figure 3.2. Scree Plot of Factor Analysis Eigenvalues

From this factor analysis, I construct a measure of judicial independence with a single dimension but with each component uniquely weighted. The value of judicial independence for each country is determined by a regression equation in which each component is weighted by a coefficient

presented in *Table 3.4.* Thus, each country is given a value of judicial independence that is the sum of all of the components weighed by their relative impact. This variable ranges between [-1.414, 1.417] and is normalized so that the mean value is '0'. Countries with values of judicial independence above the mean are positive, while those with values below the mean are negative. For example, the United States receives a relatively low *de jure* judicial independence score of '2.5' on the additive index and a below the mean factor score of -0.198. China and Saudi Arabia receive close to the lowest possible additive score of '0' and a factor score of -1.356. Contrastingly, both South Africa and India have high levels of judicial protections and obtain a '6' on the additive index and both obtain a positive factor score of 1.301.

Table 3.4. Rotated Factor Loadings

Variable	Correlation w/Factor 1	Uniqueness	Regression Coefficient
Guaranteed Terms	.717	.486	.268
Finality of Decisions	.567	.679	.134
Exclusive Authority	.678	.541	.232
Ban on Military Courts	.291	.915	.051
Fiscal Autonomy	.373	.861	.077
Separation of Powers	.800	.360	.337
Enumerated Qualifications	.558	.689	.157

3.3. Judicial Review

I measure judicial review using *Cross-National Research on USAID's Democracy and Governance Programs (Phase II)* dataset (Finkel et al. 2007) which codes whether a country's constitution provides it's judiciary with the power of constitutional review. Specifically, judicial review is coded from [-1, 2]. Constitutions providing "fully" for judicial review are coded '2'; those "somewhat" providing review are coded '1" while those not providing for constitutional review to any actor are coded '0'. Countries with constitutions giving the power of constitutional review to another

branch of government are coded '-1'. A higher value of judicial review indicates that the country's judiciary enjoys greater review power.[22]

According to Camp Keith (1999), identifying judicial review is easy for most countries because the constitution explicitly states that the judiciary has "constitutional review" or "judicial review." For example, China is coded '-1' because it's constitution states that "[t]he Standing Committee of the National People's Congress exercises [the power] to interpret the Constitution and supervise its enforcement … (Blaustein and Flanz 1971)," which explicitly grants the National Congress the power of constitutional review. Ecuador and the United States are both coded '0' because their constitutions never mention constitutional review and so the power is not vested, formally, in the courts.

Egypt's constitution states that "[t]he Supreme Constitutional Court shall exclusively undertake the judicial control of the constitutionality of law and regulations (Blaustein and Flanz 1971)," which explicitly proves the judiciary with judicial review. The constitution goes on to say that "[t]he law shall regulate the effects resulting from a decision of unconstitutionality," which creates ambiguity about whether an exercise of judicial review actually nullifies laws. As such, Egypt is coded '1' because the constitution vaguely provides for review but leaves ambiguity about its effect. On the other hand, Argentina is coded '2' because its constitution clearly gives the power of constitutional review to the courts and does not leave the power ambiguous. Its constitution states that "[t]he Supreme Court … are empowered to hear and decide all cases arising under the Constitution … (Blaustein and Flanz 1971)." In cases that are less clear, countries are coding using Ackermann's (1989, 60) definition as the standard:

[22] Judicial review is significantly correlated with finality of review, which is a component of judicial independence, with a coefficient of 0.501. Since judicial independence and judicial review are anticipated to be correlated, the relationship is not unexpected. While these variables are correlated, the correlation is not so high at to cause concern that including finality of review embeds judicial review in judicial independence. Overall, the existing statistical variation paired with the conceptual difference underlying the coding of the variables gives me confidence that the two components are separate.

> Right and duty conferred on a court or particular courts of a country to interpret authoritatively the constitution of that country, to decide authoritatively the constitutionality of laws, executive and administrative acts, **and** in appropriate cases, to declare such laws and acts invalid and unenforceable when they conflict with the country's constitution [emphasis in original] (See Camp Keith 1999, 65).

The average value of judicial review is 0.810, and the modal category is '0'. Countries are distributed across all values of judicial review; however, most either have no mention of review (45.4%), or judicial review is explicitly given to the judiciary (34.62%). The average percentage of countries within each category across all years is presented in *Table 3.5.* The distribution of countries across levels of judicial review has changed over the period of analysis. In general, over the period of analysis, the number of countries granted stronger powers of review increased with 18.59% having the highest coding of review in 1990 and increasing to 38.64% by 2002.[23] The distribution of countries across years is also presented in *Table 3.5*.[24] A substantial amount of variation in judicial review power thus exists within the counties and the time period under examination.

Table 3.5. Percentage of Countries per Year with Specified Level of Judicial Review

Year	Review Given to Another Institution	Not Mentioned in the Constitution	Somewhat Given to Judiciary	Explicitly Given to Judiciary
1990	7.05	58.33	16.03	18.59
1991	4.62	57.80	12.72	24.86
1992	3.47	53.76	14.45	28.32
1993	3.41	50.00	14.77	31.82
1994	3.41	45.45	14.77	36.36
1995	3.98	43.18	15.34	37.50

[23] The last change in constitutional review in the dataset occurred in 1995. From 1996 through 2002, no changes to judicial review are noted.

[24] Appendix C presents the levels of judicial review for different types of regimes (democracy and dictatorship) and for different regions.

(Table 3.5 Continued)

1996	3.98	40.91	16.48	38.64
1997	3.98	40.91	16.48	38.64
1998	3.98	40.91	16.48	38.64
1999	3.98	40.91	16.48	38.64
2000	3.98	40.91	16.48	38.64
2001	3.98	40.91	16.48	38.64
2002	3.98	40.91	16.48	38.64
Ave.	4.11	45.40	15.87	34.62

3.4. Economic Rights

To measure the extent to which a constitution enumerates economic rights, I code the constitutions of a non-random, subsample of 57 countries for a single year, 2002. The sample was selected to ensure wide variation in GDP per capita and judicial institutions. *Table 3.6* presents the level of judicial independence, judicial review, GDP per capita, and GDP per capita growth in 2002 for each country coded. The countries are presented in ascending order of level of development. Within in the subsample of cases, a substantial amount of variation across levels of judicial independence, judicial review, development, and growth exists. For example, the range of GDP per capita, or development, is [694.751, 43195.71], thus both developing and developed countries are included in the analysis, and the range of GDP per capita growth is [-9.864, 13.319], indicating both growing and shrinking economies are found within the sample. The countries within the subsample also span the spectrum of levels of judicial independence and review at [0, 7] and [0, 2], respectively.

Though the countries within the subsample vary substantially, they systematically differ from the original sample of cases, with the subsample being higher in GDP, independence, and review, on

average and having a smaller standard deviation. For example, the average GDP per capita value for the sample is $9653.63, with a standard deviation of $10,785.44 while the average for the subsample is slightly higher at $9998.65, with a standard deviation of $10,227.45. *Table 3.7* presents a comparison of the sample to the subsample. This difference between the two samples is not unexpected since the subsample is a non-random cross-section as opposed to a time-series. Indeed, because the subsample is a single year at the end of time period, it should be expected that the standard deviations are smaller and the overall values are larger since countries have tended to develop over time and will vary less within a single year than over an extended time span. Furthermore, the main sample and subsample are still relatively close in terms of their means and standard deviation meaning that, though not identical, the subsample is representative. Overall, then, I feel confident that the subsample is an adequate representation of countries. Thus, this subsample is adequate for a preliminarily test of the role of economic rights on economic growth, though I recognize the limitations of the small, non-random sample.

Table 3.6. Countries Included in Economic Rights Analysis

Country Name	Additive Judicial Independence	Factor Judicial Independence	Judicial Review	GDP per capita	GDP growth per capita
Burundi	4.5	0.808	2	694.751	0.917
Tanzania	0.5	-1.184	0	786.052	5.449
Malawi	5	1.014	0	1074.172	-0.438
Yemen	1	-0.853	0	1100.655	0.472
Mali	3.5	0.336	2	1140.265	0.588
Chad	4.5	0.936	2	1466.786	7.231
Sierra Leone	0	-1.356	0	1538.098	9.932
Haiti	2.5	-0.275	1	1553.124	-2.700
Nepal	5	0.798	2	1783.490	2.015
Kenya	2	-0.412	0	1935.265	0.405
Mongolia	5	1.108	2	1963.854	-0.387
Bangladesh	5	1.108	0	1981.107	7.042
Papua New Guinea	3	0.562	2	2144.926	1.861
Syria	0.5	-1.105	0	2560.113	3.362
India	6	1.301	0	2734.344	3.742
Honduras	6	1.130	2	3086.718	0.803

(Table 3.6. Continued)

Bolivia	5.5	0.830	2	3385.192	0.471
Philippines	4.5	0.762	1	3741.374	-1.406
Dominica	0	-1.356	0	4289.170	-4.112
Indonesia	0	-1.356	0	4333.404	1.685
Sri Lanka	5	0.957	2	4619.954	2.878
Morocco	0.5	-1.184	0	4711.236	1.705
Egypt	2	-0.075	1	4756.186	2.106
Samoa	2.5	-0.198	0	5139.974	0.629
Ecuador	0.5	-1.298	0	5196.713	3.280
Armenia	4	0.022	2	5255.084	13.319
Georgia	6	1.224	2	5350.001	2.676
Guatemala	7	1.417	2	5532.937	1.952
Macedonia	5	0.800	2	6012.473	-2.555
Turkey	4.5	0.975	1	6046.437	4.782
Cape Verde	5	0.936	2	6131.626	6.026
Ukraine	6.5	1.320	2	6598.458	6.344
Romania	5	0.829	1	6800.382	5.122
Thailand	0	-1.356	0	7533.292	3.582
Jamaica	3	0.167	0	7949.847	0.173
Brazil	5.5	0.830	0	8528.139	0.925
Belize	2.5	0.225	0	8582.604	7.285
South Africa	6	1.301	2	8715.227	1.825
Latvia	2	-0.027	0	9267.104	7.219
Venezuela	3.5	0.191	2	9691.927	-9.864
Mexico	5	0.627	1	10107.833	-0.542
Poland	3.5	0.492	1	11155.496	1.710
Estonia	3	0.476	2	12050.269	9.494
Belarus	5	0.880	2	14525.762	6.127
Chile	6	1.224	2	14916.678	1.031
Czech Republic	4	0.664	2	16903.459	2.320
Korea, Republic of	4.5	0.706	1	20240.371	5.780
Israel	3	0.005	0	20999.383	-2.396
New Zealand	4.5	0.655	0	22892.092	3.387
Spain	5	1.108	2	26517.313	2.595
Italy	6	1.224	2	27513.863	0.190
France	3.5	0.399	2	27801.230	0.457
Japan	6	1.073	1	28146.537	0.082
Austria	4	0.503	2	31769.980	0.436
Australia	5	0.786	0	32226.936	2.158
Singapore	4	0.511	1	33246.563	2.845
Norway	0	-1.356	0	43196.711	0.955

Table 3.7. Comparison of Means and Standard Deviations of the Samples of Countries

	Main Sample*	Subsample*
GDP per capita	9653.631	9998.648
	(10758.44)	(10227.45)
GDP growth per capita	1.293	2.333
	(6.45)	(3.69)
Judicial Independence	3.032	3.719
	(1.99)	(1.98)
Judicial Review	0.910	1.053
	(.951)	(.915)

*Standard Deviation in Parentheses

To measure economic rights protections, I code the extent to which a country's constitution protects property rights, intellectual property, and freedom of occupation. The coding scheme that I utilized is presented in *Appendix E* and follows the coding of economic rights in the *Comparative Constitutions Project's* (2009) Codebook.[25] In particular, I code whether property rights, including intellectual, are guaranteed, whether and under what conditions the government can appropriate property, as well as whether people have the right to choose their own occupation.

1) Property Rights. Property rights are guarantees that people can control and benefit from entities which they own. They are one of the most fundamental economic rights that governments may grant to citizens or residents within their constituency. Governments may choose to signal their commitment to protecting property rights in a variety of manners including guaranteeing those rights in the constitution. Sending such signals is believed to aid economic growth because respect for property rights is argued to be a key condition for economic growth since investors are only willing to enter an economy if they can be sure that they have rights to their property and thus will be able to reap the benefits from their investment (Alson, Lipcap, and Schneider 1996; Anderson and Hill

[25] I choose to follow the coding scheme of the *Comparative Constitutions Project* for two reasons. First, the coding standards of the *Project* were developed in consultation with leading experts in comparative politics and law, so I have faith in the thoroughness and validity of the guidelines. Secondly, and more importantly, when the *Project's* data are released, as of now a late 2010 release is anticipated, I will use the data to expand my dissertation, thus I must keep my coding consistent.

1975; Bardhan 2005; Lebland 1996; Lunn 1995; North and Weingast 1989; North and Thomas 1973). In particular, governments send an exceptionally strong signal when they constitutionally guarantee property rights and grant courts the power of judicial review by creating a self enforcing barrier to prevent themselves from circumventing property protections by placing their enforcement in the hands of judges.

Because of the importance of property rights guarantees, I include a measure of whether the constitution explicitly provides for the right to own property. This variable is dichotomous and coded either 0 or 2 in which '0' is coded when no right to property is provided and '2' when property rights are guaranteed.[26] New Zealand, for example, is coded '0' because the constitution makes no mention to property rights while Bangladesh is coded '2' because the constitution states that "[t]he people shall own or control the instruments and means of production and distribution, and with this end in view ownership shall assume the following forms -- … private ownership" (Bangladesh Constitution 1972, 10). The mean value of property right guarantees is 1.614, with 80.70% of countries coded '2', or roughly 46 countries.

2) Right to Transfer Property. To fully benefit from property ownership, investors must have the ability to transfer or sell their property as they choose. If they are restricted from transferring their property, then they cannot obtain the maximum benefit from their ownership, which would come from disposing of their property to obtain the highest profit, and thus may be more reluctant to participate in the economy. As such, I code whether the constitution guarantees the right to transfer property in addition to or separate from guarantees of property rights. The variable is also dichotomous and coded either 0 or 2 with '0' indicating that the constitution does not mention the right to transfer property and '2' indicating that the right to transfer property is explicitly stated. For example, Ukraine's constitution states that "[e]veryone has the right to own, use and *dispose of* his or

[26] The economic rights guarantees are coded [0, 2] in order to create of an additive index which takes into account partial protections.

her property [emphasis added]" (Blaustein and Flanz 1971) and thus is coded '2'. The average for the transfer variable is .245, indicating that fewer countries grant this right. Specifically, only 12.3% or 2 countries explicitly grant a right to transfer property freely.

3) Intellectual Property Rights. In theory, intellectual property rights, including patents, copyrights, and trademarks, should fall under the rubric of general property right protections; however, some countries choose go further and explicitly guarantee rights to intellectual property. Explicitly guaranteeing intellectual property rights may facilitate economic growth by encouraging firms in invest in technological advancement rather than just physical capital by ensuring that they will reap the benefits of their intellectual advancement. When these constitutional protections are paired with judicial review, investors may have even greater confidence in the government's respect for intellectual property because their rights are guaranteed by a separate governmental agency and not regulated by legislation. Because of this, I code the presence of intellectual property rights as a dichotomous variable with '0' indicating a lack of intellectual property guarantees and '2' indicating their presence. Chile is coded '2' because it's constitution states that "… industrial ownership of invention patents, trademarks, models, technological process or other analogous creations is guaranteed for the period established by law (Blaustein and Flanz 1971)." The mean value of intellectual property rights protection is .456 with 22.81%, or 13, countries explicitly protecting property rights.

4) Government Expropriation of Property. Even amongst countries which strongly respect property rights, many governments reserve the right to expropriate property under special circumstances of great need. Even the United States, which is well known for respecting property rights, maintains, and uses, the ability to take private property. Very few countries, in fact, constitutionally prohibit the governmental expropriation in all circumstances. In most countries that constitutionally protect property allowances are explicitly made that permit the government to violate

property rights under some circumstances. However, governments demonstrate a greater respect for property rights if compensation for expropriated property is required and if the government is limited in terms of the purposes and conditions under which they may seize property. Thus, to accurately measure constitutional economic rights, the extent to which appropriation is permitted must be taken into account.

To measure the extent to which governments are constitutionally permitted to expropriate property, I, first, code each country for whether the constitution permits expropriation. Specifically, I code whether the constitution explicitly *forbids* the seizing of private property under any conditions. If the constitution does, the country is coded '2' indicating the highest level of economic rights protection. Countries whose constitutions are silent concerning expropriation are coded '1' because they potentially leave greater discretion to the judiciary concerning whether expropriation is legal by not explicitly permitting which is another way of protecting; however, they also leave open the possibility of expropriation by not specifically forbidding it thereby lessening rights protections. When a constitution explicitly *permits* governmental seizure of property, it is coded '0', thus it does not contribute to protecting economic rights. The average expropriation value is .228. The vast majority of countries permit the government to expropriate property, 46 or 80.7%, while only 9 countries (15.79%) are silent on the issue, and 1 country (3.51%) explicitly forbid it.

Conditions of Expropriation. In countries that allow expropriation, the constitution can limit the extent to which the government may violate property rights by 1) requiring compensation be given, 2) specifying the purposes that expropriation is permitted, and 3) placing conditions on the government's power. I code for the presence of these three conditions limiting the government's ability to expropriate. By requiring that the government provide fair compensation or similar, the government reduces the impact of expropriating property, thereby making property ownership less risky. However, if the government does not require compensation or allows the level of compensation

to be determined via legislation, property owners run the risk of losing assets with no reparation. In this case, owning property or investing in an economic system is a higher cost proposition because there is less security regarding obtaining the benefits of property. For those countries whose constitutions *permit* expropriation, I code whether their constitutions provide for a specific level of compensation (e.g. just, fair, full, appropriate, adequate) '1', indicating some level of economic rights protection. Other countries are coded '0'. 45.61% (26) of countries in the sample provide for compensation, while the rest either do not provide or leave the level of compensation specifically to the legislature.

Next, for countries whose constitutions *permit* expropriation, I coded whether their constitutions limit the purposes for which property can be taken. Constitutions may limit the reasons for which a government may expropriate private property. For example, Nepal's constitution limits the seizure of property to "implementing scientific land reform programs". With this limitation, Nepal provides an avenue through which courts may constrain governmental actors' ability to expropriate thus adding some economic rights protection. On the other hand, constitutions can permit expropriation for "general public purpose" or leave it to non-constitutional law. In either case, the government essentially has free reign to determine what a valid reason for taking property is and, as a result, there is weaker ground on which to protect ones property and economic rights. Likewise, when the constitution fails to specify the purposes for which a government can expropriate, it leaves political actors open to determining whether it can take property and thus fails to protect economic rights. I, therefore, code countries that limit the purposes for which the government can expropriate property '1', and countries in which expropriation can be done for "general public purpose", the purpose of left to non-constitutional law, or it is unspecified "0". Of the all countries coded, only two constitutions limit the purposes for which property may be seized, thus only two are coded '1'. All others are coded '0'.

Finally, for those same countries, I code whether their constitutions limit expropriation to certain conditions such as through the legal process, to certain types of property, to during times of war, or within certain time limits. By placing these limitations on the government's ability to expropriate, economic rights are provided a higher level of protection. For example, by requiring expropriation decisions to go through the legal process, countries provide property owners with a third party that can to protect their property rights, thus increasing their ability to maintain their economic rights. Thus, I code each country as '1' of their constitution places *any* of the above mentioned limitations on the government and '0' if it leaves the rules governing expropriation to non-constitutional law and is silent.[27] The value of this variable is .158 with 9 countries (15.79%) placing limitations on expropriation.

5) Right to Work. Economic rights extend beyond the ability to hold property and include the right to select how one earns an income. Investors, particularly companies, are more eager to invest when the can chose who to hire free from governmental restrictions. However, when the government limits people's ability to decide their own occupation, investors are limited with regards to whom they may hire. I, therefore, code whether a county provides for the right to choose one's occupation. Countries with constitutions that explicitly guarantee that right are coded '2', while other countries are coded '0'. Within the sample, 36.84% of countries provide for the right to choose one's own occupation. Thailand, for example, is coded '2' because its constitution states that "a person shall enjoy the liberties to engage in an enterprise or an occupation and undertake a fair and free competition."

[27] I chose not to code each individual protection because no country guaranteed more than one of the listed limitations.

Additive Index. For the constitutional characteristics described above, I construct an additive measure of the level of economic rights protections granted in the constitution.[28] With the exception of the characteristics measuring the conditions of expropriation, each component can take on a maximum value of 2 and a minimum of 0. For the conditions of expropriation (compensation, purpose, and limitations), each variable is weighted by .25, thus the maximum value each can hold is .25 and the minimum is 0. I do not treat the conditions equal to the other property rights guarantees because they should not, theoretically, offer property rights protections of equal level as the others; rather, they serve reduce the negative impact of explicitly allowing the government to expropriate. Thus while they add greater protections than if they are not in place, they provide the government greater latitude to violate economic rights than a blanket ban on expropriation. Thus, each economic protection coded can have a maximum value of 2 except the three conditions of expropriation, which each have a maximum value of .25.

The theoretical range of economic rights protections is [0, 10], since conditions for expropriation were not coded when countries' explicitly forbade expropriation. In practice, however, no country obtained the theoretical maximum level of economic rights protections, so the actual range is [0, 8.75] with higher values indicating greater levels of rights protections. *Table 3.8* and *Figure 3.3* display the distribution of countries across levels of economic rights. Substantial variation exists in the level of economic rights protections. The modal level of economic rights protections is 2.25, and the average level is 3.545 with a standard deviation of 1.921. Most countries, then, fall in the middle range of the *de facto* scale. The distribution of cases is fairly broad and even across the scale. This sample of cases should provide enough variation with which to preliminarily examine the relationship between economic rights, judicial review, and economic growth.

[28] These three rights, admittedly, do not exhaust the possible economic rights that can be constitutionally protected; however, they are the most fundamental economic rights a country can guarantee and the ones most relevant to the specified theory.

Table 3.8. Distribution of Economic Rights Protections

Score	Frequency	Percentage
0	2	3.51
0.5	1	1.75
1	6	10.53
2	4	7.02
2.25	10	17.54
2.5	3	5.26
3	2	3.51
4	7	12.28
4.25	5	8.77
4.5	5	8.77
5	1	1.75
6	3	5.26
6.25	6	10.53
6.5	1	1.75
8.25	1	1.75
Total	**57**	**100.0**

3.5. Summary

To examine the effect of the judiciary on economic growth, I utilize *de jure* measures of judicial independence and judicial review. While acknowledging the limitations that stem from formal measures, I contend that they are the most reliable and replicable way to test the relationship. Moreover, *de jure* characteristics themselves may directly affect the influence of the judiciary as the formal explication of institutional features can affect investors and other actors and so they provide an explanatory benefit. Thus, though examining constitutional structures of the judiciary has disadvantages, it provides a useful and rigorous test.

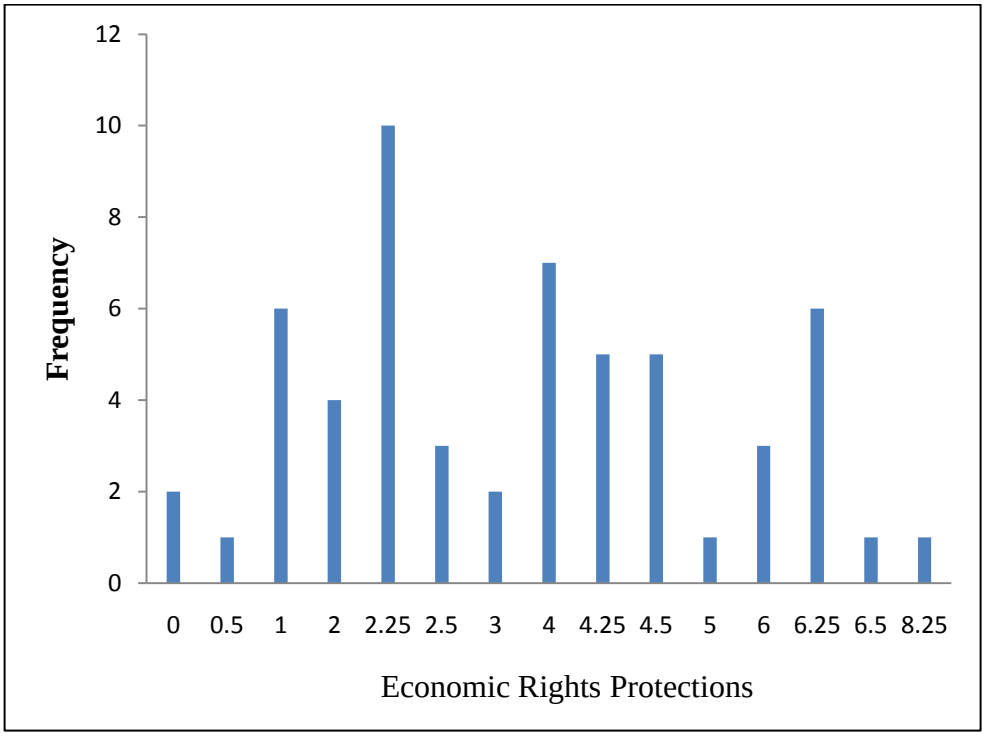

Figure 3.3. Distribution of Economic Rights Protections

In my analysis I adopt two approaches for measuring judicial independence and test the relationship using different measurements. To measure judicial independence, I use data on the constitutions of a sample of 118 countries over 12 years. For the first measure of judicial independence, I create a simple additive index comprised of seven components theorized to provide for judicial independence and coded from the countries' constitutions. This index ranges from [0, 7] and varies substantially across time and countries. Though an additive index is the most commonly utilized measurement approach for a judicial institution, it relies on two tenuous assumptions: 1) all components are measuring a single concept, and 2) all components are equally weighed. In order to relax and test these assumptions, I generate a second measure of judicial independence by using factor analysis. Factor analysis is a statistical technique which tests whether the components of a measure all load onto a single factor and generate a measure in which each component is given a separate weight based on how much variance is loaded on the relevant factor. The results of my factor analysis confirm the first assumption of the additive index, that there is a single factor or concept underlying the

seven components, but does not confirm the second but rather shows the components they do not have equal weight. From the analysis, I generate a second measure that is normalized and ranges from [-1.414, 1.417].

Judicial review and economic rights protections are each measured using scale variables. Judicial review is also coded for 118 countries over 12 years. It is measured on a four-category ordinal scale from [-1, 2] with higher values indicating that courts' have stronger review power. As with judicial independence, there is variation both across time and countries. To measure economic rights, I code a subsample of 57 countries' constitutions for a single year and calculate an additive index on a *de jure* scale of [0, 10]. Even amongst this smaller sample of cases, the distribution of economic rights is such that variation exists with which to examine their effect on economic growth.

CHAPTER 4: MODELING ECONOMIC GROWTH

To test the direct effects of judicial independence and judicial review on economic growth, I examine 117 countries of varying level of political and economic development across 12 years, from 1990-2002, using a cross-sectional, time series analysis. My dependent variable is annual growth in gross domestic product (GDP) per capita. My model specification builds upon the endogenous economic growth model, which is commonly accepted in both the economic and political economy literature. The economic growth model posits that economic development is determined by four main factors:[29] human capital, physical capital, labor force, and technology (Solow 1956 and Maniw, Romer, and Weil 1992).[30] Thus, in addition to judicial institutions,[31] my model tests the effects the four posited influences by including instrumental measures of each factor as well as the effect of each country's level of democracy and economic openess on economic growth.

To test whether the effect of judicial review on growth is conditioned on the presence of economic rights, I examine a subsample of 57 countries for a single year, 2002, using ordinary least squares analysis. My dependent variable is the growth rate in GDP per capita for 2002, and my model specification is the same as the cross-sectional, time series analyses. However, to test the conditional effect, I also include measures of constitutional economic rights protections and an interaction between economic rights protections and judicial review.

4.1. Economic Growth Model

To model economic growth, I follow other empirical studies and base my estimation approach on the endogenous economic growth model which contends that growth is determined by

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[29] The base economic growth model is $Y(t) = K(t)^{\alpha}H(t)^{\beta}(A(t)L(t)^{1-\alpha-\beta})$, where *Y* is GDP or real output, *K* is physical capital, *H* is human capital, *A* is the level of technology, and L is the labor force. (notation from Mankiw, Romer, and Weil (1992). See Baum and Lake (2003) for overview of the growth model.)

[30] For an overview of the endogenous economic model, see Verspagen 1992, Leblang 1996, Baum and Lake 2003, and Ehrlich 1990.

[31] My primary variables of interest are fully described in Chapter 3.

four factors: human capital, physical capital, labor force, and technology (Baum and Lake 2003). The base growth model was originally proposed by Solow (1956) who argued that the rate of economic growth can be explained by two main factors: physical capital and population growth rate. Physical capital is comprised of the savings of capital within a society that is used for "buildings, machines, and technical equipments used in production plus inventories of raw materials, half-finished goods, and finished goods" (World Bank Glossary 2009, 1). Increased rates of investment in physical capital are theorized to lead to increased rates of productivity which, in turn, result in greater rate of growth in GDP per capita. Population growth is the rate that the population is expanding. Population growth is associated with lower levels of economic growth because "a higher rate of population growth lowers the steady-state of capital and output per worker and tends thereby to reduce the per capita growth rate (Barro and Sala-Martin 2004, 20). Solow (1954) finds support for this theoretical argument and shows that higher rates of physical capital and lower rates of population growth as associated with higher rates of economic growth.

Manikiw, Romer, and Weil (1992) build upon Solow's theory and argue that, in addition to physical capital and population growth, human capital impacts the economic growth rate. Manikiw, Romer, and Weil contend that Solow's theory accurately predicts the direction of economic growth based upon his two factors; however, Solow fails to correctly predict the magnitudes of the effects of physical capital and human capital. Thus, they propose that a third factor impacts growth. Specifically, increased human capital, which is defined as "people's innate abilities and talents plus their knowledge, skills, and experience that makes them economically productive' (World Bank Glossary 2009, 1) is theorized to be associated with increased rates of economic growth. Because human capital affects workers' skills and competencies, it affects their productivity. Increased investment in human capital should improve rates of productivity by improving workers' skills and knowledge. Manikiw, Romer, and Weil (1992) use proxy measures of human capital, secondary

school enrollment and life expectancy, and confirm that human capital is positively associated with economic growth.

Though human capital, physical capital, and population growth have all been shown to have important influences over economic development, theories based upon those three factors all predict an eventual convergence of growth rates with growth eventually ceasing. This expected convergence and cessation is problematic because it does not match empirical reality in that economies have continued to grow over centuries. In an attempt to explain this misalignment between theory and reality, scholars argue that technological progress affected economic growth. Technology refers to a state of knowledge which affects specialization of labor, the discovery of goods, and methods of production (Barro and Sala-i-Martin 2004). Technological progress, therefore, involves the creation of new ideas. With the incorporation of technological progress, economies can grow indefinitely or for as long as new ideas are developed.

The earliest attempts to incorporate technology into the economic growth model assumed that technological progress was exogenous to the economy. As a result, they were unable to explain long term, sustained growth (Barro and Sala-i-Martin 2004). Later studies, such as Romer (1986), Lucas (1988), and Rebelo (1991) modified the theoretized effect of technology by endogenizing it. In other words, they argued that technological progress was endogenous to, or a product of, the economic system. Endogenizing technology makes technological progress a product of incentives to encourage innovation which can come from governmental actions and institutions. These studies suggest is that technological changes, including the incentive structure within a system, must be taken into account when looking to explain long term economic growth. Additionally, to explain variations in economic growth across countries, the prior level of technology within each country must be taken into account.

In addition to the baseline economic model, the level of democracy within a country has been theorized to impact economic growth and development (see Sirowy and Inkles 1991; Przeworski and

Limongi 1997; Gasiorowski 2000; Nelson and Singh 1998, and Durham 1999). Empirical results on the relationship between democracy and growth have been mixed with some finding that democracy impacted growth (e.g. Barro 1997) and others failing to find a relationship between the two (e.g. Przeworski, et al. 2000). Despite the lack of certainty concerning the relationship between democracy and development, studies have found that the level of democracy should be included in economic models because it may impact the stability of the investment climate and thus economic growth (see Baum and Lake 2003; Sala-i-Martin 1997, and Doppelhofer, Miller, and Sala-i-Martin 2000).

More recently, scholars have argued that trade liberalization, or economic openness, is important for economic growth. The literature on the effect of economic openness on economic growth is extremely diverse regarding its empirical conclusions concerning the relationship. Some studies have found a negative relationship in which countries with more open economy suffer lower levels of growth (Frankel and Romer 1999; Rodrik et al. 2002; Rodriguez and Rodrik 2001). Most studies, however, argue that open economies enjoy higher rates of growth (Edwards 1997; Ram 1990; Romer 1989; Sinha and Sinha N.d.; Yanikkaya 2003). One explanation for this relationship is that an open economy allows countries to make more rapid technological innovations because they are able to obtain knowledge from their trade partners (Grossman and Helpman 1991a, b; Lucas 1988; Yanikkaya 2003; Young 1991). The general consensus of the literature tends to be that economic openness leads to higher rates of economic growth. Because of this, I include a measure of economic openness and anticipate that it has a positive relationship with growth. With the exception of population growth, the factors theorized to impact economic growth are abstract concepts that cannot be directly measured. As a result, I utilize proxy, or instrumental, measures of the concepts which are commonly utilized in the literature on economic growth. Those measures are described in section *4.3*.

4.2. Dependent Variables[32]

My dependent variable is the annual growth rate in GDP per capita (growth rate) and comes from the Penn World Table dataset (PWT) version 6.3 (2009). Specifically, my dependent variable is the growth rate in real GDP per capita calculated with the Laspeyeres index with a reference year of 2005. I use the second version of this measure which slightly alters the calculation of the domestic absorption portion of GDP.[33]

The average growth rate is 1.48 with a standard deviation of 8.25. The variable ranges from [-65.08, 123.27].[34] A scatterplot of growth rate by year is presented in *Figure 4.1*. The distribution of growth rates shows that most countries fall between (-50, 50) with a few outliers pulling the outer edges of the data. Removing them from the dataset changes the mean growth rate to 1.29 and the standard deviation to 6.45. I tested the substantive effect of including the outliers by conducting my analyses with them included and excluded. I find that inclusion of the outliers alters the statistical results. Thus, for my main results I exclude the outlier cases. *Appendix F* presents the results my analyses with the outliers included.[35]

4.3. Independent Variables

Descriptive statistics are presented in the first two tables of the chapter. The means, standard deviations, and ranges of the dependent variable and the independent variables of the time-series data are presented in *Table 4.1* and the descriptive statistics for the 2002 data are presented in *Table 4.2*[36],

[32] Discussion of all the variables will be limited to the time-series sample of cases. I present the descriptive statistics of the 2002 subsample but, since they are similar to the time-series, I choose to discuss only the latter.
[33] See Deaton and Heston (2008) for a thorough discussion of the PWT.
[34] For the subsection of cases included in the economic rights analysis, the average growth rate is higher than the larger sample at 2.333 with a smaller standard deviation of 3.684. The range is [-9.864, 13.319].
[35] The results remain substantively unchanged except that exclusion of the outliers causes population growth to move from being insignificant to significant.
[36] As noted in Chapter 3, the subsample of cases from 2002 tends to be higher on most variables and have smaller deviations than the time-series data. This discrepancy, though limiting, is not

and a correlation matrix of all of the variables, except economic rights, is presented in *Table 4.3*. A correlation matrix of all the variables including economic rights for the 2002 subsample is presented in *Table 4.4*. Though I present a correlation matrix for the 2002 subsample of cases, I do not describe the correlations within the text. With few exceptions which are noted in-text, the variables in the subsample fail to reach statistical significance. The lack of significance is partially the result of the smaller sample of cases and is consistent with multivariate analyses presented later.

Judicial Variables. My primary independent variables of interest are judicial independence and judicial review. A thorough discussion of the measurements of these variables can be found in Chapter 3. I test two measurements of judicial independence. The first is an additive index of seven

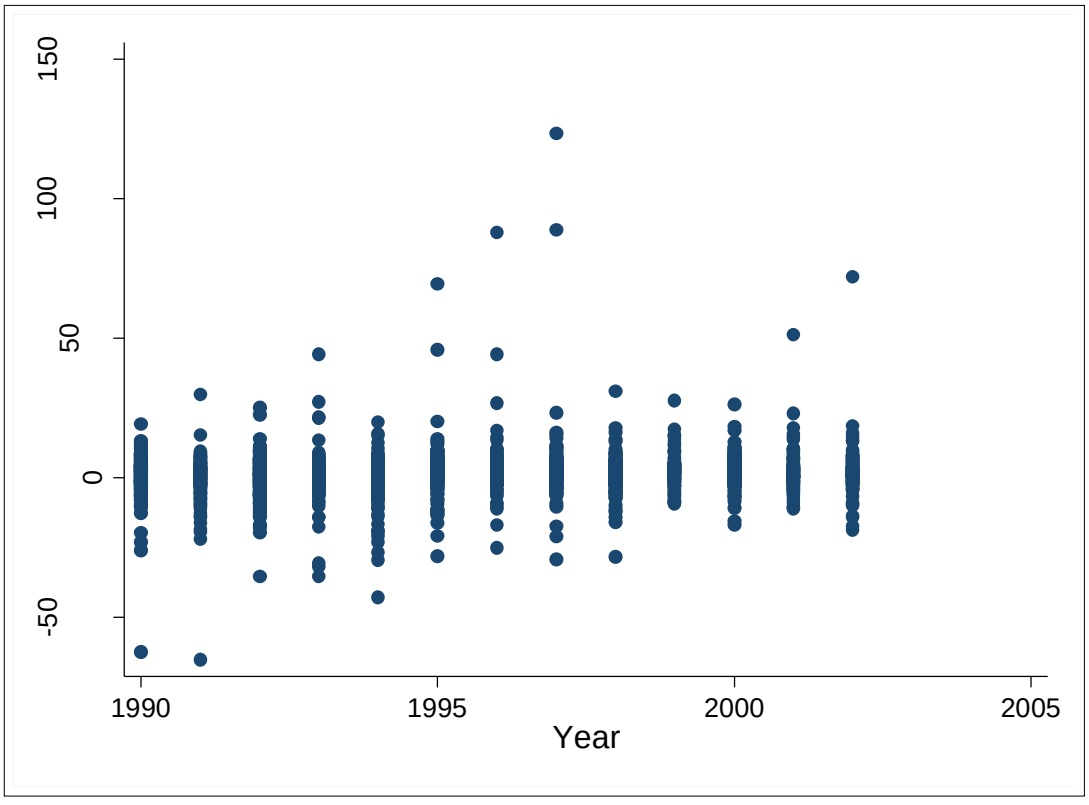

Figure 4.1. Distribution of Growth Rates by Year

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unsurprising. Since 2002 is the last year of the time-series data, many variables are anticipate to have grown with time such as population, judicial independence, and GDP capita. Furthermore, since the countries are taken from a single year, less variation should exist within the sample than data taken overtime. Thus, the subsample looks as expected.

Table 4.1. Descriptive Statistics of Time-Series

	Hypothesized Effect	Mean	Standard Deviation	Range
Dependent Variable				
GDP growth per capita	---	1.480	8.251	[-65.076, 123.267]
Independent Variables				
Judicial Independence (Additive)	+	2.865	2.030	[-0.5, 7]
Judicial Independence (PAF)	+	0.00	0.909	[-1.414, 1.417]
Judicial Review	---	0.810	0.964	[-1, 2]
Interaction Judicial Review and Economic Rights	+	---	---	---
Secondary School Enrollment	+	62.570	34.663	[4.72, 178.15]
Infant Mortality	-	48.747	41.505	[2.5, 191]
Investment Share GDP	+	20.129	11.625	[-0.497, 76.77]
Government Share GDP	+	19.791	10.635	[3.429, 83.350]
Economic Openness	+	78.894	46.454	[1.086, 356.900]
Population Growth	-	1.602	1.540	[-16.550, 18.711]
Logged GDP per capital	+	8.550	1.176	[5.038, 11.094]
Democracy	+	2.457	7.035	[-10, 10]

constitutional characteristics theorized to provide judicial independence; the second is generated from a principle-axis factor analysis of the same seven characteristics. I measure judicial review using a four-category, ordinal scale of constitutional provision for judicial review. Bivariate correlations

Table 4.2. Descriptive Statistics of 2002

	Hypothesized Effect	Mean	Standard Deviation	Range
Dependent Variable				
GDP growth per capita	---	2.233	3.685	[-9.864, 13.319]
Independent Variables				
Judicial Independence (PAF)	+	0.348	0.854	[-1.356, 1.417]
Judicial Review	---	1.053	0.915	[0, 2]
Economic Rights	---	3.465	1.921	[0, 8.25]
Interaction Judicial Review and Economic Rights	+	4.250	1.921	[0, 8.25]
Secondary School Enrollment	+	73.903	31.573	[5.820, 153.74]
Infant Mortality	-	39.616	39.121	[2.5, 155.5]
Investment Share GDP	+	20.045	10.116	[-7.361, 43.057]
Government Share GDP	+	18.792	8.767	[5.263, 59.143]
Economic Openness	+	76.967	47.985	[22.430, 356.899]
Population Growth	-	1.261	1.217	[-1.497, 4.382]
Logged GDP per capital	+	8.700	1.065	[6.544, 10.674]
Democracy	+	5.731	5.149	[-7, 10]

presented in *Table 4.3* show that both measures of judicial independence are significantly, positively correlated as expected. Furthermore, both measures of judicial independence are positively and significantly correlated with judicial review. Thus, levels of judicial review tend to trend with judicial independence. Moreover, all three measures are positively associated with economic growth, though none reach statistical significance in the bivariate correlation.

Economic Rights. My third hypothesis argues that the effect of judicial review is conditioned on the existence of constitutionally enumerated economic rights, thus I include in my final analysis a measure of levels of economic rights protections within a country and an interaction between economic rights and judicial review. For these variables, I coded a subsample of 57 countries for the year 2002 and generate an additive scale. Chapter 3 thoroughly discusses the measurement of economic rights. As presented in *Table 4.4.*, the economic rights index is significantly and positively correlated with judicial review at $p < .01$ with a coefficient of .349. However, it is insignificantly correlated with economic growth. These correlations cannot be used to make any statements concerning the effect of economic rights because of the complexity of the role of economic rights hypothesized.

Human Capital. To measure human capital, I include two variables: secondary school enrollment and infant mortality.[37] Secondary school enrollment provides a measure of human capital because it demonstrates peoples' ability to attend school, which shows level of investment in the capabilities of the workforce (Barro 1991; Baum and Lake 2003; Leblang 1996). When citizens are better educated, they tend to be higher quality and more capable workers. Moreover, a society in which a sizeable portion of the population has the time to attend secondary school indicates a higher value placed in education and thus a higher value placed in the population. Higher levels of secondary school enrollment, then, should be associated with higher levels of economic growth. The data on secondary school enrollment comes from UNESCO Institution for Statistics and was accessed from Norris (2009), which measures the percentage of age appropriate students[38] enrolled in secondary school annually. The average is 62.57% with a range of [4.72, 178.15]. The variable can have a value greater than 0 because the measure does not take into account over-aged or under-aged students when

[37] Both variables are typically included in models as measures of human capital and are believed to be capturing different dimensions of human capital and thus are not believed to suffer from collinearity or redundancy (Baum and Lake 2003).

[38] Age appropriate student is defined as "the population in age group corresponding to the specified level" (UNESCO 2009)

Table 4.3. Correlation Matrix without Economic Rights

	GDP growth per capita	Judicial Independence (Additive)	Judicial Independence (PAF)	Judicial Review	Secondary School Enrollment	Infant Mortality	Investment Share GDP	Government Share GDP	Economic Openness	Population Growth	Logged GDP per capital	Democracy
GDP growth per capita	1.000											
Judicial Independence (Additive)	0.233	1.000										
Judicial Independence (PAF)	0.116	0.976*	1.000									
Judicial Review	0.500	0.605*	0.608*	1.000								
Secondary School Enrollment	0.060*	0.144*	0.121*	0.051*	1.000							
Infant Mortality	0.009	-0.116*	-0.123*	-0.075*	-0.044*	1.000						
Investment Share GDP	0.119*	-0.002	-0.014	-0.135*	0.468*	-0.031	1.000					
Government Share GDP	-0.048*	-0.095*	-0.100*	-0.096*	-0.149*	0.012	0.013	1.000				
Economic Openness	0.081*	-0.111*	-0.096*	-0.110*	0.163*	-0.076*	0.359*	0.068*	1.000			
Population Growth	-0.016	-0.105*	-0.086*	-0.076*	-0.393*	0.013	-0.147*	-0.031	-0.002	1.000		
Logged GDP per capital	0.089	0.108*	0.104*	0.068*	0.803*	-0.047*	0.412*	-0.314*	-0.147*	-0.263*	1.000	
Democracy	0.013*	0.433*	0.419**	0.280*	0.398*	0.034	0.295*	-0.119*	0.277*	-0.275*	0.311*	1.000

* $p < .05$

Table 4.4. Correlation Matrix with Economic Rights

	GDP growth per capita	Judicial Independence (PAF)	Judicial Review	Economic Rights	Secondary School Enrollment	Infant Mortality	Government Share GDP	Investment Share GDP	Economic Openness	Population Growth	Logged GDP per capital	Democracy
GDP growth per capita	1.000											
Judicial Independence (PAF)	0.013	1.000										
Judicial Review	-0.025	0.619*	1.000									
Economic Rights	0.104	0.206	0.349*	1.000								
Secondary School Enrollment	-0.062	0.184	0.016	-0.137	1.000							
Infant Mortality	-0.030	0.075	0.204	0.261	-0.030	1.000						
Government Share GDP	0.091	0.042	0.154	0.155	-0.223	0.250	1.000					
Investment Share GDP	-0.002	0.190	0.041	-0.041	0.490	0.154	-0.057	1.000				
Economic Openness	0.055	-0.024	0.097	-0.019	0.063	-0.060	-0.005	0.327	1.000			
Population Growth	-0.073	-0.158	-0.163	0.006	-0.621	0.030	0.056	-0.367	-0.181	1.000		
Logged GDP per capital	-0.049	0.172	0-079	-0.128	0.834	0.031	-0.322	0.688	0.215	-0.542	1.000	
Democracy	-0.160	0.304	0.076	-0.098	0.450	0.012	-0.166	0.352	-0.124	-0.247	0.401	1.000

* $p < .05$

calculating the possible student enrollment. A higher value indicates that a system is capable of accommodating all of its school-age pupils (UNESCO 2009).

I also include a measure of infant mortality. Infant mortality provides an indication of the quality of healthcare in a system, or the extent to which the population is taken care of, because lower levels of infant mortality indicates higher the levels of prenatal and natal care (Baum and Lake 2003; Rosenzweig 1990). Thus, countries with lower rates of infant mortality tend to have higher levels of human capital, which should lead to higher levels of economic growth. I measure infant mortality using the Millennium Development Goals Indicators (2009) which I draw from Norris (2009). Infant mortality is coded as "the number of infants dying before reaching the age of one year per 1,000 live births during a given year (32)." Data for this variable are derived from either the vital statistics registrations within countries or household surveys conducted within countries when the vital statistics registrations are unreliable. Data within developing countries tend to be collected via household surveys because their vital statistics are often unreliable or unavailable.

The Millennium Declaration project collected data every five years, so the measure is only available for the years 1990, 1995, 2000. To utilize this measure in the current analysis, I imput the data for the missing years using a linear interpolation, which is a statistical technique that imputes data by fitting a line between available data points and then estimating the missing values and is commonly used to fill missing data (e.g. Ansolobehere and Konisky 2002; Bearce and Laks 2009; Clubb, Flanagan and Zingale 1986). While this technique does not perfectly estimate missing datapoints, it can be reliably used in when data are available over time and there is reason to expect that the change across time is a linear trend. In cases when the trend is expected to be non-linear or no trend is expected to exist, linear interpolation will produce unreliable results. In the case of infant mortality, it is reasonable to hypothesize that changes from year to year should follow is linear trend without drastic departures. Thus, linear interpolation is an appropriate method for filling missing data. Infant

mortality varies substantially across the sample of cases and years under examination. The average values is 48.749, meaning that across all countries and year an average of 49 infants out of every 1000 died before reaching one year of age. The standard deviation is 41.505, and the range is [4.72, 178.15].

Secondary school enrollment and infant mortality are significantly, negatively related at the .05 level with a one-tailed test which indicates that higher levels of infant mortality are associated with lower levels of school enrollment. This confirms the theoretical argument that countries that have higher human capital will have a higher educational enrollment and lower infant mortality and thus provides validity for them as instrumental measures of human capital.

Though according to the growth model higher levels of human capital should lead to higher levels of growth, recent literature has argued that, especially in developing democracies, higher levels of human capital should be associated with *lower* levels of growth. In the current economic climate, many corporations look to invest in developing countries in order to utilize cheaper sources of labor. Corporations, then, are more likely to develop businesses in countries with lower levels of human capital (Falk 2002; Greider 1993). Under this theory, we would actually anticipate a *negative* relationship between human capital and growth. Preliminary correlations tend to support the first theory of a positive effect of human capital. *Table 4.3* shows that both secondary school enrollment and infant mortality and positively correlated with growth per capita, though only school enrollment reaches statistical significance.

Physical Capital. To measure physical capital, I include a measure of investment share of GDP (%) (IGDP) and a measurement of government share GDP (%) (GGDP) which are standard measures of physical capital because they indicate the amount of resources going into building infrastructure and other resources (Barro 1991; Barro and Sala-i-Martin 2004; Feng 1997). The data on IGDP and GGDP are derived from Penn World Tables versions 6.3. Specifically, IGDP is the percentage of GDP

that is invested into various areas of the economy as opposed to consumed by citizens. This measure is calculated with 2005 as the reference year. The mean value is 20.129 with a standard deviation of 11.625. This variable ranges from [.497, 76.77].[39] GGDP is the percentage of GDP controlled by the government for either use as consumption, investment, or expenditures. Like IGDP, this measure was calculated with 2005 as the reference year. The mean value is 19.791 with a standard deviation of 1.635. The range is [3.429, 83.350]. For both variables, then, there is a substantial amount of variation. Under the endogenous economic growth theory, I would expect a positive relationship between both investment share of GDP and government share of GDP.

Population Growth. The data on population growth comes from the World Bank Development Indicators (2006) which measures the annual change in population size as a percentage of the total population. Population growth indicates the number of people within a country. According to Solow's model (1954), a higher rate of population growth leads to a lower rate of economic growth per capital, thus I hypothesize a negative relationship between the two factors. The mean percentage annual population growth is 1.602 with a standard deviation of 1.540. The range is [-16.55, 18.711].[40]

Level of Technology. To operationalize prior level of technology, I will use the standard instrumental measure: the logged prior level of income per capita (Barro and Sala-i-Martin 2004; Baum and Lake 2003, Leblang 1996). Including the prior level of GDP provides a base measure of the pre-existing "state of knowledge," or technological level, by assuming that the current level of GDP is a product of, and thus indicates, the level of technology. Higher GDP per capita thus indicates greater technological progress. The measure is logged because the effect of GDP is expected to be greatest in developing countries, in which greater progress can be made, and then it is expected to level off as

[39] Three cases were dropped because they were extreme outliers, though they did not appear to exert any influence over the final analysis.
[40] One case was omitted as an extreme outlier; however, inclusion of the case exerted no effect on the analysis.

countries reach a higher level of development. Logged GDP per capita is, therefore, expected to have a positive effect on the economic growth rate, which the correlations presented in *Table 4.1* support.

The countries included in the analysis vary in level of GDP per capita, indicating that both developed and developing countries are in the sample. Specifically, GDP per capita ranges from a low of 154.10 international dollars per capita (PPP) to a high of 65765.12 PPP, and the average is 9594.08 PPP. Since the measure is logged, the range of the variable is [5.038, 11.094] with a mean of 8.550 and a standard deviation of 1.176.

Democracy. I measure democracy using the "Polity Score" derived from Polity IV Project (2008). The Polity Score (Polity) is a 21-point scale that measures the extent to which a country is a democracy by placing each country on a spectrum ranging from autocracy to democracy. Polity is created for each country by, first, determining its democracy score, which is an additive 11-point scale that measures "the competiveness of political participation, the openness and competiveness of executive recruitments, and constraints of the chief executive (Polity IV Project 2009, 14)." Second, an autocracy score is generated for each country which is also an 11-point additive scale that measures "the competitiveness of political participation, the regulation of participation, the openness and competitiveness of executive recruitment, and constraints on the chief executive (Polity IV Project 2009, 15)." Polity is then calculated as the difference between the democracy and autocracy resulting in a scale ranging from [-10, 10] with 10 being strongly democratic. Thus, because democracy is associated with higher levels of growth, I anticipate a positive relationship between Polity and economic growth which is confirmed with a simple bivariate correlation. The mean value of Polity is 2.457 with a standard deviation of 7.035.

Economic Openness. I include a measure of economic openness, which is a measure of trade liberalization, using the Penn World Table's version 6.3 (2009) openness variable. This measure is frequently utilized to measure trade openness (see Harrison 1996) and is calculated as the sum of

imports and exports in a country divided by the percentage of GDP. The higher the value of openness, the more open the country is to trade. As a result, I expect a positive relationship between economic openness and economic development. The average value of economic openness is 78.894 with a standard deviation of 46.454 and a range of [1.086, 356.900].[41]

4.4. Model Specifications

Mathematically, the models I analyze are

(1) $Y = \alpha + \beta_1 IM + \beta_2 EDU + \beta_3 INV + \beta_4 P + \beta_5 T + \beta_6 D + \beta_7 O + \beta_8 JI + \varepsilon$

(2) $Y = \alpha + \beta_1 IM + \beta_2 EDU + \beta_3 INV + \beta_4 P + \beta_5 T + \beta_6 D + \beta_7 O + \beta_9 JR + \varepsilon$

(3) $Y = \alpha + \beta_1 IM + \beta_2 EDU + \beta_3 INV + \beta_4 P + \beta_5 T + \beta_6 D + \beta_7 O + \beta_8 JI + \beta_9 JR + \varepsilon$

(4) $Y = \alpha + \beta_1 IM + \beta_2 EDU + \beta_3 INV + \beta_4 P + \beta_5 T + \beta_6 D + \beta_7 O + \beta_8 JI + \beta_9 JR + \beta_{10} ER + \beta 11\ JR*ER + \varepsilon$

where IM = Infant Mortality; EDU = Education; INV = Gross Domestic Investment as Percentage of real GDP; P = Population Growth; T = Technology; D = Democracy; O = Economic Openness; JI = Judicial Independence, JR= Judicial Review, and ER = Economic Rights. Model (1) tests the effect of judicial independence, so $\boldsymbol{\beta_8}$ is the coefficient of interest and expected to be positive. Model (2) tests the effect of judicial review, so $\boldsymbol{\beta_9}$ is the coefficient of interest and, according to expectations, should be insignificant. Model (3) is an integrated model which tests the effects of judicial review and independence controlling for the effects of each other. Model (4) tests the conditional effect of judicial review on economic rights. For this model, the key coefficient is $\boldsymbol{\beta_{11}}$ and is hypothesized to be significantly positive. The hypothesized coefficients of all included variables are presented in *Table 4.1* and *Table 4.2*.

4.5. Case Selection

For my analysis of the first three models examining the effect of judicial independence and judicial review, I examine 117 countries over 12 years, from 1990 to 2002. This breadth of countries

[41] Economic openness has an outlier country; however, inclusion of the outlier does not influence the results. The mean value, with openness excluded, is 77.205 with a standard deviation of 41.839 and a range of [1.086, 293.956].

and large time period gives me substantial variation which allows me to make more generalizable conclusions. The countries under analysis differ with regards to the level of economic development, thus substantial variation exists with which to examine the effect of judicial institutions on a both developing and developed countries. The countries are also a mix of democracies and autocracies in which 55.19% of countries are democracies according to the Cheibub and Gandhi (2004) classification. Furthermore, countries from all continents are included in the analysis. *Appendix B* and *Appendix C* present the levels of judicial independence across regime type and region. A full list of the countries included in the analysis is presented in *Appendix D*.

To test the conditional effect of judicial review and economic rights, I examine a subsample of 57 cases in the year 2002. Though fewer countries and years are examined in this test, the countries still vary substantially across all institutional and economic characteristics. Examining a larger sample of cases over a longer time frame would improve the reliability and generalizability of my results; however, because the data are not such a test in not possible at this time. The sample, then, is suitable to use for a preliminary test of the conditional effect of judicial review.

4.6. Summary

I develop a model based on prior findings in the literature and test the validity of the model on a cross-section of 117 countries over 12 years, from 1990-2002, in order to test the direct effects of judicial independence and judicial review on economic development. My sample of countries includes a mix of developed and developing countries across all continents. The dependent variable of my study is the annual rate of growth in GDP per capita. My primary independent variables are judicial independence and judicial review. I measure judicial independence using two approaches: an additive index and a factor analysis. Judicial review is measured from the constitutions of each country analyzed. To test the conditional effect of judicial review, I examine a subsample of 57 cases for a single year, 2002, and my dependent variable is the growth rate in 2002. To test whether the effect of

judicial review is conditioned on the presence of economic rights protections, I include a measure of economic rights protections coded from countries constitutions and an interaction between rights protections and judicial review.

Because economic growth is affected by a multitude of factors, I also test the effect of other features which have been theorized to impact growth. Based on the endogenous economic growth model, I include instrumental variables to measure the effects of human capital, physical capital, population growth, and prior level of technology. Human capital is measured using secondary school enrollment and infant mortality. Physical capital is measured by investment share GDP and government share GDP. Population growth is measured as the annual change in population size, and prior level of technology is measured as the logged GDP per capita. In addition to the base economic growth model, I test the effect of level of democracy, measured using Polity, and economic openness, which is the sum of imports and exports in a country divided by the percentage of GDP.

CHAPTER 5: ANALYSIS

To test for direct effects of judicial independence and judicial review on economic development, I first analyze three multivariate models. The first model tests the effect of judicial independence measured two ways: using an additive index and a factor analysis score. The second model tests the effect of judicial review on economic growth. The third model is an integrated model testing the effects of both judicial independence and judicial review. Each of the first three models is tested with a Prais-Winston regression analysis since the data are time-series cross-sectional.

I find empirical support for my first hypothesis but fail to entirely support my second hypothesis. My analyses consistently demonstrate that judicial independence is significantly and positively associated with economic growth, even controlling for other factors including judicial review. This finding holds using either measure of judicial independence. I, therefore, conclude that my first hypothesis that increased judicial independence leads to increased economic growth is supported. The effect of judicial review on growth is less straightforward than that of judicial independence. Without controlling for independence, judicial review is not significantly associated with economic growth, which lends support to my second hypothesis that judicial review has no independent effect on growth. However, when controlling for judicial independence, the effect of judicial review is significant but negative. My analysis suggests that increased levels of judicial review are detrimental to economic growth when controlling for judicial independence. I postulate two explanations for that the negative effect of judicial review. First, in developmental state economies, growth depends upon the government's ability to forcefully implement economic policy (Onis 1991). In these situations, judicial review power may limit the government's ability to implement economic policy thereby stunting growth. Second, in countries where the judiciary lacks independence, judicial review merely serves to constitutionally legitimize governmental actions and reduce people's ability to challenge economic rights violations (Dahl 1957; Shapiro 1981; Tate 1994).

My third hypothesis argues that if constitutionally enumerated economic rights exist, judicial review may aid economic growth. If my third hypothesis is correct, the negative effect of judicial review may potentially be counteracted. To test the for a conditional effect of judicial review based on economic rights protections, I analyze a subsample of 57 cases whose 2002 constitutions I coded for the presence of economic rights protections and by constructing a multivariate model using ordinary least squares regression. Within the model, I include an interaction term between judicial review and economic rights in addition to measures of judicial independence, judicial review, and economic rights. The interaction term, then, tests the effect of judicial review dependent upon variations in economic rights.

My third hypothesis is supported by the results of my empirical analysis. My findings show that though the direct effect of judicial review is negative, in the presence of strongly enumerated economic rights, judicial review has a positive effect on growth. The conditional effect is such that when economic rights protections are high enough, just over average, the overall effect of judicial review is positive. These results suggest that while judicial review in the absence of economic rights may be harmful for economic growth, constitutionally enumerating economic rights protections can negate the negative effect and cause review to have a positive effect on economic growth. These empirical findings lead me to conclude that the relationship between judicial review and economic growth is complex and, to understand it, other constitutional features must be taken into account.

5.1. Methodology for Testing the Direct Effects of Judicial Independence and Judicial Review

To test the direct effects of judicial independence and judicial review,[42] I conduct a Prais-Winston regression with an AR(1) process, panel corrected standard errors, and year fixed effects to correct for autocorrelation, panel heteroskedasticity, and heterogeneity. My dependent variable, GDP growth per capita, is an unbounded scale variable that has a relatively normal distribution. Since my

[42] Results are presented and discussed in *Sections 5.2, 5.3, and 5.4.*

data are time-series, cross-sectional, meaning that it consists of a units (countries) over time (years), they violate a variety of assumptions required for ordinary least squares (OLS) analysis.[43] In order to get reliable estimators, I employ a series of corrections to fix the structural problems in my data.

Because my data suffers from first-order serial autocorrelation, I conduct a Prais-Winston regression with an first-order autoregressive (AR(1)) process. Autocorrelation occurs when values of the dependent variable at time 't' are correlated with values of the dependent variable at another time (e.g. 't-1'). To test for the presence of autocorrelation, I perform a Lagrange Multiplier test (Beck and Katz 1996; Worrall and Pratt 2004) by regressing my model on a one year lag of the residuals. My lagged residuals are significant at $p < .001$ with a coefficient of 0.156 indicating the presence of first order autocorrelation. To correct for the autocorrelation, I include an AR(1) process.[44] Then, to correct the error structure in the data, I employ a Prais-Winston regression. While the most accurate method for analyzing TSCS data is generalized least squares analysis (GLS), it cannot be used in social science data. Instead, two alternative estimation approaches are commonly employed: functional generalized least squares (FGLS) regression and Prais-Winston regression. Because FGLS is known to underestimate the standard errors, thus inflating the significance and increasingly the likelihood of a Type I error, I choose to conduct a Prais-Winston OLS regression, which is often argued to be the best approach to social scientific TSCS data (see Beck and Katz 1995).[45]

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[43] Results of the diagnostic tests for violations of statistical assumptions are presented in *Appendix G*.

[44] Scholars are divided over the most appropriate method for dealing with first order autocorrelation. Statistically fixing the autocorrelation by including an AR(1) process has come under criticism because such an approach treats the autocorrelation as a nuisance as opposed to attempting to model it (e.g. Beck and Katz 1996). As a result, Beck and Katz (1996) argue that the best approach is to include a lagged dependent variable to model the autocorrelation and thus learn something about the series. This approach is problematic however, especially in a model with panel corrected standard errors because it results in inconsistent estimators (Madala 1997). Because of this problem, I choose to use the statistical correction for my autocorrelation by including an AR(1) process.

[45] Beck and Katz (1995) criticize FGLS, or the Parks-Klementa method, because it assumes that the variance-covarience matrix of the errors is known. Thus, it underestimates the variability in the errors and thus underestimates the errors. This problem is especially pronounced when the data are year-

My data also suffer from panel heteroskedasticity and unbalanced panels, so I also include panel corrected standard errors (PCSE) and correct for unbalanced panels. Panel heteroskedasticity occurs when the errors vary across panels, which violates the Gauss-Markov assumption (Baum 2001; Franzese 2002; Worrall and Pratt 2004). To test for panel heteroskedasity, I conduct a Bruesch-Pagan test and obtain a significant value with a $p < .001$, thus I must reject the null hypothesis that the errors are constant across all panels. PCSE is an appropriate technique to correct for panel heteroskedasticity when used in conjunction with OLS estimators because it replaces the OLS standard errors with panel specific standard errors (Beck and Katz 1995, 1996) resulting in more accurate estimator. This technique can only be employed after correcting for the serial autocorrelation with the AR(1) process.

Finally, I include year fixed-effects because my data fail to meet the assumption that the trends across all units are homogeneous. To test for the presence of unit-specific trends, I conduct both a Hausman test and an F-test for heterogeneity. The Hausman test produces a significant coefficient, at a probability of $p <.001$, leading me to reject the null hypothesis that my data meets the criteria for random effects and forcing me to conclude that controlling for fixed effects is necessary. To test the acceptability of including year fixed effects, I conduct an F-test to determine whether adding the year variables improves my model. I find that there is a significant difference between the two models at a probability of $p < .001$. Following the trend in the political economy literature on the effect of institutions, I do not include country-fixed effects because institutions change so slowly that many of my countries would not change during the period of analysis and thus my results would not be interpretable (Cherry 1999; Cornwell and Trumbull 1994; Worrall and Pratt 2004). Furthermore, I test the need to include country fixed-effects by regressing the residuals of the models on country and find no significant relationship. Thus, a year fixed-effects model is appropriate to fix the problem of unit specific trend.

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dominated, meaning there are more time points than unit points. In instances when the data are country-dominated the problem is less pronounced and thus estimates will be more similar.

5.2. Judicial Independence and Economic Growth

Additive Index. The results of my analysis testing the effect of judicial independence on economic growth using the additive index of judicial independence are presented in the *Column 1* of *Table 5.1*. The model is statistically significant with a $p < .001$ and explains about 5% of the variance with an R-square of 0.053. The R-square is deceptively low as a result of the inclusion of an AR(1) process, thus the small r-square is not unexpected nor does it give cause for concern over the validity of the model.

The analysis using additive measure provides strong support for the first hypothesis that increased judicial independence is associated with an increased rate of economic growth.[46] The effect of judicial independence is statistically significant with a coefficient of 0.306 ($p < .05$), meaning that a one unit increase in the level of judicial independence is associated with a growth in GDP per capita of 0.306. Substantively, these results indicate that for each constitutional provision explicitly protecting judicial independence, such as banning military courts, a country's growth rate should be higher by 0.306 than countries without the provision. The impact of judicial independence is displayed graphically in *Figure 5.1* which illustrates the effect of changes in judicial independence from the minimum possible value of judicial independence (-0.5), the mean value (2.85), and the maximum (7) in 1995, as well as shows the impact of a one-unit change in judicial independence. As the graph shows, as judicial independence increases, holding all else constant, the economic growth rate increase. More specifically, a movement from judicial independence score of -0.5 to a score of 7 results in approximately a 2.5 increase in economic growth. In 1995, this effect was substantial

[46] Because institutions tend to trend together, one difficulty with testing the effects of institutions is isolating the influence of a particular institution from the influences of other institutional features. In particular, to be able to conclude that the judiciary is having an influence, I must be certain that the judiciary is not simply serving as a proxy measure of other governmental institutions, such as the legislature. In order to ensure this, I include a measure of legislative effectiveness in my analyses. These results are presented in *Appendix H*. They show that legislative effectiveness has no significant effect on economic growth nor does its inclusion alter the relationship between judicial institutions and growth.

enough to change the rate of growth from negative to positive, again holding other factors constant. Thus, the first analysis indicates the judicial independence exerts a significant and positive effect on economic growth with substantive implications.

Table 5.1. The Effect of Judicial Independence on Economic Growth

	Coefficient (Standard Error)	
	Column 1: Additive	Column 2: PAF
Judicial Institutions		
Judicial Independence	0.306*	0.762*
	(.114)	(.003)
Human Capital		
Secondary Education Enrollment	-0.045*	-0.044*
	(.012)	(.012)
Infant Mortality	-0.001	-0.001
	(.004)	(.005)
Physical Capital		
Investment Share of GDP (%)	0.090*	0.091*
	(.035)	(.035)
Government Share of GDP (%)	-0.007	-0.007
	(.024)	(.024)
Population		
Population Growth	-0.224*	-0.225*
	(.112)	(.112)
Technology		
GDP Per Capital (Logged)	1.263*	1.274*
	(.405)	(.408)
Democracy and Openness		
Democracy (POLITY)	-0.090	-0.064
	(.046)	(.046)
Economic Openness	-0.002	-0.003
	(.006)	(.006)
Constant	-9.211*	-8.442*
	(3.094)	(3.085)
Autocorrelation Coefficient	.266	.268
N	1341	1341
Groups	116	116
Wald Chi^2	69.94*	69.84*
R^2	0.053	0.054

* $p < .05$, one-tail test

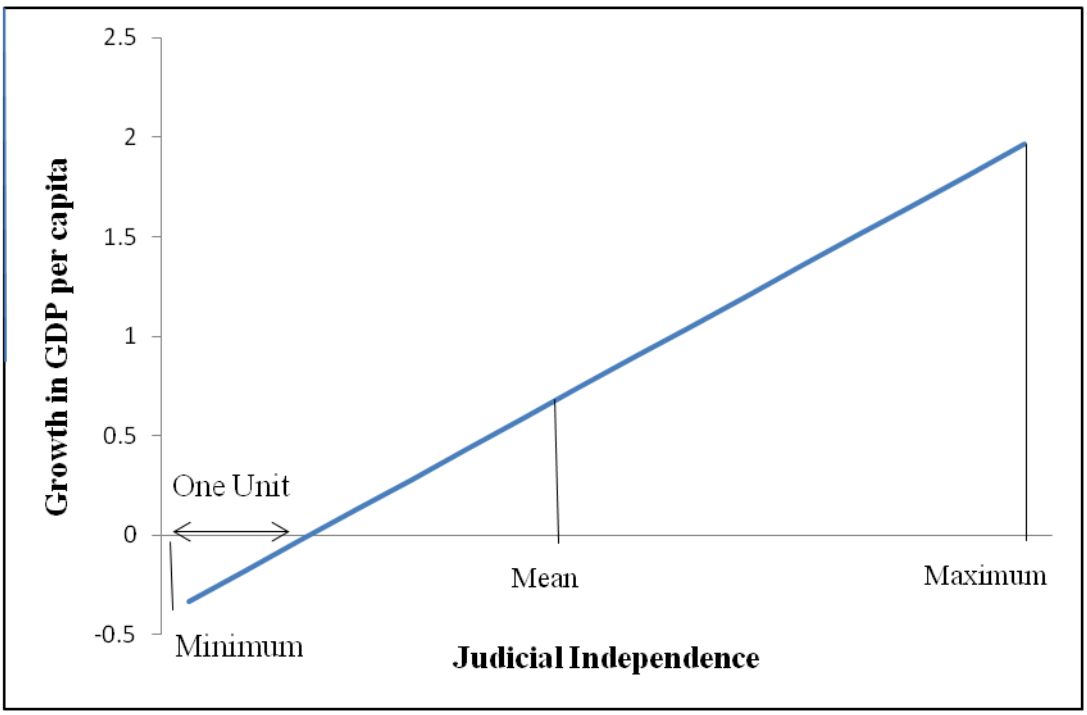

Figure 5.1. Effect of Additive Judicial Independence on Growth

The other factors tested in the model generally perform according to expectations, which demonstrate the robustness of the model and provides confidence in its findings. The first measure of human capital, secondary school enrollment, has a significant, negative relationship with economic growth. Specifically, a one-unit increase in the proportion of students enrolled in secondary school is associated with a decrease in the economic growth rate of 0.045. This finding is consistent with the traditional theory of human capital which contends that increased levels of human capital in developing countries will be associated with decreased economic growth because investments in human capital lead to a lower availably of low-cost labor, since low-cost labor drives initial investment and growth in developing countries (Cardosa and Faletto 1969; Falk 2002; Greider 1993; Hymer 1971; Lenin 1939; Maxfield 1998; Rodrik 1997; London and Ross 1995). Since less developed countries are included in my sample of cases, this finding is consistent with expectations. As for the second measure of human capital, the impact of infant mortality is positive but insignificant with a p-value of approximately 0.783. Infant mortality does not appear to be associated with economic growth. This

finding could be for two reasons. First, secondary school enrollment may be accounting for most of the variance due to human capital thereby trumping the effect of infant mortality. Second, infant mortality may not be associated with economic growth, which is consistent with the mixed findings in the literature.

Physical capital is found to be significantly associated with economic growth. Investment share of GDP per capita is significantly and positively associated with economic growth. Specifically, a one unit increase in investment is associated with a 0.090 increased in economic growth. This finding supports the overwhelming consensus in the literature that higher rates of investment lead to increased rates of growth and provides further evidence that investment facilitates growth. The second measure of physical capital, government share of GDP per capita is negatively associated with economic growth with a coefficient of -0.008; however, the relationship does not reach statistical significance. As a result, I cannot conclude that there exists a relationship between to two. Overall, however, my model finds support for the effect of physical capital, in the form of investment, on economic growth.

The relationship between population growth and economic growth is negative, as expected by Solow's (1954) model, and statistically significant. A one unit increase in population is associated with a 0.224 decrease in economic growth, meaning that countries with larger populations have lower rates of economic growth, holding all other factors constant. Thus, without improvements in human capital, physical capital, or technology, mere increases in population will negatively affect the economy.

Additionally, per theoretical expectations, the prior level of technology, as measured by the logged GDP per capita, is positive and statistically significant. The results, therefore, show that an increase level of technology is associated with an increase in the economic growth rate. Specifically, the effect of technology is 1.263 indicating that a one unit increase in technology is associated with a

1.263 increase in the growth rate. This finding further supports theoretical arguments that technological advancement is fundamental for long-term, economic growth.

Finally, the last two factors tested, democracy and economic openness, were not found to have a significant relationship with economic growth. Both democracy and economic openness have a negative coefficient of -0.060 and -0.002, respectively, but fail to meet standard accepted levels of statistical significance, thus I cannot conclude that either is associated with economic growth. While these factors do not perform as expected, they are consistent with the political economy literature which has found mixed support for the influence of both factors (Grossman and Helpman 1990; Matsuyama 1992; Rivera-Batiz and Romer 1991a, b; Romer 1990; Yanikkaya 2003).

Overall, my model performs as expected with regards to the variable of interest, judicial independence, as well as the major factors found within the literature to influence economic growth. Judicial independence has a strong and significant relationship with economic growth in the expected direction, positive, indicating that higher levels of judicial independence lead to higher economic growth rates. Measures of human capital, physical capital, population growth, and technological advancement were also significant and in the expected directions. Human capital, measured by secondary school enrollment, physical capital, measured by investment, and technological advancement, measured by GDP per capita, all exert a positive effect on economic growth, while population growth had a negative effect. Because the model generally preformed as expected according to the political economy literature, I can be fairly confident in my model specification and subsequent conclusion that judicial independence exerts an influence on growth.

Factor Score. In my second analysis, I test the effect of judicial independence using the factor score derived from the principle-axis factor analysis instead of the additive index. By doing this I am able to test the robustness of the relationship between economic growth and judicial independence as well as examine the content validity of the two measurements. The results from this second analysis,

which are presented in *Column 2* of *Table 5.1*, are largely the same as the results using the additive index. The model remains statistically significant with a slightly higher r-square of 0.054. All of the variables within the model maintain the same level of significance or insignificance, and the coefficients remain close in magnitude.

Measures of human capital, physical capital, population growth, and technological advancement remain significant. Specifically, the secondary education measure of human capital is statistically significant and negative with a coefficient of -0.044; whereas, physical capital, as measured by investment, is positive and significant. Population growth remains negative and statistically significant with a coefficient of -0.225. Technological advancement measured by GDP per capita remains significant with a positive coefficient of 1.274. Further, infant mortality, government share of GDP, democracy, and economic openness fail to reach statistical significance as in the original model. The facts that all of the variables in the model maintain their significance levels and that the coefficients remain stable indicate that the model is rather robust, which strengthens the validity of the model and its findings.

More importantly, the primary variable of interest, judicial independence measured via factor analysis, has a statistically significant, positive relationship with economic growth. These findings are consistent with the results of the first analysis using the additive measure of judicial. More specifically, a one unit increase in judicial independence is associated with a 0.762 increase in the growth rates. While the magnitude of the effect appears to be larger than with the additive index, this effect is simply a product of the fact that the factor score is on a small scale. *Figure 5.2* shows the effect of judicial independence measured by the factor score on economic growth. As the graph displays, a shift from the minimum value of judicial independence (-1.414) to the maximum (1.417) leads to almost a 2.5 increase in growth per capita, which is substantively the same as using the additive measure and moving from the minimum to the maximum. Thus, though the coefficient

appears to be larger using the factor score, the substantive results of the two measures are almost identical. Similar to the analysis with the additive index, movement from the lowest level of judicial independence to the highest level can result in a change from a negative growth rate to a positive one. The substantive impact of increased judicial independence is, therefore, substantial enough to affect the overall direction of economic growth.

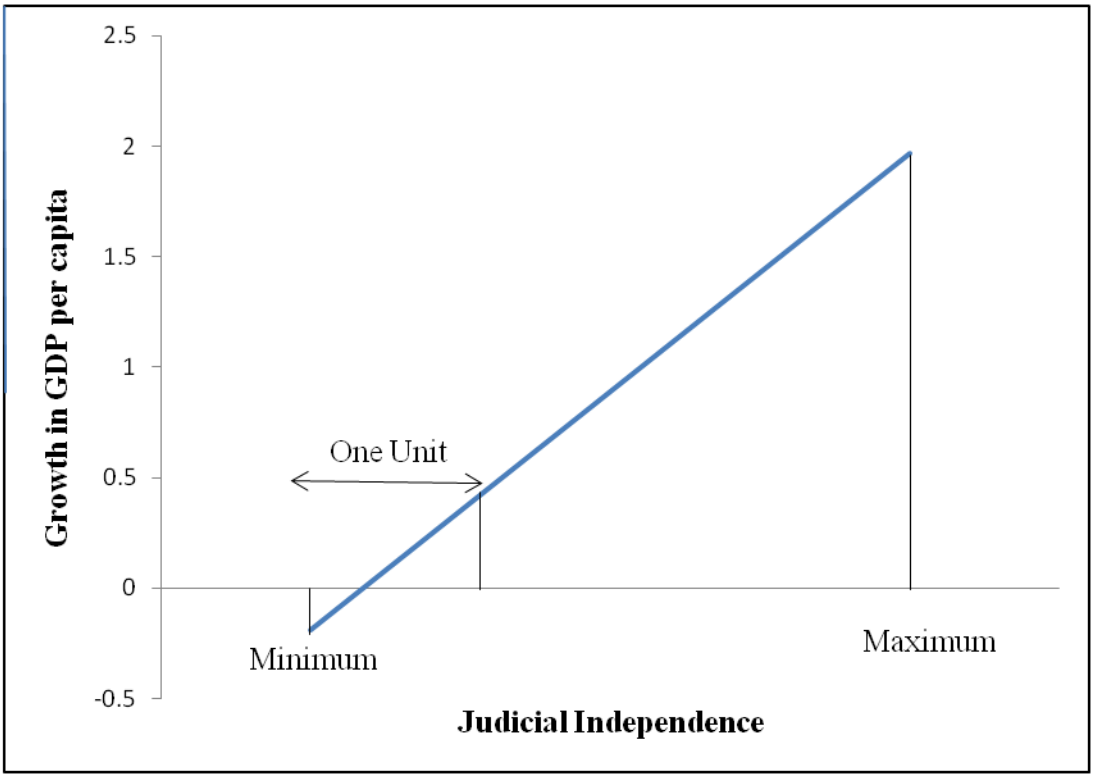

Figure 5.2. Effect of Factor-Score Judicial Independence on Growth

The consistency of the effect of judicial independence across measurement approaches attests to the robustness of the relationship between judicial independence and economic growth. Switching from measuring judicial independence with an additive index to a factor score alters the values of judicial independence because it reweights the components and only accounts for the variance between factors that is common. As a result, the measures of independence are slightly different in terms of value and variance. However, these changes in measurement do not affect the substantive effect of judicial independence. This stability in effect demonstrates that the effect of independence is not

sensitive to minor changes to the measurement specification of the concept. Thus, the results of the second analysis provide greater confidence about the existence of a positive effect of independence on economic growth and attest to the relationship.

Additionally, finding similar results using different measurements provide evidence of the content validity for each measure. Despite slight differences in measurement, both approaches towards measuring judicial independence should be capturing the same underlying concept. Thus, if they are measuring the same concept, their effect should be roughly the same regardless of which measure is used. If either measure were faulty, the substantive results would vary based on measurement approach. Therefore, the fact that both measures produce very similar results strongly indicates that they are both, indeed, measuring the same single factor of influence. The results of these analyses, then, provide robust evidence that judicial independence is associated with economic growth.

5.3. Judicial Review and Economic Growth

In my next analysis, I test the second hypothesis that judicial review is <u>not</u> statistically associated with economic growth. The overall model is statistically significant at $p < .001$ and has an r-square of 0.048. Thus, this model explains approximately 5% of the variance, which, again, in light of the included AR(1) process is a reasonable value. The results of this analysis are presented in *Table 5.2* and generally support my hypothesis. Judicial review is not found to be significantly associated with economic growth, with a $p > .717$ and a coefficient of 0.078. Thus, I cannot conclude that judicial review affects economic growth; rather, my results indicate that no relationship exists between the two. Though the lack of significance is not definitive, it is consistent with theoretical expectations.

The rest of the model performs according to expectations and similarly to the first and second models of judicial independence. As with the prior models, human capital has a significant impact on economic growth. Specifically, secondary school enrollment is negatively and significantly associated with economic growth with a magnitude of -.040, meaning that a one unit increase in secondary school

enrollment is associated with a decline in economic growth of .040. Infant mortality, contrastingly, is positively and insignificantly associated with economic growth. Thus, in line with some theoretical expectations, increases in human capital are associated with decreases in growth. These findings match those found in the prior analysis.

Table 5.2. Effect of Judicial Review on Economic Growth

	Coefficient (Standard Error)
Judicial Institution	
Judicial Review	0.078
	(.217)
Human Capital	
Secondary Education Enrollment	-.040*
	(.012)
Infant Mortality	-0.001
	(.004)
Physical Capital	
Investment Share of GDP (%)	0.090*
	(.035)
Government Share of GDP (%)	-0.009
	(.023)
Population	
Population Growth	-0.230*
	(.113)
Technology	
GDP Per Capital (Logged)	1.137*
	(.405)
Democracy and Openness	
Democracy (POLITY)	-0.026
	(.041)
Economic Openness	-0.003
	(.006)
Constant	-7.627*
	(3.058)
Autocorrelation Coefficient	0.261
N	1341
Groups	116
Wald Chi^2	62.89
R^2	0.048

* $p < .05$, one-tail test

Physical capital, as measured by investment, is also significantly related to economic growth. The economic growth rate increases by 0.090 for every one unit increase in investment share GDP, and

this relationship is statistically significant at $p < .01$. Government share of the economy, however, has no significant relationship with economic growth. These results are consistent with the findings of the first two analyses and provide evidence of the importance of physical capital for economic growth.

Both population growth and technological advancement are also significant and in the expected direction. Population growth is negatively associated with economic growth. Thus, an increase in population growth leads to decrease in economic growth of a magnitude of 0.230, controlling for other factors. As with the previous analysis, without increases in other factors of production, population growth alone causes a decline in per capita growth. Contrastingly, the effect of technological advancement is significantly positive. Increases in technological advancement, as measured by GDP per capita, are associated with increases in economic growth, with a coefficient of 1.137. These results are consistent with expectations derived from the exogenous growth model and the findings of the earlier analyses.

Neither level of democracy and economic openness are found to significantly impact economic growth rates. The level of democracy within a country was found to be negatively but insignificantly associated with economic growth with a coefficient of -0.026. While this finding does not necessarily conform to expectations, the results are not altogether surprising in light of the mix findings within the literature. In addition, the lack of effect matches the results of the first two analyses. Similarly, the results for economic openness are similar to those of the prior analyses. Economic openness is negatively associated with economic growth, with a coefficient of -0.003, but the relationship fails to meet statistical significance. For both factors, then, I cannot conclude that they are associated with economic growth.

The findings of this model are substantively identical to those of the models of judicial independence. In all models, secondary school enrollment, investment share GDP, population growth, and GDP per capita are statistically significant with effects in the predicted direction, whereas the other

factors are insignificant. The consistency across models provides further evidence of the validity of the model specification because the model remains stable with slight alterations to its specification. Because of this, I can be fairly confident in my findings and the conclusion from these models that judicial independence increases economic growth while judicial review appears to have no statistical relationship. However, before I can come to any conclusions concerning the effect of judicial institutions, I must test the effects of judicial independence and judicial review controlling for one another. This is especially important since the two characteristics are significantly correlated at 0.588, with the additive index, and 0.617 with the factor score, and so their effects my change when included in an analysis together. The results of the integrated model are presented in the following section.

5.4. Integrated Model of the Effects of the Judiciary on Economic Growth

An integrated model of economic growth controlling for both judicial independence and judicial review are presented in *Table 5.3*. The model is statistically significant with a $p < .001$ and an r-square of 0.054. The findings provide evidence for the first hypothesis that judicial independence is positively associated with economic growth and mixed support for the second that judicial review is not associated not. Using either the additive index measure of judicial independence or the factor score, which are presented in *Column 1* and *Column 2* of *Table 5.3* respectively, judicial independence is positively and significantly associated with economic growth, with a $p < .01$. With the additive measure, a one unit increase in judicial independence (or approximately one additional constitutional protection) is associated with a 0.405 growth in GDP per capita.

The coefficient using the factor score is also significant but larger, so a one unit increase in judicial independence measured with factor analysis is associated with a 1.065 increase in GDP per capita. The apparently large difference in the magnitude of the effect of independence is the result of the fact that the two measures are on different scales, thus a one unit change in the additive scale is much larger than a one unit change in the factor score. As a result, while the coefficient of factor score

is larger, substantively, the effect of independence using either score is approximately the same. This is illustrated in *Figures 5.3 and 5.4* which present the substantive effect of shifts in judicial independence from the minimum to the maximum with each measure and the effect of a one unit change in each.

Table 5.3. Integrated Model of the Effect of the Judiciary on Economic Growth

	Coefficient (Standard Error)	
	Column 1: Additive	Column 2: PAF
Judicial Institutions		
Judicial Independence	0.405*	1.065*
	(.138)	(.337)
Judicial Review	-0.369	-.475*
	(.264)	(.286)
Human Capital		
Secondary Education Enrollment	-0.046*	-0.045*
	(.012)	(.012)
Infant Mortality	-0.001	-0.001
	(.004)	(.004)
Physical Capital		
Investment Share of GDP (%)	0.087*	0.086*
	(.035)	(.035)
Government Share of GDP (%)	-0.008	-0.002
	(.023)	(.006)
Population		
Population Growth	-0.229*	-0.232*
	(.112)	(.112)
Technology		
GDP Per Capital (Logged)	1.288*	1.304*
	(.404)	(.046)
Democracy and Openness		
Democracy (POLITY)	-0.058	-0.064
	(.045)	(.046)
Economic Openness	0.002	-0.002
	(.006)	(.006)
Constant	-9.269*	-8.154*
	(3.076)	(3.046)
Autocorrelation Coefficient	.260	.260
N	1341	1341
Groups	116	116
Wald Chi^2	72.61	73.21
R^2	0.054	0.056

* $p < .05$, one-tail test

Figure 5.3 illustrates the effect of changes in judicial independence, using the additive measure and setting the other values at their means and fixing the year at 1995. As with the initial test of judicial independence using the additive measure, shifting from the minimum (-0.5) to the maximum (7) possible value of independence is substantial enough to move the growth rate from negative to positive. Moreover, controlling for judicial review in addition to the other factors, results in a larger effect of judicial independence. Specifically, a shift from the a judicial independence score of -0.5 to 1 is associated with approximately a 3-point increase in the growth rate. Substantively, then, controlling for judicial review increases the effect of judicial independence. These results are similarly borne out using the factor score measure of judicial independence.

Figure 5.4 illustrates the effect of changes in judicial independence using the factor score and setting the other values at their means and fixing the year at 1995. An increase in judicial independence from the minimum (-1.414) to the maximum (-1.417) using the factor score has a significant, substantive impact on economic growth and this impact is larger when controlling for judicial review. Similar to analyses using the additive index, a shift from the minimum to the maximum value in judicial independence is associated with approximately a 3-point shift in economic growth. Within the integrated model, then, judicial independence remains positively associated with economic growth and continues to have a sizeable substantive impact

Contrastingly, the effect of judicial review switches from positive to negative when modeled with judicial independence. Using the additive measure of judicial independence, results in *Column 1*, judicial review is negatively associated with economic growth; however, this relationship barely fails to meet statistical significance with a p-value of .082. The magnitude of the relationship is -0.389 meaning that a one unit increase in judicial review is associated with a 0.389 decrease in economic growth *controlling for the level of judicial independence.* Using the factor score of judicial independence, the effect of judicial review is also negative, with a coefficient of -0.475; however, the

relationship reaches statistical significance with a $p < .05$. Thus, using the slightly more precise measure of independence to control for the effect, judicial review is significantly associated with a *decrease* in economic growth.

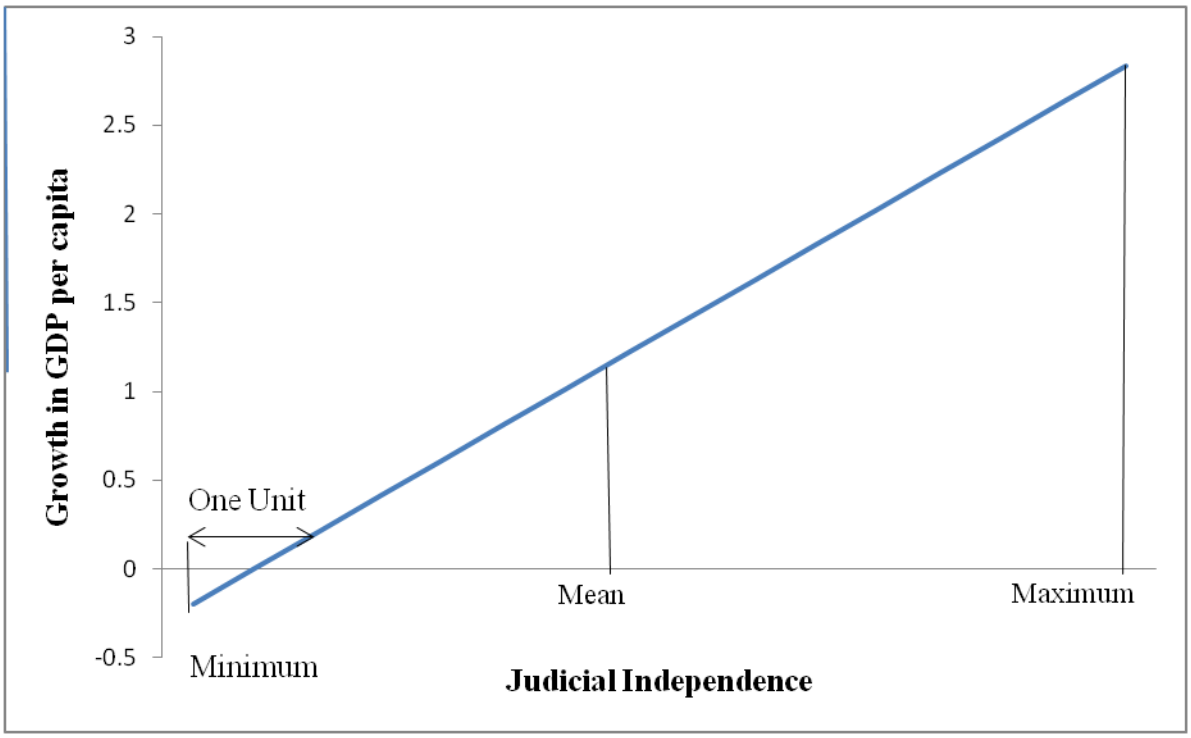

Figure 5.3. Effect of Additive Index Judicial Independence on Growth in Integrated Model

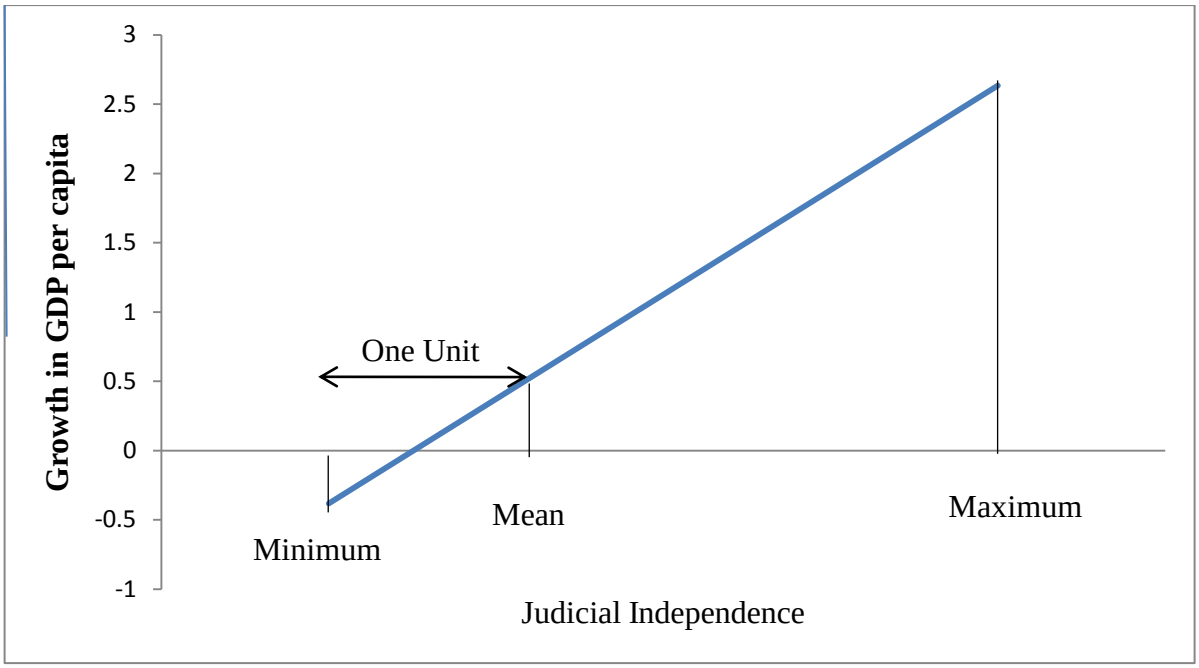

Figure 5.4. Effect of Factor Score Judicial Independence on Growth in Integrated Model

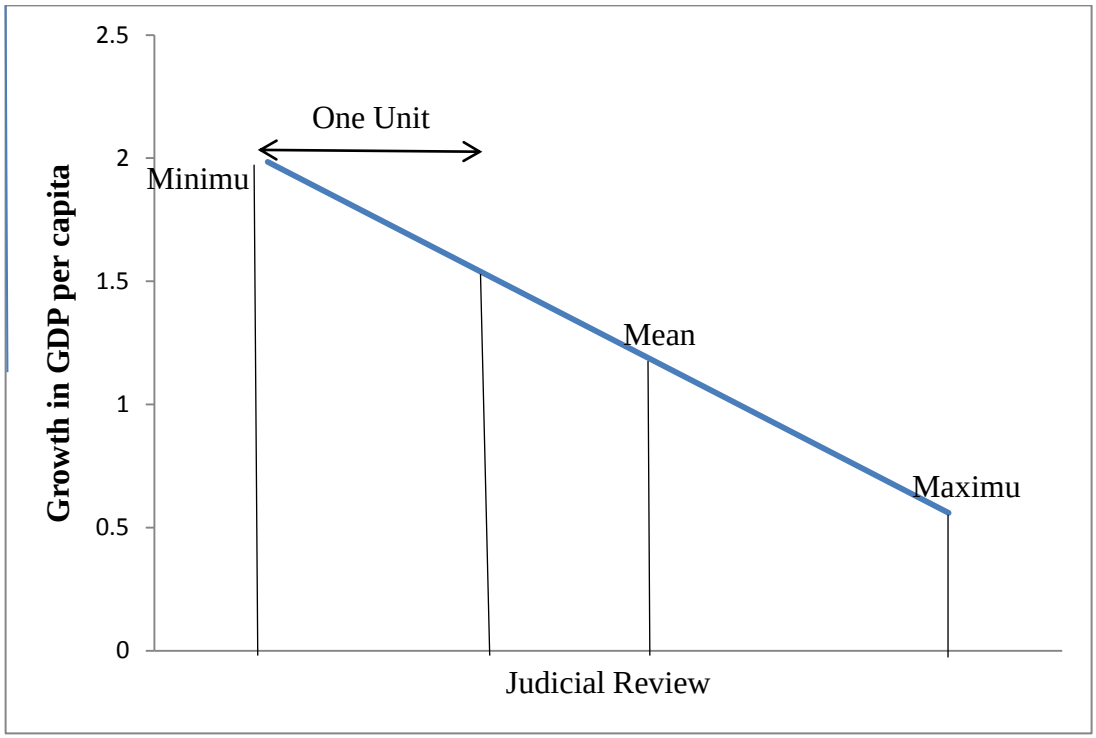

Figure 5.5. Effect of Judicial Review on Growth in Integrated Model

The relationship between growth and review is depicted in *Figure 5.5* which illustrates the impact of judicial review moving from the lowest value (-1) to the highest value (2) controlling for all other factors including judicial independence. Movement from a judicial review value of -1 to a value of 2 results in a substantive decrease in economic growth, which is statistically significant. More precisely, movement across the entire scale of review is associated with nearly a 1.5-point decline in growth. Thus, when controlling for judicial independence, judicial review leads to a decline in economic growth. While this does not support my second hypothesis, it is consistent with my argument that judicial review does not facilitate growth. Moreover, these findings suggest that judicial review power may actual harm growth.[47]

[47] Because judicial review and judicial independence are closed related conceptually, it is possible that their effects interact. If this were the case, failure to include a measurement of the interaction relationship would bias the results. I therefore re-run the integrated models including an interaction between independence and review. The interaction term is insignificant and does not substantively change the primary results of the analysis, though it does cause some variables to become insignificant. The change of significance is most likely the result of collinearity caused by the interaction. Because

Through purely ad hoc theorization, I speculate on two possible reasons for the negative relationship between judicial review and economic growth. First, in certain types of economies, namely those driven by a developmental state, judicial review may be harmful because it acts as a barrier that prevents the government from implementing necessary economic policy. Under the traditionally held beliefs that a lack of government involvement in the economy produces higher rates of growth, the theorized effect of judicial review is either null or beneficial because power of judicial review enables courts to block actions of the elected branches of government, or the majority, thereby preventing government intervention (Beard 1911; *see Chapter 2*). More recent theories of growth, however, contend that in developmental state economies intensive state intervention is fundamental to growth (Amsden 1989; Johnson 1982; Onis 1991; Wade 1990).[48] Looking primarily at the development of East Asian countries (or the "East Asian Miracles"), studies contend that the cause of rapid growth rates in countries such as Japan, South Korea, Hong Kong, and Taiwan is the commanding role their governments played in directing the economy. Specifically, they argue that the economies enjoyed unprecedented rates of growth because their governments had the autonomy to direct industrial policy. Indeed, Onis (1991, 110) states that "[a]ll successful cases of 'late industrialization' have been associated with a significant degree of state intervention."

In these state-directed economies, judicial review may be harmful because it decreases government autonomy and prevent actors from implementing necessary policy. In a successful developmental state, the government's interests are deeply embedded in those of society and it has the autonomy to direct economic policy, so that its policy benefits the collective economic good rather than is used for rent-seeking. Because of this, government directed economic policy serves to coordinate and facilitate investment and technological advancement which pushes economic growth

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the interaction is not theoretically or statistically justified and potentially creates statistically difficulties, it is omitted. The results of these analyses are presented in *Appendix I.*

[48] For excellent overviews of the developmental state theory see Onis (1991) and Castells (1992).

(Onis 1991). Judicial review, however, by allowing courts to prevent government action, can stymie the implementation of industrial policy. As a result, judicial review may harm economic growth in developmental states and this may account for the negative relationship.

A second potential explanation for the negative relationship is that rather than block the government, judicial review may harm growth by serving to facilitate governmental actors infringing upon economic rights. While judicial review is thought of as a negative power used to block the government, it can also be used to legitimize governmental actions when judges rule in favor of the government. In these instances, a judiciary with the authority of judicial review may actually facilitate the government's encroachment on rights by providing their actions constitutional legitimacy.[49] By having the power of judicial review and approving governmental actions, courts are implicitly, or even explicitly, stating that those actions are permissible under the constitution thereby blocking any recourse via appeals to higher law. As such, judicial review, especially yielded by dependent courts, can strengthen the foundation for government encroachment by conferring legitimacy (Dahl 1957). Having this legitimacy enables actors to more easily violate economic rights with fewer challenges which may, in turn, harm economic growth. Judicial review, then, serving to legitimize harmful policy, may have a negative effect on growth thereby accounting for the negative relationship.

The rest of the model performs similarly to the prior models and according to expectations which bolsters confidence in the overall model and findings regarding the effect of the judiciary. Both of the integrated models of growth using either the additive index or the factor scores produce identical statistical results with regards to the other variables in the model and very similar results in the coefficients, or substantive results, though with minute differences. In both of the integrated models, secondary school enrollment, investment share GDP, population growth, and logged GDP per capita are significantly associated with economic growth at the .05 level. These findings are the same as in

[49] Some governments have used judiciaries lacking in independence for the purpose of legitimizing their questionable behavior (Tate 1994).

the prior three analysis. Specifically, secondary school enrollment, which measures human capital, is positively and significantly associated with economic growth. Investment share GDP, which measures physical capital, is also positively associated with economic growth, while population growth has a negative relationship. Logged GDP per capital, which measures technological advancement, is positively associated with economic growth. Thus, increases in human and physical capital and technological advancements lead to economic growth while population growth alone leads to a decline in the growth rate.

As in the prior models, neither economic openness nor level of democracy reach statistical significance, and both are negatively correlated with economic growth. Economic openness has a negative relationship with growth at a magnitude of 0.002; however, this relationship does not meet statistical standards for significance, thus it does not appear to be associated with growth. Similarly, democracy is negatively associated with growth at 0.062 but is not significant. Thus, I cannot conclude that they have an impact on economic growth.

Overall, the model appears to be substantively sound and robust. The effects of the factors included in the model remain stable both with regards to statistical significance and magnitude across different model specifications. The results, therefore, appear to be extremely robust. Since the model performs so well, I have greater confidence in the results reported by the model and the finding of the effects of judicial institutions. To summarize, I find that increases in judicial independence are associated in increased growth in GDP per capita. These results hold across different measurement approaches and while controlling for judicial review. I also find that increases in judicial review are associated with decreases in economic growth when controlling for judicial independence. Judicial institutions, therefore, can facilitate economic growth; however, while judicial independence is helpful, judicial review is potentially harmful. However, the effect of judicial review may not be steady across

all systems; rather, it may be conditioned on the nature of economic rights in a country's constitution.[50] I conduct a preliminary test of this third hypothesis: judicial review leads to an increase in economic growth when constitutionally enumerated economic rights exist, in the following section, *5.5.*

5.5. Conditional Effect of Judicial Review

Methodology. To test the effect of judicial review conditioned on economic rights, I examine a subsample of cases in a single year. Since the data are cross-sectional and the dependent variable is a scale variable, I conduct an ordinary least squares regression (OLS) analysis with robust standard errors to correct for heterogeneity.[51] I build on the integrated model of economic growth which consists of the base model of economic growth with measures of democracy and economic openness as well as judicial independence, measured with the factor score, and judicial review. To examine the conditional effect of judicial review, I also include a measure of economic rights protections and an interaction between economic rights and judicial review. The interaction enables me to test for the presence of a conditional relationship because it shows the effect of changes in judicial review depending on levels of economic rights protection.

Results. The model is statistically significant and performs well with an r-square of 0.191, thus the model explains about 19% of the variance. The first column of *Table 5.4, "Conditional Model"*, presents the results of the conditional model of judicial review with an interaction term as the variable of interest. Judicial review, consistent with the other models, is significantly and negatively associated with economic growth with a coefficient of -2.005. Thus, when a country does not constitutionally protection economic rights (economic rights = 0), judicial review has a negative relationship with economic growth such that a one unit increase in judicial review is associated with a decrease of 2.005 in growth. Similarly, the presence of constitutionally enumerated economic rights is significantly and

[50] See Chapter 2 for a full discussion.

[51] To test the validity of the OLS assumption of constant errors, I conduct a Breusch-Pagan test and obtain a significant coefficient, $p < .01$, thereby indicating that the errors are heterogeneous. As such, I include robust standard errors to correct for this assumption violation.

negatively associated with economic growth such that a one unit increase in economic rights protections results in a 0.492 decline in economic growth when judicial review is coded '0'. Alone then, both economic rights and judicial review are negatively associated with growth.

However, the relationship between the economic growth and the constitutional provision of judicial review depends in part on the degree to which economic rights are protected. Among countries where economic rights are not protected, the constitutional provision of judicial review is associated with *less* economic growth. Among countries where economic rights are protected, the constitutional provision of judicial review is associated with *more* economic growth. More particularly, the size of the conditional effect is large enough that when the level of economic rights protections is just slightly above average, approximately 3.9, the overall effect of judicial review on growth switches from negative to positive. *Figure 5.6* graphically displays the effect of judicial review on economic growth for different levels of economic rights protections holding all other variables at their mean. At the minimum possible level of economic rights protections, '0', judicial review has a negative effect on economic growth. At the average level of economic rights protections '3.465', judicial review still has negative effect on economic growth; however, the magnitude of the effect is greatly smaller. Contrastingly, at the highest level of economic rights protection, '8.5', judicial review has a strong positive effect on growth.

These results support the third hypothesis that when constitutions explicitly protect economic rights, judicial review can have a positive effect on economic growth. In the absence of economic rights, judicial review has a negative influence on economic growth; however, these results indicate that the negative effect of judicial review can be negated if the constitution also specifies economic rights protections. Overall, my findings indicate that judicial review can have an important effect on economic growth, but that the nature of the effect is highly conditional on the level of rights protection found within the constitution.

Table 5.4. The Conditional Effect of Judicial Review on Economic Growth

	Coefficient (Robust Standard Error)				
	Conditional Model	Judicial Independence	Judicial Review	Judicial Independence and Review	Independence, Review, and Economic Rights
Judicial Institutions					
Judicial Independence	-0.414	-0.429	----------	-0.254	-0.271
	(.915)	(.524)		(.882)	(.913)
Judicial Review	-2.005*	----------	-0.404	-0.254	-0.303
	(.963)		(.536)	(.871)	(.863)
Economic Rights					
Economic Rights	-0.492*	----------	----------	----------	0.097
	(.285)				(.299)
Interaction of Judicial Review and Economic Rights	**0.523***	----------	----------	----------	----------
	(.264)				
Human Capital					
Secondary Education Enrollment	0.021	0.012	0.006	0.009	0.010
	(.033)	(.034)	(.034)	(.035)	(.035)
Infant Mortality	-0.010	-0.007	-0.005	-0.006	-0.007
	(.014)	(.015)	(.015)	(.015)	(.015)
Physical Capital					
Investment Share of GDP (%)	0.056	0.047	0.033	0.040	0.042
	(.119)	(.120)	(.124)	(.117)	(.118)
Government Share of GDP (%)	0.040	0.034	0.038	0.038	0.038
	(.071)	(.074)	(.008)	(.073)	(.075)
Population					
Population Growth	-0.903	-0.979	-1.005	-1.001	-0.978
	(.708)	(.711)	(.704)	(.707)	(.722)
Technology					
GDP Per Capital (Logged)	-1.470	-1.217	-1.013	-1.118	-1.101
	(1.594)	(1.620)	(1.632)	(1.605)	(1.642)
Democracy and Openness					
Democracy (POLITY)	-0.074	-0.107	-0.114	-0.108	-0.106
	(.102)	(.098)	(.092)	(.098)	(.098)
Economic Openness	0.004	0.002	0.003	.003	0.003
	(.007)	(.008)	(.008)	(.008)	(.008)
Constant	15.114	12.562	11.633	12.125	11.618
	(11.562)	(11.310)	(11.376)	(11.283)	(12.072)
N	51	51	51	51	51
R^2	.191	.132	.132	.133	.136

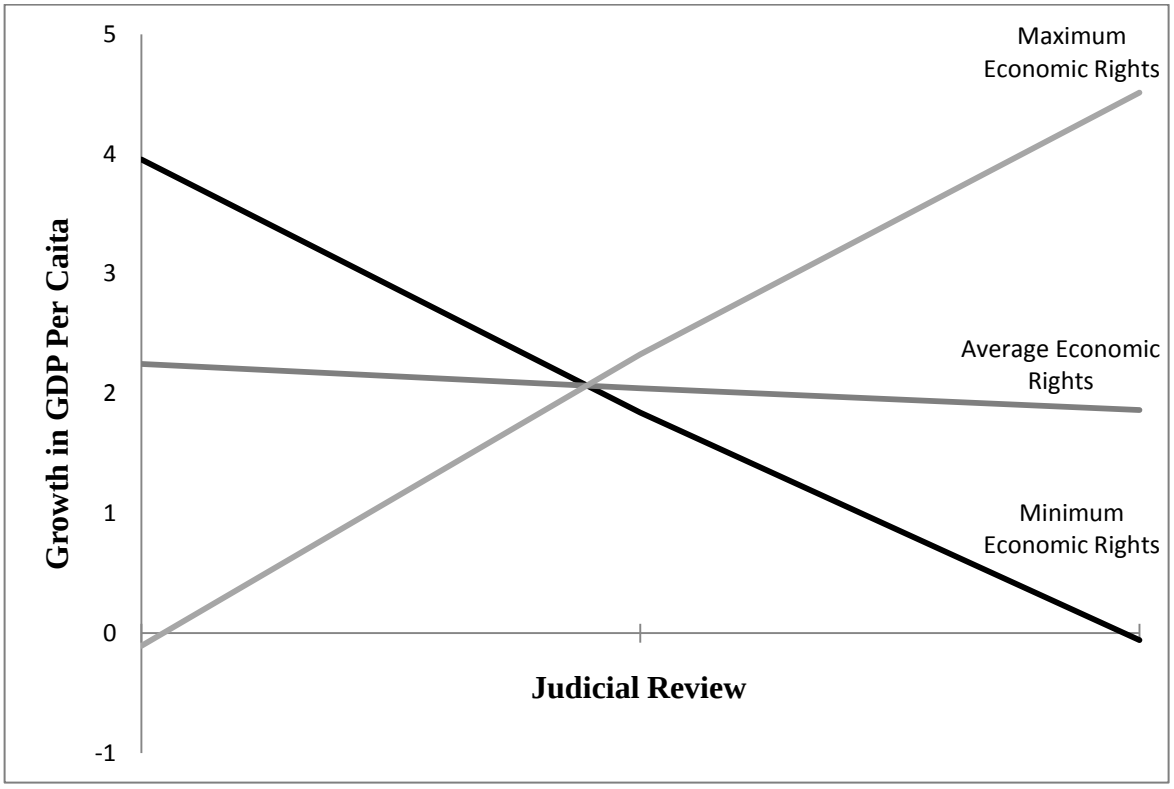

Figure 5.6. Effect of Judicial Review Conditioned on Economic Rights Protections

To test the robustness of the model, I also present variations of the model specification removing judicial and economic rights factors in *Table 5.4*. *Column* 2, 'Judicial Independence', presents the analysis but testing the effect of judicial independence in isolation. *Column 3*, 'Judicial Review', presents the analysis testing only judicial review. *Column 4*, 'Judicial Independence and Judicial Review', omits economic rights and the interaction, while *Column 5*, 'Independence, Review, and Economic Rights,' only omits the interaction. For all specifications without the interaction, the model is statistically significant with a stable r-squared, which is expected since none of the variables reach statistical significance. With the exception of judicial review and economic rights, the direction of the coefficient of all of the variables remains the same across all specifications, and the magnitudes of the coefficients and their standard errors remain very similar. Moreover, the significance level of those variables remains unchanged. For judicial review and economic rights, the magnitude, standard error, and significance of the coefficients are different in the models without the interaction term.

Neither judicial review nor economic rights achieve statistical significance without the interaction. The changes in these variables are expected and even bolster the reliability of their relationship to economic growth.

Problematically, the rest of the model fails to perform as expected based upon earlier studies or the previous models; indeed, many factors perform the opposite of earlier models. The coefficients for infant mortality, population growth, investment share of GDP, democracy and economic openness all perform consistently with the previous models and close to expectations. Despite light of the lack of significance, the consistency in the direction of the coefficients provides validity for the model and the results. Problematically, however, judicial independence is negatively associated with growth while secondary education enrollment is positive, which is opposite of the prior models. Similarly, technological advancement, measured by the logged GDP per capita, is negative. Each of these variables had very strong effects in the opposite direction in prior analyses. Because of this lack of consistency, the findings from this analysis may be viewed as tentatively supporting my hypotheses; however, they are far from conclusive and must be subjected to scrutiny.

5.6. Summary

To summarize, I find support for my first hypothesis but not for my second hypothesis. Both measures of judicial independence are significantly and positively associated with economic growth, even controlling for judicial review. Thus, I find that my results support my first hypothesis that judicial independence is associated with an increased in economic growth. My second hypothesis that judicial review is unassociated with economic growth is not supported. When controlling for the effects of judicial independence, judicial review is negatively and significantly associated with economic growth, indicating that increased judicial review power results in a decline in the economic growth rate. Though these findings do not support my hypothesis, they provide important insight into the relationship between the judiciary and economic growth and the nature of judicial review in

general. Specifically, this study shows that the judiciary is not always beneficial and that too much power in the judiciary may have negative consequences for growth.

My results also support the propositions of the endogenous economic growth model. In line with previous studies, increased human capital, physical capital, and technology all lead to increases in the rate of economic growth. Measures of all three were positively and significantly associated with economic growth across the first three models tested. Also following the literature, population growth is found to be negatively associated with economic growth. Contrastingly, I cannot conclude that democracy or economic openness influence economic growth either positively or negatively. Both measures are not significantly associated with growth in all of the multivariate models. I, therefore, fail to find a relationship between those factors and growth.

The preliminary test of my third hypothesis supports the argument that the effect of judicial review varies based upon the presence of constitutionally enumerated rights. Testing a subsample of 57 cases in a single year, my analysis shows that as the level of economic rights protections increases, the effect of judicial review becomes positive. While without the presence of economic rights, judicial review is negatively associated with growth. The magnitude of the conditional effect is large enough to negate the base negative effect of judicial review such that when a certain level of economic rights is guaranteed, the overall effect of judicial review is positive. Thus, judicial review may have a positive relationship with economic growth if the constitutional explicitly protects economic rights. These findings, however, must be viewed as preliminary and be taken with caution.

CHAPTER 6: CONCLUSIONS

This dissertation makes an important contribution to scholarly literature by rigorously examining the effect of the judiciary on economic growth. The effect of judicial institutions on economic growth is generally believed to be positive; as a result, international organizations have invested millions of dollars in developing countries to aid the development of their judicial systems. However, few studies empirically evaluate the nature of the relationship between the judiciary and economic growth. My dissertation helps fill this gap in the literature by using a large-n research design to empirically assess the relationship between the judiciary and economic growth. Generally, I argue that judicial characteristics do not uniformly influence growth; rather, different features may have different effects. In particular, I test the effect of two judicial characteristics, judicial independence and judicial review, on economic growth. Specifically, I test three hypotheses. First, I hypothesize that judicial independence has a direct, positive effect on economic growth; whereas, my second hypothesis argues that judicial review has no direct effect. My third hypothesis is that in systems with constitutionally enumerated economic rights, judicial review has a positive effect on economic growth.

6.1. Summary of Findings

My dissertation produces mixed support for my three hypotheses. Examining 117 countries across 12 years using a time-series cross-sectional, multivariate analysis, I find that increased levels of judicial independence are significantly associated with increased rates of economic growth. The empirical support for this finding is quite robust. The effect of judicial independence remains statistically significant and substantively stable using either of two measures of judicial independence, an additive index or a factor score. Specifically, a change from the minimum possible level of judicial independence to the maximum level is associated with a 2.5 to 3 point increase in GDP growth per capita, even when controlling for the effects of judicial review. Because of the robustness of my findings, I have a high level of confidence that judicial independence facilitates economic growth.

Using the same design and sample of cases, my study produces mixed support for my second hypothesis that judicial review is unassociated with economic growth. In a multivariate analysis excluding judicial independence, judicial review is not statistically associated with economic growth. However, when controlling for the effects of judicial independence, increased judicial review power is associated with a decrease in economic growth. I speculate that there are two possible explanations for the negative effect of judicial review. First, in economies dependent upon a developmental state for growth, judicial review may hinder the government's autonomy and thus ability to implement necessary economic policy which leads to lower levels of growth. Alternatively, judicial review may be used to legitimize policy harmful to economic rights and growth by courts that align with the elected officials. By legitimizing policy, judges ease the way for leaders to interfere with the economy by, for instance, expropriating property. As a result, investors' willingness to participate declines which stunts subsequent growth.

Though the finding of a negative effect of judicial review conflicts with my hypothesis, the results highlight the need to disentangle judicial characteristics in order to understand the effect of judiciaries on growth. Most broadly, this finding shows that various judicial characteristics can have different effects on economic growth. Moreover, it demonstrates that the general belief that stronger, more independent judiciaries are beneficial is empirically unsound by providing evidence that increased judicial power can be harmful. This finding, however, must be further evaluated before the relationship between judicial review and growth is fully understood. The support for the effect of judicial review is less robust than those for the effect judicial independence; further, the effect of judicial review may be more nuanced than a simple direct test would suggest.

The notion that the effect of judicial review on economic growth may be nuanced is substantiated by my finding of support for my third hypothesis that the effect of judicial review is conditioned on the presence of constitutional economic rights. Examining a subsample of 57 cases for

2002, I find that the relationship between judicial review and economic rights depends upon the extent to which a country's constitution protects economic rights. Specifically, in the absence of constitutional economic rights protections, judicial review has a significantly negative relationship with economic growth, thus the higher level of judicial review power granted to courts the lower the rate of growth in GDP per capita. However, the negative effect of judicial review diminishes when the constitution protects economic rights to the extent to which, when economic rights protection is strong enough, the overall effect of judicial review is positive.

Based upon these findings, I conclude that the presence of constitutionally enumerated economic rights can negate the harmful effects of judicial review or even result in judicial review exerting a positive effect on growth. While the results of this analysis provide clear support for my third hypothesis and greatly illuminate the relationship between courts and the economy, the findings are extremely preliminary and suggest the need for further research. Unlike the models testing the direct effects of judicial review and judicial independence, I was only able to examine a small subsample of cases for a single year. As a result, the findings are limited in generalizability, and I cannot be sure that the relationship is not particular to that single year or sample of countries. Nevertheless, the findings demonstrate the potential complexities in understanding the relationship between the judiciary and the economy.

6.2. Limitations

While my study provides compelling evidence that judicial independence and judicial review impact economic growth, the findings are limited due to the nature of the research design employed. The biggest limitation of this study concerns the conclusion about the conditional effects of judicial review on economic growth. Though the analysis clearly demonstrates that the relationship between judicial review and economic growth depends upon the level of constitutional economic rights protections, the results must be viewed as preliminary. The sample of cases is small and not perfectly

representative, despite the fact that substantial variation exists within the variables of interest. As a result, I cannot be sure that the findings are not idiosyncratic to the sample of cases examined.

The limitations of this analysis are highlighted by the failure of the rest of the conditional model to perform according to expectations or even consistently with the other analyses in this study. No explanatory variables obtained statistical significance besides the judicial review and economic rights variables, which is problematic because, in the previous analyses and prior studies, other factors (including human capital, physical capital, technological advancement, and judicial independence) were shown to consistently affect economic growth. The lack of consistency within the model indicates a potential lack of reliability in the findings and, as a result, the conclusions, while suggestive, are tentative and not definitive.

The conditional judicial review analysis is further limited because it is of a single year not over time. The lack of cross-temporal variation in the design prohibits examination of dynamic effects, thus the conclusions must be limited to cross-sectional variation not temporal changes in growth. Moreover, the single year analysis could be contributing to the lack of consistency within the model if year specific influences are affecting the results. Thus, I am restrained from offering broad generalizations by the small sample of cases taken in a single year. As a result of the limitations of the study, more research into the nature of the relationship between judicial review and economic growth is needed. The findings of the conditional effect of judicial review, then, should be viewed as a preliminary test that is suggestive of a potential relationship; however, further investigation is necessary for more a more conclusive understanding of the effect of judicial review on economic growth.

While the single year time period for which the conditional effect of judicial review is examined is especially problematic, the generalizability of the other analyses of this study is also limited by the time period under analysis. To test the direct effects of judicial independence and

judicial review, a 12 year time period is analyzed. Though this is a substantial period of time in which to examine the dynamics of economic growth, the period examined (1990-2004) may be unique with regards to the nature and setting of the economies under analysis. Specifically, this time period captures the transitions of post-Communist countries, post-industrialization, and during a time of relative peace. As such, it would be presumptuous to argue that the relationship between the judiciary and economic growth asserted in this paper is universally applicable to all types of economies across all time periods. Rather, for more widely generalized conclusions, the time period would need to be expanded in order to include other types of political, social, and economic settings and conditions.

Another potential limitation of this study is the utilization of *de jure* measures of judicial institutions rather than *de facto* measures. Though my study shows that *de jure* judicial characteristics significantly affect economic growth, *de jure* measures do not necessary capture the true institutional characteristics in practice. The results of my analysis, therefore, provide evidence that constitutional judicial characteristics effect economic growth, which, in light of the theoretical effect of the judiciary, is expected. The potential remains, however, that *de facto* judicial independence and judicial review may have different or additional effects on growth that are not being tested with *de jure* measures. To fully understand the nature of the effect of the judiciary, then, the effect of *de facto* judicial characteristics must be explored. While such an undertaking was not feasible for this project due to data availability and reliability problems, developing reliable, replicable measures of judicial characteristics would be a worthwhile and important task that could surely be used to expand our understanding of the role and effect of courts.

Finally, my dissertation explores the effects of only two judicial characteristics while other aspects of judiciaries may also influence economic growth. Studies, for instance suggest that judicial efficiency (Dan 2006; Eyzaguirre 1996; Pinheiro 1996; North 1990, 1991) and/or legal origins (La Porta et al. 2004) may affect the effect of the judiciary on growth. Because I do not test the effect of

these judicial characteristics, my dissertation only explains part of the relationship. Nevertheless, it confirms the importance of the judiciary and thus demonstrates the value of further inquiries into the effect of judicial systems.

6.3. Implications

Despite the limitations described above, my findings make important contributions to our understanding of the relationship between the judiciary and the economy which has practical policy implications. First, I confirm the traditionally held belief that judiciaries can facilitate economic growth by empirically demonstrating that judicial independence is positively associated with economic growth. The results of my study show that increases judicial independence can potentially improve economic performance. As such, I provide evidence that supports the importance of international aid programs that improve countries' judiciaries. Moreover, my findings suggest that establishing an independent judiciary is especially important if judiciaries are to aid growth and, as such, emphasize the need to focus on the ability of judges to act independently, amongst other judicial factors, in international aid efforts.

Second, I find that stronger judiciaries do not always facilitate economic growth and, as a result, suggest that reform policies must be mindful of the possibility that vesting too much power in judiciaries may have the opposite intended effect. My finding that granting courts the power of judicial review in the absence of economic rights is negatively associated with economic growth indicates that when judiciaries are given too much power, or specific types of power, they can have a deleterious effect on growth.

Most importantly, the results of this study suggest that attempts to improve judiciaries in order to facilitate economic growth must be mindful of other institutional and social factors that may affect the judiciary's effect on growth. Judiciaries do not act in a vacuum; rather, their influence may be affected by other features of a political, economic, or social system. My study demonstrates that the

presence of constitutional rights protections substantively affects the nature of judicial influence such that when strong enough rights protection exists, judicial review can have a positive effect as opposed to a negative one. Moreover, I speculate that the nature of the economic system, such as whether it is based on a developmental state or laissez faire capitalism, can change the effect of various judicial characteristics. This finding indicates that implementing generalized judicial reform policies may have unexpected consequences depending on other system features; instead, since the nature of the judiciary and how to best enable it to facilitate growth may be highly dependent on other factors, reform policies should be tailored to the system implementing them in order to maximize economic growth.

My dissertation also contributes more generally to our conceptual understanding of courts by highlighting the important differences between judicial independence and judicial review. By demonstrating that judicial independence and judicial review have different effects on economic growth, I provide empirical support for my conceptual argument that judicial review cannot simply be folded into judicial independence. Many studies assume that judicial independence and judicial review are conceptually equivalent and, as a result, fold them together in measurements or use them to proxy one another (e.g. Feld and Voigt 2003; see Staton, Reenok, and Radaen 2008). This study, however, shows that judicial review and judicial independence are conceptually distinct and can, in fact, have opposite effects. Merging them into a single concept or measurement is therefore problematic because is conflates the nature of the judiciary and produces results that cannot be interpreted. My study thus brings to attention the need to disentangle these two judicial characteristics when assessing the role or effect of the judiciary and suggests that future studies must be mindful of separating conceptually distinct characteristics into separate measurements.

Additionally, studies of the effect of the judiciary rarely account for the chance that its effect may be dependent upon other social or political factors; however, as my study demonstrates, these factors can alter the effect of the judiciary. For example, the effect of the judiciary may be dependent

upon the presence of enumerated rights. Though my study only looks at the conditional effect of judicial review on economic rights, the results suggests that the possibility of conditional judicial influences must be explored. For example, the effect of the judiciary on human rights or democratic stability may also be dependent upon the nature of constitutional protections. My study, therefore, in addition to shedding light on the relationship between the judiciary and economic growth, provides both empirical and theoretical foundations with which to better understand the effect of the judicial more generally.

6.4. Future Research

This study provides an excellent foundation for further empirical inquiries into the effect of the judiciary on economic growth. The findings of this study could be more broadly generalized if the time frame of analysis and sample of countries were expanded. Specifically, expanding the time frame would better enabled us to understand the relationship between the judiciary and economic growth by testing whether the relationship is stable across different periods of time and thus different types of economic transitions. Additionally, though the sample of cases currently analyzed is sizeable and varies substantively, including a larger number of countries would increase the amount of variation and thus increase the generalizability of findings.

Future research could further explore the relationship between the judiciary and the economy by examining whether it is varies across social, political, and economic systems. For example, I speculate that in particular economic systems, those driven by a developmental state, judicial review may have a harmful effect on growth. This proposition should be tested by examining whether the relationship between the judiciary and economy varies based upon the economic setting. Additional studies, then, should seek to further explore the effect of the judiciary by examining the relationship amongst subsamples of countries.

Also, to more fully understand the effect of the judiciary, the conditional nature of the relationship between the economy and judiciary should be explored. In particular, the effect of judicial review based upon the presence of constitutionally enumerated economic rights needs to be more broadly tested on a larger sample of cases and over a wider period of time. Though the results of this study are suggestive, the effect of judicial review should be more fully explored in order to reach meaningful and generalizable conclusions. Furthermore, when theorizing about the effect of the judiciary generally, the possibility that the relationship is conditioned upon other constitutional or institutional factors should be explored. By assuming that the judiciary's influence is direct, we potentially misunderstand its effect and under, or over, estimate its importance. As such, we must remain cognizant of the possibility that judicial influence is complex and may be indirect and empirically assess the complete relationship.

Another useful test of the relationship between the judiciary and the economy would be to evaluate the judiciary's influence within the United States (US). Two useful tests could be conducted in the United States. First, this study can be replicated across US states across time which would provide variation in levels of judicial independence and review as well economic growth but hold constant much of the social and cultural variation found in cross-national studies. As such, by examining US states, the effect of the judiciary can be better isolated. Second, the effect of the judiciary, particularly judicial review, can be explored by examining the effect of the evolution of review on economic growth throughout the history of the United States. Judicial review originated in the United States Supreme Court and its development has been well documented and extensively studied[52]. Arguably, then, the power of judicial review is most fully understood in the US context. Because of this, we could gain much insight into the role and effect of judicial review by examining the United States.

[52] See La Porta et al. 2004 for historical overview and citations.

Research must also look into examining the channels through which the judiciary effects economic growth. The theories expounded in this study theorize two mechanisms through which the judiciary aids growth. First, the judiciary facilitates growth by improving the investment climate of a country thereby increasing rates of investment. Second, the judiciary facilitates growth by decreasing the cost of contract enforcement thus increasing the efficient contracting. The validity of these channels should be subjected to further scrutiny. Specifically, studies can explore the relationship between the judiciary and rates of investment and contracting as well as the effect of the judiciary on factors that affect each such as interest rates. Furthering this study in this manner would help paint a more complete picture of the effect of the judiciary.

Finally, the broader findings of this study should be applied towards understanding the effect of the judiciary on other social and political phenomenon such as respect for human rights and democratic stability. In particular, other studies must take care to disentangle the effects of judicial review and judicial independence. As evidenced by this study, the two concepts cannot be merged into a single measure without jeopardizing the validity of the findings. To understand the effect of the judiciary, then, studies must take care to keep conceptually distinct characteristics separate in measurements. Additionally, other studies may benefit from exploring whether the effect of the judiciary differs depending on constitutional protections or other institutional features. Studies on respect for human rights should especially explore whether the effect of judicial review is conditioned on constitutional protections of civil rights. Similar to the effect of the judiciary on the economy, judiciaries' ability to facilitate human rights protection may be constrained by the extent to which the law, domestic and international, provides them with the grounds to prevent other governmental action.

In total, my dissertation provides important insight into the nature of the relationship between the judiciary and economic growth. Specifically, it provides evidence that judicial independence aids growth while judicial review harms growth unless a country possess strongly enumerated economic

rights protections. More importantly, it serves as a springboard from which to launch further explorations into the effect of the judiciary on growth and more generally. In particular, three general lessons should be taken from this project. First, judicial independence and review are conceptually distinct and, as such, may have separated effects; therefore, they cannot be merged into a single measurement. Second, the effect of the judiciary may be contingent on other institutional factors, so to fully understand the effect, other factors must be taken into account. Third, the effect of the judiciary may vary across political, economic, and social systems so we must be cautious in broadly generalizing the effect of the judiciary.

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APPENDIX A: UN BASIC PRINCIPLES

The following is the list of recommended basic principles for judicial independence made by the UN Special Rappteur (1995).

1. The independence of the judiciary shall be guaranteed by the State and enshrined in the Constitution or the law of the country. It is the duty of all governmental and other institutions to respect and observe the independence of the judiciary.
2. The judiciary shall decide matters before them impartially, on the basis of facts and in accordance with the law, without any restrictions, improper influences, inducements, pressures, threats or interferences, direct or indirect, from any quarter or for any reason.
3. The judiciary shall have jurisdiction over all issues of a judicial nature and shall have exclusive authority to decide whether an issue submitted for its decision is within its competence as defined by law.
4. There shall not be any inappropriate or unwarranted interference with the judicial process, nor shall judicial decisions by the courts be subject to revision. This principle is without prejudice to judicial review or to mitigation or commutation by competent authorities of sentences imposed by the judiciary, in accordance with the law.
5. Everyone shall have the right to be tried by ordinary courts or tribunals using established legal procedures. Tribunals that do not use the duly established procedures of the legal process shall not be created to displace the jurisdiction belonging to the ordinary courts or judicial tribunals.
6. The principle of the independence of the judiciary entitles and requires the judiciary to ensure that judicial proceedings are conducted fairly and that the rights of the parties are respected.
7. It is the duty of each Member State to provide adequate resources to enable the judiciary to properly perform its functions.
8. In accordance with the Universal Declaration of Human Rights, members of the judiciary are like other citizens entitled to freedom of expression, belief, association and assembly; provided, however, that in exercising such rights, judges shall always conduct themselves in such a manner as to preserve the dignity of their office and the impartiality and independence of the judiciary.
9. Judges shall be free to form and join associations of judges or other organizations to represent their interests, to promote their professional training and to protect their judicial independence.
10. Persons selected for judicial office shall be individuals of integrity and ability with appropriate training or qualifications in law. Any method of judicial selection shall safeguard against judicial appointments for improper motives. In the selection of judges, there shall be no discrimination against a person on the grounds of race, colour, sex, religion, political or other opinion, national or social origin, property, birth or status, except that a requirement, that a candidate for judicial office must be a national of the country concerned, shall not be considered discriminatory.
11. The term of office of judges, their independence, security, adequate remuneration, conditions of service, pensions and the age of retirement shall be adequately secured by law.
12. Judges, whether appointed or elected, shall have guaranteed tenure until a mandatory retirement age or the expiry of their term of office, where such exists.
13. Promotion of judges, wherever such a system exists, should be based on objective factors, in particular ability, integrity and experience.
14. The assignment of cases to judges within the court to which they belong is an internal matter of judicial administration. Professional secrecy and immunity

15. The judiciary shall be bound by professional secrecy with regard to their deliberations and to confidential information acquired in the course of their duties other than in public proceedings, and shall not be compelled to testify on such matters.
16. Without prejudice to any disciplinary procedure or to any right of appeal or to compensation from the State, in accordance with national law, judges should enjoy personal immunity from civil suits for monetary damages for improper acts or omissions in the exercise of their judicial functions.
17. A charge or complaint made against a judge in his/her judicial and professional capacity shall be processed expeditiously and fairly under an appropriate procedure. The judge shall have the right to a fair hearing. The examination of the matter at its initial stage shall be kept confidential, unless otherwise requested by the judge.
18. Judges shall be subject to suspension or removal only for reasons of incapacity or behaviour that renders them unfit to discharge their duties.
19. All disciplinary, suspension or removal proceedings shall be determined in accordance with established standards of judicial conduct.
20. Decisions in disciplinary, suspension or removal proceedings should be subject to an independent review. This principle may not apply to the decisions of the highest court and those of the legislature in impeachment or similar proceedings.

APPENDIX B: JUDICIAL INDEPENDENCE BY REGIME AND REGION

Table B.1. Percentage of Countries with Judicial Independence by Regime Type and Region

	Democracy[a]	Dictatorship[a]	Africa	Oceana[b]	North America	Asia	Europe	Latin America
-0.5	0.32	2.50	4.17	0.00	0.00	0.32	0.00	0.00
0	9.47	24.78	16.23	20.0	0.00	26.30	12.58	10.00
.5	1.75	7.29	8.04	0.00	0.00	3.25	0.00	5.90
1	3.08	6.49	2.94	10.00	0.00	7.95	4.42	1.03
1.5	0.57	5.99	3.55	0.00	0.00	4.55	0.00	4.10
2	9.64	11.39	10.36	20.00	0.00	12.01	8.39	7.18
2.5	5.02	6.79	8.96	10.00	50.00	2.44	0.00	7.95
3	12.87	5.49	8.81	10.00	50.00	4.22	16.34	7.95
3.5	7.21	4.90	6.18	0.00	0.00	3.90	13.69	3.08
4	8.18	6.59	10.82	0.00	0.00	3.90	10.82	6.15
4.5	9.47	4.60	4.79	10.00	0.00	8.28	7.73	8.46
5	17.33	5.19	10.66	10.00	0.00	13.31	12.14	12.05
5.5	4.13	1.10	0.31	0.00	0.00	0.00	2.21	12.82
6	7.77	6.09	4.17	1.00	0.00	8.44	7.51	7.95
6.5	2.19	0.80	0.00	0.00	0.00	1.14	4.19	2.31
7	0.97	0.00	0.00	0.00	0.00	0.00	0.00	3.08

[a] Cheibub and Ghandi (2004) classification of regime type.
[b] Includes Australia, Melanesia, Micronesia, Polynesia (UN Region Code)

APPENDIX C: JUDICIAL REVIEW BY REGIME AND REGION

Table C.1. Percentage of Countries with Judicial Review by Regime Type and Region

	Review Given to Another Institution	Not Mentioned in the Constitution	Somewhat Given to Judiciary	Explicitly Given to Judiciary
Democracy[a]	1.54	40.08	15.30	43.08
Dictatorship[a]	7.39	50.55	16.98	25.07
Africa	6.03	45.90	13.60	34.47
Oceana[b]	0.00	90.00	0.00	10.00
North America	0.00	100.00	0.00	0.00
Asia	8.12	47.08	20.78	24.03
Europe	0.88	27.37	15.67	56.07
Latin America	0.00	44.36	18.46	37.18

[a] Cheibub and Ghandi (2004) classification of regime type.
[b] Includes Australia, Melanesia, Micronesia, Polynesia (UN Region Code)

APPENDIX D: COUNTRIES IN ANALYSIS

Listed below are the countries included in the time-series, cross sectional analysis.

Afghanistan
Albania
Algeria
Armenia
Australia
Austria
Azerbaijan
Bahamas
Bahrain
Bangladesh
Barbados
Belarus
Belgium
Belize
Benin
Bolivia
Brazil
Bulgaria
Cambodia
Cameroon
Chile
Costa Rica
Croatia
Czech Republic
Denmark
Dominica
Dominic Republic
Ecuador
Egypt
El Salvador
Eritrea
Estonia
Ethiopia
Fiji Islands
France
Georgia
Greece
Guatemala
Guinea-Bissau
Haiti
Honduras
Iceland
India
Indonesia
Iran
Ireland
Israel
Italy
Jamaica
Japan
Jordan
Kazakhstan
Kenya
Korea, South
Kuwait
Kyrgyzstan
Laos
Latvia
Libya
Lithuania
Macedonia
Madagascar
Malawi
Malaysia
Mali
Malta
Mauritania
Mexico
Mongolia
Morocco
Nepal
Netherlands
Niger
Nigeria
Norway
Oman
Pakistan
Papua New Guinea
Paraguay
Peru
Philippines
Poland
Portugal
Romania
Rwanda
Samoa
Saudi Arabia
Senegal
Sierra Leone
Singapore
Slovenia
Solomon Islands
South Africa
Spain
Sri Lanka
Sudan
Swaziland
Sweden
Switzerland
Syria
Tajikistan
Tanzania
Thailand
Togo
Tonga
Tunisia
Turkey
Turkmenistan
Ukraine
Uruguay
Vanuatu
Venezuela
Yemen

APPENDIX E: CODING SHEET

1) Does the constitution use the words (socio-) economic rights or similar?

1. Yes
2. No
96. other, please specify in the comments section
97. Unable to Determine

2) Does the constitution provide for a right to own property?

1. Yes
2. No
90. left explicitly to non-constitutional law
96. other, please specify in the comments section
97. Unable to Determine

3) Can the government expropriate private property under at least some conditions?

1. Yes
2. No
96. other, please specify in the comments section
97. Unable to Determine
98. Not Specified

4) What is the specified level of compensation for expropriation of private property? (Asked only if [1] is answered 1)

1. fair/just
2. full
3. appropriate
4. adequate
90. left explicitly to non-constitutional law
96. other, please specify in the comments section
97. Unable to Determine
98. Not Specified
99. Not Applicable

5) Under what conditions or for what purposes can the state expropriate private property? (Asked only if [1] is answered 1)

1. Infrastructure, public works
2. Redistribution to other citizens
3. National Defense
4. Land, natural resource preservation
5. Exploitation of natural resources
6. Land Reform
7. General Public Purpose
90. left explicitly to non-constitutional law
96. other, please specify in the comments section
97. Unable to Determine

98. Not Specified
99. Not Applicable

6) What limits/conditions are placed on the ability of the government to expropriate private property? (Asked only if [1] is answered 1)

1. certain types of property (e.g. immovable property)
2. payment must be made within specified time limits
3. allowed without compensation in times of war/emergency/urgent public need
4. only allowed through legal process or court decision
90. left explicitly to non-constitutional law
96. other, please specify in the comments section
97. Unable to Determine
98. Not Specified
99. Not Applicable

7) Does the constitution mention the right to transfer property freely?

1. Yes
2. No
96. other, please specify in the comments section
97. Unable to Determine

8) Does the constitution mention any of the following intellectual property rights?

1. Patents
2. Copyrights
3. Trademark
4. general reference to intellectual property
90. left explicitly to non-constitutional law
96. other, please specify in the comments section
97. Unable to Determine
98. Not Specified

9) Does the constitution provide for the right to choose ones occupation?

1. Yes
2. No
96. other, please specify in the comments section
97. Unable to Determine

APPENDIX F: ANALYSES WITH OUTLIERS

Table F.1. The Effect of Judicial Independence on Economic Growth with Outliers

	Coefficient (Standard Error)	
	Column 1: Additive	Column 2: PAF
Judicial Institutions		
Judicial Independence	0.352*	0.852*
	(.132)	(.293)
Human Capital		
Secondary Education Enrollment	-0.046*	-0.046*
	(.015)	(.015)
Infant Mortality	-0.001	-0.000
	(.005)	(.005)
Physical Capital		
Investment Share of GDP (%)	0.073*	0.073*
	(.041)	(.041)
Government Share of GDP (%)	-0.047	-0.047
	(.030)	(.030)
Population		
Population Growth	-0.224	-0.225
	(.163)	(.163)
Technology		
GDP Per Capital (Logged)	1.070*	1.079*
	(.550)	(.556)
Democracy and Openness		
Democracy (POLITY)	-0.058	-0.061
	(.051)	(.052)
Economic Openness	-0.000	-0.000
	(.007)	(.007)
Constant	-6.594	-5.678
	(4.274)	(4.369)
Autocorrelation Coefficient	.264	.266
N	1345	1345
Groups	116	116
Wald Chi^2	63.94*	63.70*
R^2	0.041	0.042

* $p < .05$, one-tail test

Table F.2. Effect of Judicial Review on Economic Growth with Outliers

	Coefficient (Standard Error)
Judicial Institution	
Judicial Review	0.099
	(.225)
Human Capital	
Secondary Education Enrollment	-.042*
	(.015)
Infant Mortality	-0.001
	(.041)
Physical Capital	
Investment Share of GDP (%)	0.073*
	(.041)
Government Share of GDP (%)	-0.049
	(.030)
Population	
Population Growth	-0.230
	(.163)
Technology	
GDP Per Capital (Logged)	.942*
	(.568)
Democracy and Openness	
Democracy (POLITY)	-0.018
	(.047)
Economic Openness	-0.000
	(.007)
Constant	-4.890
	(4.453)
Autocorrelation Coefficient	0.268
N	1345
Groups	116
Wald Chi^2	52.27
R^2	0.037

* $p < .05$, one-tail test

Table F.3. Integrated Model of the Effect of the Judiciary on Economic Growth with Outliers

	Coefficient (Standard Error)	
	Column 1: Additive	Column 2: PAF
Judicial Institutions		
Judicial Independence	0.464*	1.182*
	(.172)	(.407)
Judicial Review	-0.415	-.518
	(.301)	(.324)
Human Capital		
Secondary Education Enrollment	-0.048*	-0.047*
	(.015)	(.015)
Infant Mortality	-0.001	-0.000
	(.005)	(.005)
Physical Capital		
Investment Share of GDP (%)	0.069*	0.068*
	(.041)	(.040)
Government Share of GDP (%)	-0.047	-0.047
	(.030)	(.029)
Population		
Population Growth	-0.229	-0.232
	(.162)	(.162)
Technology		
GDP Per Capital (Logged)	1.104*	1.115*
	(.542)	(.548)
Democracy and Openness		
Democracy (POLITY)	-0.055	-0.059
	(.050)	(.052)
Economic Openness	0.000	-0.000
	(.007)	(.007)
Constant	-6.707	-5.405
	(4.236)	(4.341)
Autocorrelation Coefficient	.260	.259
N	1345	1345
Groups	116	116
Wald Chi^2	65.23	66.42
R^2	0.042	0.044

* $p < .05$, one-tail test

APPENDIX G: DIAGNOSTIC TESTS

In this appendix, I present the results of the diagnostic tests of my model which led me to select the model specification used. First, I conducted a Lagrange Multiplier test for autocorrelation in which I regressed the dependent variable on the model and the lagged residuals. The lagged residuals are statistically significant at the .001 level indicating the presence of first-order autocorrelation. The results of this test are presented in *Table E.1*. Next, I conduct a Bruesch-Pagan test for panel heteroskedasticity and obtained a significant chi-square which indicates the presence of panel heteroskedisticity, or variation in the errors based on panels. Then, I conducted a Hausman test for the presence of a unit specific trend, which violates the assumptions necessary to conduct a random effects model. The results of the test return a significant chi-square which indicates that the differences in the coefficients across units or time are non-random, thus a fixed effects model is required. Finally, I conducted a unit root test for nonstationarity in the dependent variable by regressing the dependent variable on a lag of the dependent variable. The results show that the coefficient on the lagged dependent variable is .251, which is not close to one. A coefficient not close to one indicates that the variable is stationary while a coefficient close to one indicates nonstationarity.

Table G.1. Lagrange Multiplier Test for Autocorrelation

	Coefficient (Standard Error)
Autocorrelation	
Lagged Residuals	0.156*
	(.026)
Judicial Institutions	
Judicial Independence	0.134
	(.130)
Judicial Review	-0.103
	(.271)
Human Capital	
Secondary Education Enrollment	-0.022*
	(.011)
Infant Mortality	-0.004
	(.005)
Physical Capital	

(Table G.1. Continued)

Investment Share of GDP (%)	0.015
	(.203)
Government Share of GDP (%)	-0.001
	(.022)
Population	
Population Growth	-0.189*
	(.101)
Technology	
GDP Per Capital (Logged)	0.785*
	(.345)
Democracy and Openness	
Democracy (POLITY)	0.048*
	(.012)
Economic Openness	0.009*
	(.005)
Constant	-4.675*
	(2.596)
N	1299

* $p < .05$, one-tail test

APPENDIX H: ANALYSES WITH LEGISLATIVE EFFECTIVENESS

One of the major questions that arise when examining the relationship between judicial institutions and economic development is whether judicial institutions are capturing the effect of other institutions, such as the legislature. Judicial independence and judicial review may be highly correlated with other institutional features and, by including them in the analysis, they may actually be capturing the effect of the other institutions. To test for this possibility, I include a measure of legislative effectiveness from (Banks 2005) which is coded on an ordinal scale from [0, 1] in which '0' indicates that no legislature exists; '1' indicates that the legislature is ineffective with the executive preventing the legislature from exercising power. 'Two' is coded when the legislature is partially effective in that the executive dominates the legislature but it can still exercise some power. 'Three' is coded when the legislature is effective with the power to override the executive.[53]

Legislative effectiveness is significantly correlated with both measures of judicial independence, at $p < .001$; however, the correlation is moderate at 0.278 for the additive index and 0.230 for the factor value. The results of the analysis with the measure of legislative effectiveness are presented in *Tables F.1, F.2, and F.3.*, which are below. In all three analyses, legislative effectiveness is insignificantly and negatively associated with economic growth. More importantly, inclusion of legislative effectiveness does not affect the relationship between economic growth and judicial institutions in that the significant values and coefficients remain nearly the same, with no changes in statistical significance. Furthermore, inclusion of legislative effectiveness does not increase the explanatory power of the model. Thus, I am left to conclude that judicial institutions have an effect on growth independent of other institutions.

[53] This measure and dataset have been frequently used in comparative analyses (e.g. Norris 2009; Barro 1991; Lerner 2002; Bollen 1986, 1993).

Table H.1. The Effect of Judicial Independence on Economic Growth with Legislative Effectiveness

	Coefficient (Standard Error)	
	Column 1: Additive	Column 2: PAF
Judicial Institutions		
Judicial Independence	0.309*	0.770*
	(.115)	(.261)
Legislative Institutions		
Legislative Effectiveness	-0.099	-0.143
	(.432)	(.433)
Human Capital		
Secondary Education Enrollment	-0.045*	-0.045*
	(012)	(.012)
Infant Mortality	0.002	0.002
	(.005)	(.005)
Physical Capital		
Investment Share of GDP (%)	0.091*	0.092*
	(.036)	(.036)
Government Share of GDP (%)	-0.008	-0.001
	(.024)	(.024)
Population		
Population Growth	-0.225*	-0.225*
	(.112)	(.112)
Technology		
GDP Per Capital (Logged)	1.286*	1.307*
	(.415)	(.419)
Democracy and Openness		
Democracy (POLITY)	-0.054	-0.054
	(.061)	(.061)
Economic Openness	-0.003	-0.003
	(.006)	(.006)
Constant	-9.270*	-8.510*
	(3.120)	(3.112)
Autocorrelation Coefficient	0.272	0.275
N	1325	1325
Groups	115	115
Wald Chi^2	68.30*	68.61*
R^2	0.053	0.054

* $p < .05$, one-tail test

Table H.2. Effect of Judicial Review on Economic Growth with Legislative Effectiveness

	Coefficient (Standard Error)
Judicial Institution	
Judicial Review	0.101
	(.228)
Legislative Institutions	
Legislative Effectiveness	-0.117
	(.463)
Human Capital	
Secondary Education Enrollment	-0.042*
	(.016)
Infant Mortality	-0.001
	(.005)
Physical Capital	
Investment Share of GDP (%)	0.073*
	(.042)
Government Share of GDP (%)	-0.050
	(.030)
Population	
Population Growth	-0.231
	(.164)
Technology	
GDP Per Capital (Logged)	0.966*
	(.463)
Democracy and Openness	
Democracy (POLITY)	-0.011
	(.065)
Economic Openness	-0.001
	(.008)
Constant	-4.923
	(4.496)
Autocorrelation Coefficient	0.274
N	1329
Groups	115
Wald Chi^2	51.74*
R^2	0.037

* $p < .05$, one-tail test

Table H.3. Integrated Model of the Effect of the Judiciary on Economic Growth with Legislative Effectiveness

	Coefficient (Standard Error)	
	Column 1: Additive	Column 2: PAF
Judicial Institutions		
Judicial Independence	0.408*	1.074*
	(.139)	(.338)
Judicial Review	-0.371	-0.448*
	(.267)	(.289)
Legislative Institutions		
Legislative Effectiveness	-0.098	-0.158
	(.430)	(.429)
Human Capital		
Secondary Education Enrollment	-0.046*	-0.046
	(.012)	(.005)
Infant Mortality	0.001	0.002
	(.005)	(.005)
Physical Capital		
Investment Share of GDP (%)	0.087*	0.087*
	(.035)	(.035)
Government Share of GDP (%)	-0.009	-0.008
	(.024)	(.024)
Population		
Population Growth	-0.229*	-0.231*
	(.112)	(.111)
Technology		
GDP Per Capital (Logged)	1.309*	1.338*
	(.413)	(.418)
Democracy and Openness		
Democracy (POLITY)	-0.052	-.051
	(.060)	(.060)
Economic Openness	-0.003	-0.003
	(.006)	(.006)
Constant	-9.313	-8.209*
	(3.101)	(3.072)
Autocorrelation Coefficient	0.267	0.267
N	1325	1325
Groups	115	115
Wald Chi^2	71.38*	71.90*
R^2	0.054	0.056

* $p < .05$, one-tail test

APPENDIX I: INTERACTION OF INDEPENDENCE AND REVIEW

Table I.1. Interactive Effect of Judicial Independence and Judicial Review on Growth

	Coefficient (Standard Error)	
	Column 1: Additive	Column 2: PAF
Judicial Institutions		
Judicial Independence	0.603*	1.463*
	(.199)	(.460)
Judicial Review	0.129	-0.361
	(.618)	(.353)
Judicial Independence and	-0.147	-0.372
Judicial Review Interaction	(.146)	(.344)
Human Capital		
Secondary Education Enrollment	-0.037*	-0.037*
	(.015)	(.015)
Infant Mortality	-0.002	-0.002
	(.005)	(.005)
Physical Capital		
Investment Share of GDP (%)	0.056	0.057
	(.041)	(.041)
Government Share of GDP (%)	-0.052*	-0.049
	(.030)	(.030)
Population		
Population Growth	-0.208	-0.211
	(.161)	(.161)
Technology		
GDP Per Capital (Logged)	.892	0.903
	(.550)	(.555)
Democracy and Openness		
Democracy (POLITY)	-0.046	-0.45
	(.051)	(.052)
Economic Openness	0.004	0.003
	(.007)	(.007)
Constant	-4.962	-3.270
	(4.223)	(4.326)
Autocorrelation Coefficient	0.268	0.267
N	1345	1345
Groups	116	116
Wald Chi^2	35.62	36.15
R^2	.024	.025

VITA

Kaitlyn L. Sill was born in Seoul, South Korea, and was raised in Sacramento, California. She graduated high school from Casa Roble Fundamental High in Orangevale, California, in 2001 and then attended the University of California, Davis from which she received her Bachelor of Arts in political science with honors in 2004. After taking a year off, Kaitlyn enrolled at Louisiana State University where she received her Master of Arts in 2008 and will receive Doctor of Philosophy in 2010. After graduation, Kaitlyn will begin a tenure-track job at Pacific Lutheran University and will be accompanied to Tacoma, Washington, by her husband Mark Seale.