Institutional Change and Economic Growth
in East Asia after the Asian Financial Crisis, 1997-98

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Abstract: Theories on institutional change assert that exogenous shocks are critical in transforming path-dependent institutions. There is not much empiric research, however, that has investigated whether that is indeed the case. To fill this gap, this study investigates the effects of institutional quality on economic growth with a focus on East Asia before and after the 1997-98 Asian financial crisis, which delivered a critical shock in economic activities and institutions in East Asia. Using panel data analysis from 1981 and 2007, I investigate whether the effect of institutional quality on economic growth differed in East Asia compared to rest of the world before the crisis and whether such relationship changed after the crisis. Using two-way fixed effects model, the estimation shows that the effect of institutional quality on economic growth was positive on average for the rest of the world after the crisis but negative for East Asia. The negative coefficient was particularly strong for the three countries—South Korea, Indonesia, and Thailand—that suffered the most during the crisis. However, in the long term, there was no significant change of this negative effect.

Keywords: Asian financial crisis, institutional change, East Asia, economic growth

INTRODUCTION

How do institutions change? Existing literature identifies two types of institutional change: endogenous and exogenous (Thelen, 1999; Thelen, 2004). Endogenous change comes from a relationship with other factors, such as economic growth, while exogenous change refers to a shock such as a financial crisis that comes from outside of a system. Much of the existing research on institutions and economic development has centered on endogenous change. Broadly, there are two approaches to endogenous change. One side has examined effects of institutional quality on economic development (Acemoglu, Johnson, & Robinson, 2001; Rodrik, Subramanian, & Trebbi, 2004; Acemoglu, Johnson, & Robinson, 2005; Kurtz & Schrank, 2007; Kaufmann, Kraay, & Mastruzzi, 2009) and generally finds that changes in institutions or, more specifically, improvement in institutional quality can foster economic development. So-called good governance, or rule-based governance such as the rule of law, the protection of property rights, and the guarantee of independent courts fosters economic development (Haggard, 2004; North, Acemoglu, Fukuyama, & Rodrik, 2008). On the other side, the existing literature finds that good governance is not necessary to achieve high growth. This research generally focuses on the East Asian miracle states—South Korea, Indonesia, Thailand, Hong Kong, Singapore, Malaysia, Philippines, and Taiwan—that achieved rapid economic growth during 1970s and 1980s even though their governance structures were not rule based but rather relation based, that is, based on informal networks and exclusive trust (Li, 2003).

I find that much existing research on the effect of institutional quality on economic development relies on a path-dependent logic. For example, the literature preaching that good governance promotes economic development mostly centers on advanced Western states that have a long history of rule-based governance. As countries achieve growth, their existing institutions develop inertia and path dependency through positive feedback, which in turn make their institutions stronger. For the advanced Western states, existing arrangements based on rule-based governance gain path dependency, whereas for the East Asian miracle states, growth strengthens their relation-based governance.

Institutions are difficult to change because they are path dependent (Thelen, 1999, Mahoney & Thelen, 2009). In theory, exogenous shocks enable institutions to break from path dependency and inertia by creating uncertainty (Soifer, 2012; Capoccia, 2015). During such uncertainty, leaders and actors in power may miscalculate, leading to shift in institutions from existing path dependencies. Surprisingly, not much empirical research has been devoted to investigating how exogenous

shocks such as a financial crisis affect the relationship between institutions and economic development; the voluminous literature on institutions and development suggests little about how the theory pans out empirically.

In this context, East Asia serves as a perfect laboratory to empirically test the effects of an exogenous shock, given that in 1997-98, the East Asian miracle states suffered from a devastating financial crisis.

Figure 1. GDP Growth by Year for East Asian Groups
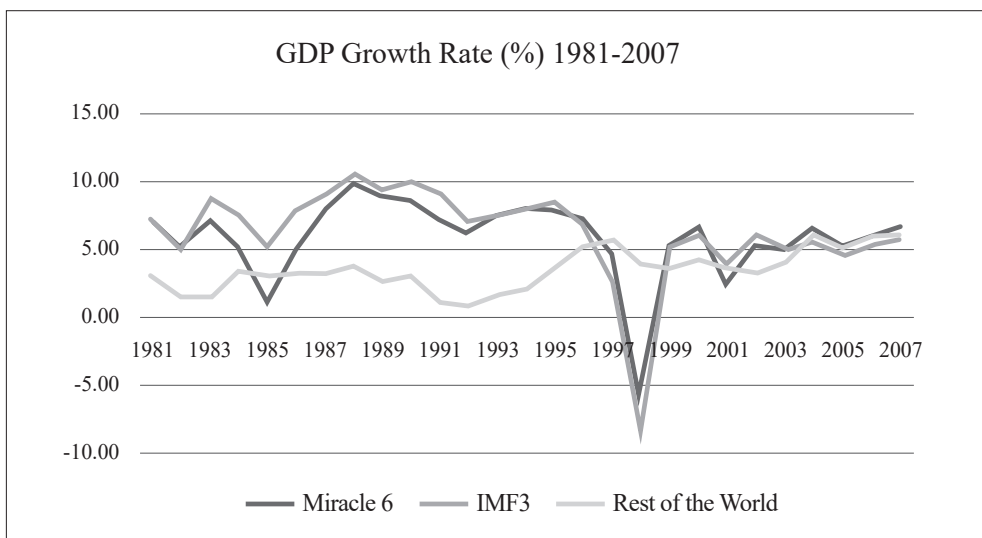
** Source: World Development Indicator

Figure 1 reports the effect of the financial crisis on different East Asian groups—the miracle 6, comprising Singapore, South Korea, Thailand, Indonesia, Philippines, and Malaysia, and the IMF 3, made up of South Korea, Indonesia, and Thailand, the three East Asian countries that resorted to IMF intervention as a last resort—and the rest of the world. A sharp kink between 1997 and 1999 illustrates the devastating effect of the crisis. In countries such as Indonesia, the economy saw a -14% growth, Thailand and Malaysia a -7% growth, and South Korea a -5% growth. For the countries hit hardest by the crisis, the damage also had both political and social implications. Reform-minded politicians and parties gained power, a rare moment in East Asian Miracle states, and due to high negative growth leading to high unemployment, social unrest soared (Freedman, 2005; Weisbrot, 2007).

In this context, the goal of this research was to empirically test whether the

financial crisis created enough uncertainty in the East Asian miracle states to allow them to escape path dependency and transition from relation-based to rule-based governance. More specifically, this research empirically examines whether the shock of the crisis affected the institutional effect on economic development.

Since the crisis affected the East Asian miracle states in different ways, I captured this heterogeneous effect by dividing them into three groups. The first group consists of six countries—South Korea, Singapore, Malaysia, Philippines, Indonesia, and Thailand. I excluded Taiwan and Hong Kong because data was not available for them. The second group consists of three East Asian states that resorted to IMF intervention—South Korea, Indonesia, and Thailand. The third group, the most affected, consists of the IMF 3 countries and Malaysia, since Malaysia decided not to opt into the IMF intervention despite its having been severely affected by the crisis.

Although I could not directly capture the effect of relational governance, I could indirectly capture it by examining the average effect of institutional quality on economic growth. The literature indicates that a greater reliance on relational governance is equivalent to lack of judicial independence because judicial decisions in countries with a relational governance system are typically political (Li, 2003). Thus, I assumed that the coefficient of judicial independence and economic growth for the treatment groups would be negative compared to rest of the world, which I used as a basis. If institutional change took place in East Asia after the crisis, I expected the coefficient to be positive after the crisis compared to rest of the world. I go into further detail regarding my approach in the theoretical framework section. For the empirical analysis, I employed panel data analysis with fixed effects using data for the period between 1981 and 2007. Since the crisis took place in 1997 and 1998, I excluded these two years from the analysis; I designated the period from 1981 to 1996 as the period before the crisis and 1999 to 2007 as that after the crisis. Although more data samples are available after 2007, I excluded them in order to exclude effects of the global financial crisis, which began in 2008.

My empirical analysis revealed several findings. First, before the crisis, the IMF group scored a lower coefficient than the most affected group, while the coefficient of the East Asian Miracle states was not statistically significant. Second, after the crisis, all treatment groups did not experience institutional change, or reform toward rule-based governance. In the following sections, I elaborate on the definition of "institution" I use and outline how that definition can capture a transition from relation-based to rule-based governance.

LITERATURE REVIEW

For several decades, scholars have wrestled to understand why some countries achieve higher economic performance than others. Previous studies identify four determinants—luck, culture, geography, and institutions—as fundamental factors in cross-country differences with respect to level of technology and accumulation of investments (Acemoglu, 2008). Since I am focusing on institutions as a primary driver of growth, in this section I first provide a literature review on institution and growth and follow that with an account of relation-based governance in the East Asian miracle states, its relation to the crisis, and the reforms instituted after the crisis.

Institutions and Economic Performance

One commonly used definition of "institution" comes from Douglass North (1990, 1991), who is considered by many to be the father of institutional theory. For North (1990), institutions are rules of the game that constrain actor's behavior, thus shaping political, economic, and social interactions. These rules, which can be both formal and informal, tend to persist over time owing to their path-dependent characteristics. Institutions foster growth because they lower transaction costs for economic activities such as market exchange and investments by minimizing the predatory actions of the government and establishing credible commitment (North, 1990; Haggard, 2004; Williamson, 2009). In sum, institutions reduce the uncertainty associated with economic transactions, investments, and agreements by constraining actors such as the government from acting on whim.

Studies identify various types of growth-inducing institutions. Out of several, three types—protection of property rights, independent courts, and the rule of law—have been identified as pertinent institutions for growth. Although conceptually different, the three types are interrelated and are similar in that they all aspects of with rule-based institutions, so-called formal institutions, and serve to constrain government's behavior. These institutions were seen as a panacea to the ills of development within the framework of good governance. However, that perception was challenged by the rise of the East Asian miracle states that achieved tremendous economic growth despite lacking effective rule-based institutions.

Relation-based Governance and the East Asian Miracle States

The "East Asian miracle" refers to the rapid economic growth that took place

from 1960s to 1990s in eight East Asian countries—Hong Kong, Indonesia, Japan, Malaysia, South Korea, Singapore, Taiwan, and Thailand (Birdsall, Ross, & Sabot, 1995). Although these states lacked so-called good governance—a strong rule of law and a low level of corruption—the government played an important role accumulating the high level of physical and human capital critical to growth (Wade, 1995; Birdsall et al., 1995; Kohli, 2004). If good governance is understood as an approach that minimizes state interference and thereby achieves economic development by preserving the market and attracting investment, then the conditions of the East Asian miracle were the opposite—the state maximized its influence to gain comparative advantage in markets and to attract investments. Researchers have used different typologies—the East Asian paradox (Rodrik, 1997; Quibria, 2002; Rock & Bonnett, 2004; Quibria, 2006; Rothstein, 2015), the cohesive-capitalist state (Kohli, 2004), the developmental state (White &Wade, 1988; Wade, 1995; Cummings, 1999; Beeson, 2009; Beeson, 2014), and relation-based governance (Li, 2003)—to examine the dynamics of East Asian governance.

Relation-based governance perhaps best captures East Asia's mode of governance. According to John Li (2003), who developed the theory of relation-based governance, rule-based governance refers to a mode of governance where impersonal and explicit agreements underwrite transactions and laws are made in a transparent process and enforced impartially by the state and the court. Actors within a rule-based society rely on public rules to protect their interests and resolve conflict. To constrain the state, rule-based governance relies on a circular system of checks and balances between executive, legislative, and judicial branches and between government and businesses in which judicial courts do not make rulings independently but make political decisions, an outcome of bargaining power by different parties.

On the other hand, in a relation-based governance system, actors rely on private rules to resolve conflicts and protect property rights (Li, 2003; Li, 2013). For example, actors depend on their personal relationships with public officials rather than follow a set of formal institutional protocols to secure a business license, and transactions in are a function of implicit and personal agreements. Similarly, in a relation-based governance system, publicly available information does not carry much weight and utility; rather, it is private information that actors use to make decisions. There is a greater informational asymmetry between the public and insiders in a relation-based system than in a rule-based one. Moreover, relational governance is more manipulative; there may be great laws on paper, or de jure, but they are not implemented in practice, or de facto. In rule-based governance, by contrast, rules are implemented accordingly.

Although researchers have used various typologies to explore East Asia's relation-based governance, they commonly find that economic growth is induced by an active government that places the functions of rule of law in East Asia (Haggard, 2004). Specifically, East Asian governments establish credible commitment through business-government networks and/or counsels, which enabled them to limit predation. Joon-Kyung Kim, Sang Dal Shim, and Jun-Il Kim (1995) note that in South Korea, the president chaired "monthly export promotion expansion meetings" during which the government consulted with the export industries and monitored their performance. Members of this counsel included ministers with trade-relevant duties, representatives from banking and shipping companies, and representatives from exporting firms. Together, they would review performance and address problems. Through this meeting, South Korea established a consensus-building process that effectively systematized export-oriented policies. Atul Kohli (2004) labels Korea's developmental experience "cohesive capitalism," as a business and government elites exerted a cohesive authority that promoted economic growth but that also brutally repressed the lower classes and civil society.

Effective government-business relations require an effective government bureaucracy. Peter Evans and James Rauch (1999) show that "Weberian" bureaucracies—those that are relatively corruption free and whose recruitment methods are merit based and whose salaries are predictable—played an important role in the economic growth of South Korea, Hong Kong, Singapore, and Taiwan. High-quality bureaucrats in these countries made possible effective industrial policies such as the management of the exchange rate that kept Korean exporters competitive in international market (Nam, 1995). This was especially important in the Korean context, since Korea had a higher inflation rate than its trading partners. Similarly, Robert Wade (1995) and Gordon White and Wade (1988) show that by choosing which technologies and products to specialize and invest in and which to export, the state secured a comparative advantage. Dani Rodrik (1995) also credits state intervention in the form of subsidies and coordination efforts in Taiwan and South Korea as critical in overcoming the shortage of skilled labor and physical capital.

Relation-Based Governance and the 1997-98 Asian Financial Crisis

Paul Krugman (1999) argues that the government's guaranteeing financial intermediaries that took excessive risks played an important role causing the crisis, whereas Steve Radelet and Jeffrey Sachs (1998) assert that inadequate foreign reserves and panic caused a region-wide bank run. While economists generally agree that moral hazards such as excessive risk taking and panic led to the crisis,

their explanations do not illuminate what caused the panic in the first place and the source of the moral hazards.

Other research has explored the crisis by focusing on the role of relation-based governance (Rajan & Zingales, 1998; Li, 2003; Dixit, 2009). Because relation-based governance systems lack checks and balances within executive, legislative, and judicial branches and between government and businesses, a close relationship obtains in such a system between the government, banks, and businesses, in which the government monitors the banks, and the banks provide funds for the businesses while also monitoring them. According to Li (2003), liberalization efforts from the years before the Asian financial crisis weakened these ties, especially in South Korea and Thailand. Before the crisis, in early 1990s, all three countries attempted to affect both political and market liberalization. These drastic liberalization measures significantly weakened state's ability to monitor the banks, which also affected bank's ability to monitor the firms.

Still, the weakening of the government's capacity to monitor banks does not fully explain what caused the panic and bank run. To understand this, one needs to understand the nature of relation-based governance. Because there is a significant gap in a relation-based system between public information and private information, attempts to liberalize markets and politics in East Asian countries in 1990s made them appear on paper to be liberal democracies with a free market but that was not in fact the case. To put this another way, there was a significant gap between de jure and de facto institutions. Foreign investors were only able to access public information, and because public information offered an optimistic outlook, they upped their investments. The increase in financial inflow from foreign investors made it more difficult for the government to monitor banks and firms. It was only when Thailand defaulted on its debts that foreign investors learned of the discrepancy between de jure and de facto institution, and out of shock, they resorted to an abrupt bank run.

After the Crisis

Scholars generally agree that East Asian states collectively improved their financial system and corporate governance after the crisis, especially the most severely affected states—South Korea, Thailand, and Indonesia (Pempel & Tsunekawa, 2015). South Korea established a new financial a financial supervisory commission to oversee its financial sector. As Natasha Hamilton-Hart (2008) notes, this marked an official step toward a more consolidated system of financial supervision. The government also nationalized insolvent banks and made them available

for purchase by foreign investor, which made it possible for them to own majority stake in the bank. However, she questions whether these institutional reforms are in fact practiced. Similarly, Yun Kim (2005) notes that although many reforms are on the books, most of them have had limited effect. For example, in South Korea, reforming chaebols (business conglomerates) has been difficult, especially with respect to the relationship between the government and businesses relations.

THEORETICAL FRAMEWORK

In this section, I outline the theoretical framework I used to analyze whether East Asia transitioned from a relation-based to a rule-based governance system after the Asian financial crisis.

Independent Courts as a Means of Enhancing Relation-Based Governance

One common feature of both relation-based and rule-based governance structures is judicial courts. In a relation-based governance system, judicial court rulings reflect the outcome of political bargaining between the two parties, whereas in a rule-based governance system, judicial courts make impartial and autonomous decisions. The presence of de facto judicial independence can thus serve as a measure of the incorporation of aspects of rule-based governance into a relation-based system. If judicial independence increased in practice in the East Asian miracle states after the Asian financial crisis, that would suggest that the relation-based system had been enhanced by a rule-based one. On the other hand, de facto judicial independence decreased after the crisis compared to the precrisis period, this would imply that the crisis led to the further entrenchment of the relation-based system.

Even if relation-based governance may have been enhanced in these countries, however, that does not necessarily mean they transitioned toward rule-based governance. The way a country approaches development must be analyzed in order to gauge whether it has transitioned toward rule-based governance. According to the existing literature, rule-based governance or good governance in the form of judicial independence can lead to economic development. Studies on institutional quality have particularly emphasized the importance of rule of law for economic development (North, 1990; Acemoglu et al., 2005; North et al., 2008; Kaufmann et al., 2009). Stephan Haggard, Andrew MacIntyre, and Lydia Tiede (2008) in "The Rule of Law and Economic Development" and Haggard and Tiede in "The Rule of Law and Economic Growth" (2011) define rule of law in terms of three dimensions:

political stability, judicial independence, and the protection of property rights.

The protection of property rights and the enforcement of contracts require a strong government, but this creates a dilemma, because a government that is strong enough to protect property rights and enforce contracts is also strong enough to expropriate assets from individuals as it sees fit (Weingast, 1997). A government can honor or dishonor the commitments it makes to protect assets, depending on which of those options will maximize its return. It is in this context that judicial independence and more broadly checks and balances become crucial. Autonomous judicial courts prevent the government from acting on whim and compel it to honor its commitment. As Barry Weingast (1997) argues, the government must also have an incentive to abide by political constraints on their discretion. He notes that if citizens face difficulty in coordinating a society, a government may resort to giving up its power to prevent greater possible threats to its self-preservation. Such constraint provides a sign of credible commitment on the part of the state, and that in turn promotes investment, trade, and other economic activities. In sum, judicial independence is one measure of the checks and balances that constrain the government.

Hypotheses

Before the crisis, the scholarly literature had maintained that East Asian miracle states fostered growth through relation-based governance. Thus, my first hypothesis is that before the crisis, the function of judicial independence should either have negative relationship with economic growth or be statistically insignificant To elaborate, a negative relation would imply that the more judicial independence was compromised, the greater the economic growth of the East Asian states would be. Since judicial courts are not impartial and make political decisions in relation-based governance, a negative coefficient would confirm this hypothesis. The existing literature finds that the crisis was a function of relation-based governance (Li, 2003). If that's true, then a related supposition is that countries that suffered the most, or countries that turned to IMF intervention as a last resort, likely would show a greater negative coefficient than the East Asian miracle states as a whole before the crisis.

My second hypothesis tests the consequence of the crisis. Although the shock was devastating, it does not seem likely that a single shock could upend a governance system that had been entrenched for three decades. Thus, I reason that after the crisis, the coefficient for the association between judicial independence and economic growth would not likely be statistically significant or positive for any of the groups.

EMPIRICAL STRATEGY

This section begins with an explanation of the data I employed for the empirical analysis, including dependent variable, independent variable, and a brief description of control variables. I then describe the two-way fixed-effects panel data analysis model that I use.

Data

I use GDP growth from the World Development Indicator as the dependent variable and de facto judicial independence as the independent variable, which measures the extent to which judicial independence is practiced. The index I use is a composition index of de facto judicial independence developed by Drew Linzer and Jeffrey Staton (2015). Although various measures of judicial independence have been developed, I use this measure for several reasons. First, many measures do not explicitly state whether they measure de jure or de facto judicial independence, and as Li (2003) points out, the difference between relation-based and rule-based governance lies not in whether a country has laws that are grounded in a rule-based approach but in whether those rules are enforced and practiced.

Second, Linzer and Staton (2015)'s measure is the only measure that explicitly stipulates that it measures judicial power, defined as how well judicial decisions are implemented, that is, how well those decisions constrain the government from acting on its own discretion. Earlier studies had identified the autonomy of judges as critical (Kornhauser, 2002). In recent years, however, studies have become more concerned with enforcement of judicial decisions, as judicial autonomy is for naught if judicial decisions are not enforced and implemented. Thus judicial power is more apt than judicial autonomy in measuring judicial constraints on the government. Finally, this index is the only measure goes back far enough before the 1997 crisis and that covers a wide range of countries. For example, the World Bank's rule of law index has been widely used, but it is only available from 1996 on, and thus was not suited to the purposes of my research.[1]

I used the following time-variant variables as control variables: physical and human capital, GDP, trade, government consumption, and energy imports. For physical capital, I used gross capital formation, and for human capital, I used the population between 16-64, a measure often used to represent a potential labor

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1. More information on this measure can be found at https://scholarblogs.emory.edu/ jeffreystaton/files/2018/03/lji.pdf.

force. Since the growth rate differs depending on the level of GDP, I also controlled real GDP after converting it with natural logarithm. For trade, I used a share of trade as percent of GDP. This variable does not distinguish between exports and imports, as it represents accumulation of the two. Much of the existing literature uses this index to measure trade openness and dependence on trade (for example, Rodrik et al., 2004). I use government consumption to represent the size of the government (Ram, 1986). I include energy imports, as much of the literature indicates that the level of energy imports affects institutional quality (Mehlum, Moene, & Torvik, 2006; Kolstad, 2009; Ross, 2012). Description of all variables are available in appendix A.

Empirical Model

I use a fixed-effects panel data method with a cluster option for countries to analyze a dataset consisting of more than 2,900 observations from 130 countries spanning the years 1981 to 2007. Since the goal of this research is to examine the effect of the crisis on East Asian countries, I use three treatment groups for the country dummy variables. The first group consists of six of the East Asian miracle states—South Korea, Thailand, Indonesia, Philippines, Malaysia, and Singapore. It excludes two—Taiwan and Hong Kong—owing to the unavailability of data. The second group, the most severely affected states, includes Malaysia, Indonesia, South Korea, and Thailand. The final group, the states that received IMF aid, includes South Korea, Indonesia, and Thailand. While both China and Japan have at times been counted as miracle states, the preponderance of the literature defines a miracle state as one that achieved tremendous growth during 1960s and late 1980s, which would exclude China and would also exclude Japan because Japan achieved its growth a generation before the rest of the member states and also suffered less during the 1997 crisis (Stiglitz, 1996; Crafts, 1999).

The base model is as follows:

$$Y_{ct} = \beta_0 + \beta_1 \cdot JI_{ct} + Z_{ct} \cdot \delta + \tau_t + \eta_t + \varepsilon_{ct} \quad (1)$$

Y_{ct} means the rate of economic growth for a given country c in a given year t, while the explanatory variable JI_{ct} is the measure of judicial independence in a given country c in a given year t. $Z_{ct} \cdot \delta$ is the vector for the control variables in a given country c in a given year t. τ_t is the time fixed effect, and ηt the country fixed effect.

Since my aim is to test whether the coefficient β1 changed after the crisis com-

pared to before the crisis for the East Asian treatment groups compared to rest of the world, I used model 2 as follows:

$$Y_{ct} = \beta_0 + \beta_1 JI_{ct} + \beta_2 JI_{ct} \cdot G_c + \beta_3 JI_{ct} \cdot AfterCrisis_t + \beta_4 G_c \cdot AfterCrisis_t +$$

$$\beta_5 JI_{ct} \cdot G_c \cdot AfterCrisis_t + \beta_6 AfterCrisis_t + Z_{ct} \cdot \delta + \tau t + \eta t + \varepsilon_{ct} \quad (2)$$

Gc represents time invariant country groups, and afterCrisist represents a time dummy variable, which equals 1 for the period after the crisis—1999-2007—and 0 for the period before the crisis—1981-1996. Gc includes the three treatment groups from East Asia. Details regarding the treatment groups are also available in appendix A.

EMPIRICAL ANALYSIS

I first conducted a baseline regression analysis of the effect of judicial independence on economic growth from 1981 to 2007. I applied country and year fixed effects to each of the models. The first model examines the relationship between judicial independence and economic growth and finds that the result is not statistically significant. This result did not change when I included the control variables. These models show that investments have a positive and statistically significant relationship with economic growth, while greater government consumption is statistically significant and negatively associated with economic growth.

Table 1. Results for the Baseline Model

Variables	(1) Model 1	(2) Model 2
Judicial Independence	0.902 (1.790)	-0.907 (2.342)
Trade		0.0139 (0.0140)
Gross Capital		0.156*** (0.0424)
Potential Labor		0.128 (0.0992)
Energy Import		-0.00513 (0.00330)

		-0.267*** (0.0742)
Government Consumption		-0.267*** (0.0742)
GDP		-0.839 (0.751)
Constant	2.781*** (0.808)	15.08 (17.80)
Year Fixed Effect	YES	YES
Observations	4,424	2,973
R-Squared	0.047	0.138
Number of Countries	187	130

Robust standard errors in parentheses

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

Since these models do not include the treatment groups or the effects of the Asian financial crisis, I incorporated these effects into the models recorded in table 2.

Table 2. Results for the Treatment Groups after the Crisis

Variables	(1) After the crisis	(2) Miracle 6	(3) IMF 3	(4) Most Affected Countries
Judicial Independence (JI)	0.114 (2.333)	0.898 (2.410)	1.104 (2.366)	1.000 (2.396)
Trade	0.0174 (0.0138)	0.0199 (0.0147)	0.0182 (0.0139)	0.0187 (0.0142)
Gross Capital	0.153*** (0.0414)	0.145*** (0.0438)	0.151*** (0.0420)	0.147*** (0.0427)
Potential Labor	0.0195 (0.109)	0.0303 (0.109)	0.0472 (0.109)	0.0446 (0.109)
Energy Import	-0.00508 (0.00345)	-0.00505 (0.00348)	-0.00514 (0.00348)	-0.00510 (0.00348)
Government Consumption	-0.256*** (0.0721)	-0.250*** (0.0721)	-0.252*** (0.0722)	-0.251*** (0.0722)
GDP	-0.586 (0.751)	-0.456 (0.748)	-0.454 (0.757)	-0.468 (0.747)
JI * Group		-8.029 (5.943)	-16.04*** (4.158)	-11.80*** (4.287)
After the Crisis	2.582* (1.514)	2.606* (1.525)	2.456 (1.518)	2.499 (1.520)

JI * after the Crisis	-3.481*** (1.260)	-3.636*** (1.292)	-3.515*** (1.261)	-3.557*** (1.269)
Group * after the Crisis		-3.448 (2.852)	-1.182 (4.115)	-4.871 (3.621)
JI * Group * after the Crisis		4.178 (4.597)	1.927 (6.069)	6.420 (5.496)
Constant	14.51	10.49	9.342	9.938
	(17.88)	(17.96)	(18.24)	(17.97)
Year Fixed Effect	YES	YES	YES	YES
Observations	2,973	2,973	2,973	2,973
R-Squared	0.146	0.149	0.150	0.150
Number of Countries	130	130	130	130

Robust standard errors in parentheses

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

Models 2-4 in table 2 examine the effect of judicial independence on economic growth for respective treatment groups compared to rest of the world and how to what extent this relationship changed after the financial crisis. Like table 1, table 2 shows that gross capital positively affects GDP growth for all East Asian treatment groups and rest of the world. On the other hand, government consumption negatively affects growth for all countries. In models 2-4, the interaction variable JI * group represents effects of judicial independence compared to rest of the world before the crisis. Based on this coefficient, judicial independence negatively affects economic growth for both IMF intervened states and most affected states (models 3 and 4) but not for the East Asian miracle states (model 2). The negative coefficient is larger for the three IMF countries and the most affected groups in models 3 and 4 than it is for the six miracle states in model 2.

To gauge the effect of the judicial independence on economic growth for the treatment groups after the crisis, I compared the interaction variable JI * group * after crisis for all treated groups and found that none were statistically significant. This implies that the effect of judicial independence on growth after the crisis was not statistically significant compared to before the crisis, which in turn suggests that the negative effect of judicial independence on economic growth before the crisis did not change after the crisis. I discuss the interpretation of this result in the next section.

DISCUSSION

The empirical results indicate that the economic crisis did not induce institutional change, that is, a transition from a relation-based governance system to a rule-based one. If a transition had taken place, the coefficient for judicial independence and economic growth would be positive, since rule-based governance relies on impartial courts to foster growth (Li, 2003; Dixit, 2009). It is fair to ask why such reform did not take place. My analysis suggests that one possible explanation is that while institutions can assume a de jure rule-based luster, that does not necessarily guarantee de facto implementation.

After the crisis, many East Asian countries, especially the countries the IMF intervened in, established laws that enhanced corporate governance, supervisory regulation of the banks, regulation of chaebols, and foreign investment laws (Lee, 2000; Haggard,

 2001; Yanagimachi, 2004), but such policies have not necessarily been enforced. Y. D. Jung (2001) notes that despite reforms made as a condition of receiving aid from the IMF, the South Korean strategy and finance ministry remains at the center of national development because its influence in organizational culture and personal relationships runs deep. It is possible that immediately after the crisis, chaebols and the members of the strategy and finance ministry may have felt pressure to abide by the reforms, which called for greater autonomy of the central banks. However, after a period of recovery passed, businesses and the government may have resorted to their old practices of relying on informal and tacit agreements to establish monetary policies favorable for the businesses. As Jung indicates, despite de jure rules establishing greater autonomy for the central banks, in de facto practice, the embedded organizational culture and personal ties developed in the years before the crisis cannot be easily expunged. Tom Ginsburg and Mila Versteeg (2014) report similar gap between de jure and de facto institutions in developing countries, where their constitutions and laws are rigid and well established but not enforced accordingly. Such countries want international legitimacy and so enact de jure policies, but they do not necessarily implement these policies domestically.

My findings have several important policy implications that may provide useful lessons for developing countries. Most importantly, my research shows that, contrary to previous studies, it should not be assumed that endogenous shocks necessarily induce an institutional transition from a relation-based to a rule-based governance system. Although renowned scholars such as Avinash Dixit (2009) have argued that as income grows and a society becomes more complex, institutional

transformation from relation- to rule-based governance is inevitable, which implies that a developing country such as China should assume a rule-based governance system as it fosters economic growth, my research suggests that that may not happen because path-dependent institutions can become "sticky" and thereby resist transformation. This finding challenges the idea that economic cooperation with developing countries may automatically result in their adopting an effective rule of law.

Another important policy implication is that uncertainty itself may not necessarily lead to reform. Crises may weaken path-dependent institutions but not enough to push them to shift to a rule-based governance system, and so after the recovery period they may return to their old practices. A possible explanation for this is that no alternative solution was available, since the shock was endogenous and the IMF framework was imposed by external actors. Domestic actors were forced to accept changes to receive aid, but they may not have been prepared to implement the policies they agreed to and play by the new rules.

A final lesson is that the power relation between businesses and the government matters. Although I do not extensively cover this relation here, the businesses in these countries, especially the chaebols in South Korea, may have become too powerful for the government to regulate. Thus, after the crisis, while the government may have been constrained by the power of law, the businesses, especially chaebols, may have not been. The financial crisis and the IMF intervention may thus have weakened the only actor that was capable of regulating chaebols. In sum, one could argue that the financial crisis and the IMF intervention transformed institutions and introduced new rules of the game, but the actors playing the game, the chaebols and big businesses in other countries that received IMF aid, were powerful enough to ignore those new rules. Given that many developing countries, including China, forge their development strategies based on government-business ties, policy makers in those countries need to consider their government's asymmetric power relation with big businesses when they are designing reform strategies.

To conclude, a key takeaway of this research is that "rules of the game," or de facto institutions, are difficult to change. Further research that examined the effect of the 2008 global financial crisis on de facto institutions and its impact on economic growth would be helpful for gauging how de facto institutions evolve. While I have found that the chaebols thrived after the Asian financial crisis due to greater degree of liberalization, the global financial crisis impacted the global market, financially constraining chaebols. Thus, it would be interesting to examine the effect such a shock had on the chaebols' influence and on economic growth.

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Appendix

A. Data

Variable Type	Concept	Measure	Source
Dependent	Economic Development	GDP Growth	World Development Indicator (WDI)
Main Explanatory	Institutional Quality	De facto Judicial Independence	Linzer & Staton's (2015) dataset
Independent	Physical Capital	Gross Fixed Capital (% of GDP)	WDI
	Trade	Net Trade Volume (% of GDP)	WDI
	GDP	Real GDP Log	WDI
	Potential Labor Force	% of Population 15-64	WDI
Control	Government Intervention/ Consumption	General Government Final Consumption (% of GDP)	WDI
	Foreign Energy Dependence	Net Energy Imports (% of Energy Use)	WDI
Country Group Dummy	IMF Bailout Countries	South Korea, Indonesia, Thailand	*IMF 3
	East Asian Miracle States	IMF 3 plus Philippines, Malaysia, and Singapore	Miracle 6
	Most Affected Countries	IMF3 + Malaysia	Most Affected
Year Dummy	Period after the Crisis	1999-2007	After

∗ I don't follow how IMF 3, Miracle 6, Most Affected, and After count as sources?

B. Correlation Table

	JI	Growth	Energy Imports	Gross Capital	GOV Consumption	Trade	Potential Labor	GDP_ln
Judicial Independence	1							
Growth	-0.022	1						
Energy Imports	0.259	-0.013	1					
Gross Capital	0.089	0.201	-0.001	1				
Government Consumption	0.193	-0.132	-0.133	0.024	1			
Trade	0.080	0.123	0.005	0.236	0.057	1		
Potential Labor	0.561	0.085	0.197	0.271	0.115	0.303	1	
GDP_ln	0.449	0.046	0.098	0.111	0.030	-0.207	0.508	1