

Process-Tracing Research Designs: A Practical Guide

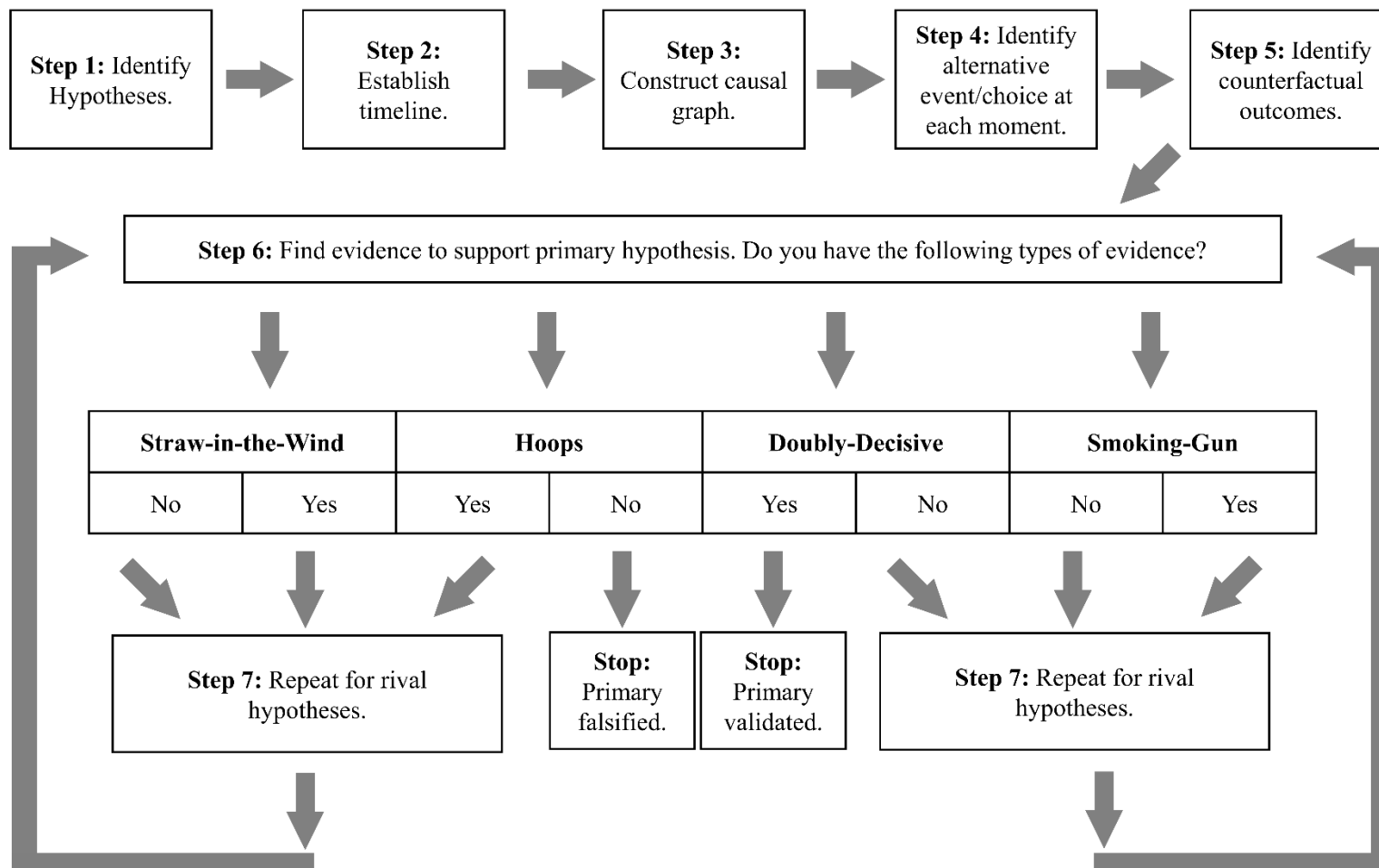
Appendix Materials

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FIGURE 0. Process-Tracing: The Checklist



APPLICATION 1: THE JAPANESE DEVELOPMENTAL STATE

One prominent example of process-tracing is Johnson's (1982) study of the developmental state in Japan. Admittedly, hypothesis-testing was not Johnson's intention when he wrote about the Ministry of International Trade and Industry (MITI) (see Woo-Cummings 1999). However, we argue, and show, that framing his work according to our checklist would have proved fruitful. Application of the step-by-step analysis could have highlighted the strength of the developmental state argument and, more importantly for the purposes of our essay, preempted some of the criticisms of his work (see Johnson 1999).

Step 1: Identify Hypotheses

The main hypothesis that emerges from Johnson's work on MITI is that the rapid economic growth experienced by Japan from 1955-1975 was due to strong technocratic control over policy decisions and state interventions in the economy, i.e., the developmental state. Johnson does engage with a series of alternative hypotheses explaining the Japanese economic miracle, but none of these faces systematic testing. Johnson identifies four major arguments for Japan's rapid development. The first is a cultural explanation, which Johnson dismisses as being over-generalized. Second, he considers the argument that Japan's growth was merely due to market forces. This, he states, is problematic in that scholars assume the Japanese state acted akin to the American regulatory state. The third argument focuses on Japan's institutional features: The "sacred treasures" of lifetime employment, seniority wage system, and enterprise unionism all allowed for rapid growth. Johnson argues that this is too simplistic, and he shows that these features were embedded in a more complex system. He also criticizes this work as failing to explain how these institutions emerged. The final argument considered is that the Japanese economy grew through free-riding on access to the American market. Here Johnson contends that growth was not entirely dependent on exports; the domestic

market mattered as well. He also demonstrates the importance of industrial policy in weakening this claim.

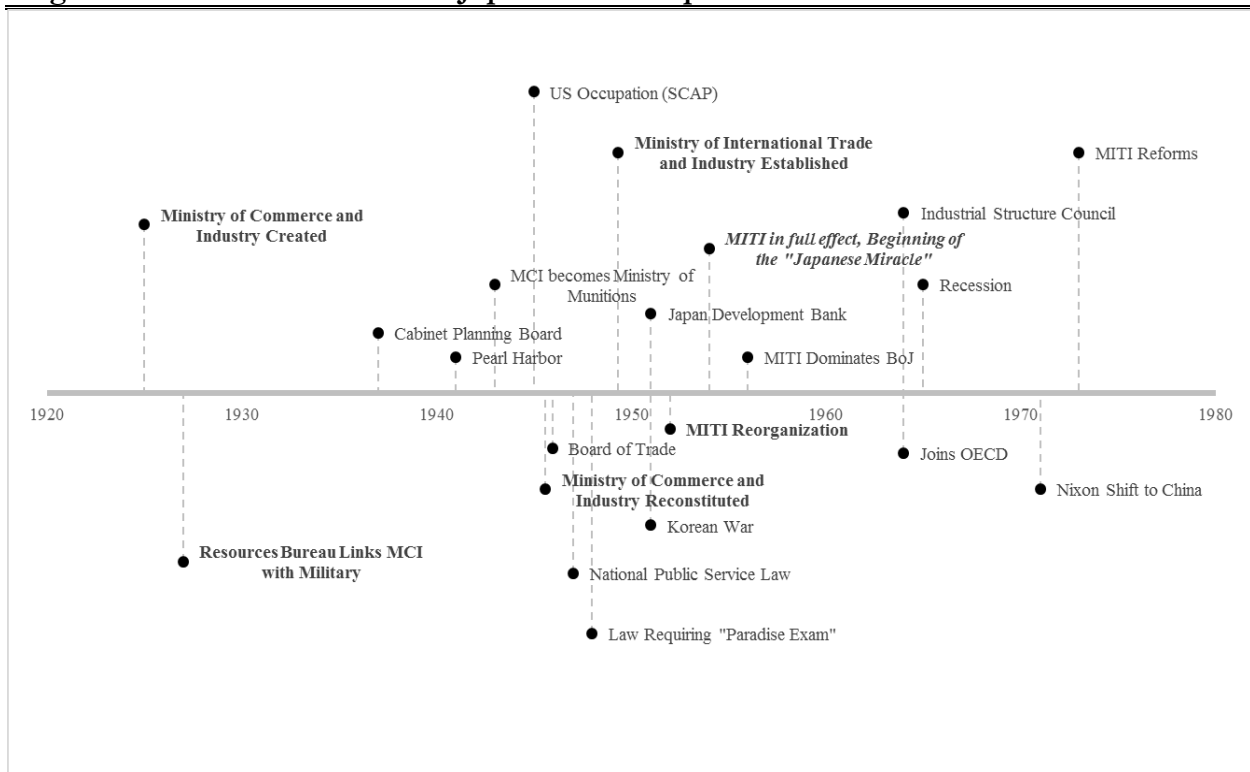
Johnson dismisses each of the four explanations quickly, citing that none is a viable competitor to his developmental state argument. These alternative explanations became the fodder for many of the criticisms of Johnson's theory, ranging from the claim that the miracle was due to forces outside the state (Calder 1993; Samuels 1987) to rational choice scholars who argued that the bureaucracy was not as insulated as Johnson alleged (Ramseyer and Rosenbluth 1993). A more explicit research design based on rival hypotheses may have staved off some of these later critiques and strengthened Johnson's claims.

Step 2: Establish Timeline

In reference to a timeline, Johnson's work follows a chronological progression from 1925 through 1975. Here, Johnson's extensive research and detailed discussion of MITI and its historical evolution truly shines. His work was so well-researched that MITI had it translated into Japanese for use at the agency.

While we are unable to detail the entire history of MITI here, we have produced a sample timeline highlighting many of the major events during this period in Figure 1.1. Each of the points identified here were important steps in MITI's evolution and its growth as a major policy actor in Japan; we have bolded a few of these events in order to outline their importance in the argument that the developmental state was the driving force behind the "Japanese Miracle." Indeed, our check of face validity shows that the reforms Johnson claims shaped MITI's policy control (bolded) were all completed before the start of the miracle years of 1955-1975 (*italicized*).

Figure 1.1. Brief Timeline of the Japanese Developmental State



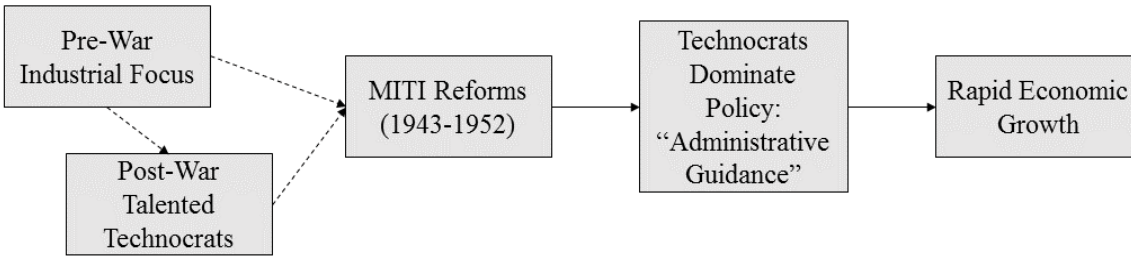
Step 3: Construct Causal Graph

Johnson also identifies relevant moments in MITI's development, although this could have been done more explicitly. These critical points are the focus of the book chapters. In each case, he discussed in-depth how elements of the bureaucracy were able to develop industrial policies during pre-war Japan, during the war, during the American occupation, and during the rapid growth period beginning in 1955. In both the previous step and this one, Johnson provides an excellent example of establishing a timeline and providing the information necessary for constructing a causal graph (see Figure 1.2).

While each of the major points highlighted above could provide the subject for a causal graph, we choose to follow Johnson (1982, 195) who argues that "the 1940s are one continuous era." In other words, the reform period, commencing with the transformation of MCI to Ministry of

Munitions in 1943 through the 1952 MITI reorganization which was the immediate precursor to MITI's policy dominance, serves as the critical juncture in this story.

Figure 1.2. Causal Graph of the Japanese Developmental State



In the causal graph, then, the major relationship is between the MITI reforms (1943-1952) and the rapid economic growth beginning in 1955. The causal graph demonstrates this through solid arrows. Alternative information about the points prior to this time period, although interesting, is not essential to this causal story, and thus we link it with dotted arrows. Also, in the middle of the relationship between MITI reforms and rapid economic growth is another variable which appears in the analysis: the technocratic dominance in policy. This is a secondary variable in the causal story: The MITI reforms created the developmental state, which evidenced itself through bureaucratic dominance over policy decisions, which then resulted in rapid economic growth. Clarifying the argument in this way allows us to identify what causal information is needed to make the link between MITI's rise and the Japanese miracle.

Steps 4-5: Identify Alternative Choice/Event and Counterfactual Outcomes

The next two steps highlight a major weakness in Johnson's work. Absent are the consideration of alternative choices/events and the identification of counterfactual outcomes. While Johnson may not consider this a problem, his goal was to lay out a careful history and then draw conclusions from it, this omission does hinder the work's capacity for hypothesis-testing.

Consider this example. When Johnson recounts how the Ministry of Commerce and Industry officials wrote the laws establishing MITI, he does not consider alternative outcomes in reference to any of the rival explanations. For instance, had the market forces argument been seriously considered, it would have yielded testable predictions regarding the timing of policy shifts vis-à-vis market changes. And so if the market forces argument were true, the policy shifts would have followed market changes and had little effect. Such an approach would have granted Johnson greater authority in dismissing alternative explanations.

Related, the lack of counterfactuals limits our ability to evaluate the explanatory value of Johnson's theory. If bureaucrats had not been able to control the policy process, what would have been the result? Without discussions of the counterfactuals, it is difficult to make the argument that any theory is actually being tested. Indeed, Johnson referred to his work as a "history" from which lessons could be drawn rather than an analytical test of hypotheses.

Steps 6-7: Find Evidence for First and Rival Hypotheses

Again, our critique here hearkens back to a lack of testable hypotheses. Johnson's exhaustive history of MITI does not discriminate as to which data best supports the developmental state hypothesis. Without distinguishing evidence types, we could be left confused as to the argument's strength. For instance, the educational pedigrees of bureaucratic officials, which occupy a great deal of chapter two, may only serve as **straw-in-the-wind** evidence that the bureaucracy is a strong player in industrial policy. Alternatively, discussion of the laws which established MITI, more relevant to his

argument and a piece of **smoking gun** evidence, fills a few scant paragraphs. A more appropriate weighting of the data could have strengthened the argument.

Table 1. Evidence Needed for the Japanese Developmental State

Research Question: What explains the Japanese economic miracle?

	Primary Hypothesis A developmental state promotes industrial policy and shepherds economic growth.	Rival Hypothesis Market forces drove Japan's economic growth.
Straw-in-the Wind	MITI bureaucrats exhibit close-knit relationships.	International markets were favorable to Japan.
Hoops	Bureaucrats have authority to influence policy-making.	Japan's economy reacts to market forces (i.e., Japan was not a command economy).
Smoking Gun	Bureaucrats were involved in proposing and passing policy reforms.	Japan's economic policy was led by business and bankers (e.g., Calder 1993)
Doubly-Decisive	MITI served as dominant source of industrial policy during period in question despite market shifts.	Evidence of strong business influence in policy combined with evidence of a submissive bureaucracy.

Although Johnson did not structure his work in this way, in Table 1 we suggest some information needed for hypothesis-testing. Here we pit Johnson's developmental state theory against the market forces argument (Calder 1993; Samuels 1987). We do not evaluate these hypotheses since our purpose in this example is more illustrative. In the following applications we will discuss hypothesis evaluation more in-depth.

Note that by no means are we denigrating the vast contributions Johnson has made to the field of development studies. Instead, our major critiques are based on research design. First, there are no testable hypotheses drawn from the theoretical discussion. Second, due to the lack of hypotheses, without predictions it is difficult to evaluate the efficacy of these theories. Finally, and related, we have little guidance as to the value of the different evidence types. All three of these critiques could be simply addressed by applying our checklist to the study of the Japanese miracle. Through a more systematic application of process-tracing, we can overcome many of the critiques and weaknesses of which qualitative studies are often accused.

APPLICATION 2: PARTY POLITICS IN THAILAND

In this application, we test two competing theories about the electoral success of Thai Rak Thai (TRT) in Thailand. Prior to 2001, Thailand's party system was characterized by weak political parties with short-lived government coalitions. The TRT story is, however, an anomaly in Thai party politics. When the Thaksin Shinawatra-led TRT won 248 out of 500 seats in 2001, it was the first time a single party had so clearly dominated an election. Four years later, Thaksin became the first Thai prime minister to complete a full term. And after the 2005 election, with 375 of 500 parliamentary seats, TRT's electoral mandate was beyond question. What explains this dramatic shift in the Thai political landscape?

Step 1: Identify Hypotheses

Here, we draw on Hicken (2006) who discusses two competing explanations. The first is an actor-centered explanation based on the wealth and influence of TRT founder Thaksin (McCargo and Pathmanand 2005; Pasuk and Baker 2009). In this argument, TRT's success can be traced primarily to the personal characteristics of Thaksin, a man "unrivaled in ... his sheer political energy, determination, vision, professionalism, ruthlessness, and network-building capacity, not to mention the incredible financial resources at his personal disposal" (Nelson 2007: 126). Thus, one hypothesis is that TRT's success was due to Thaksin's personal influence.

The second explanation is institutional, focusing on the effects of the 1997 Constitution. The argument is that the new constitution changed the electoral arena. Previous versions of the constitution perpetuated a party system dominated by provincial politicians and elites who party-switched often. In contrast, the new constitution called for greater accountability of elected officials to both chambers of parliament. It also stipulated that parties had to field candidates for at least 25-50% of the nation-wide seats, and it constrained the practice of party-switching. This in turn forced

(1) the death of many parties, and (2) for those that survived, a national orientation (Hicken 2006). Thus TRT's success was based on this institutional change. With these competing hypotheses, we turn to the next steps.

Step 2: Establish Timeline

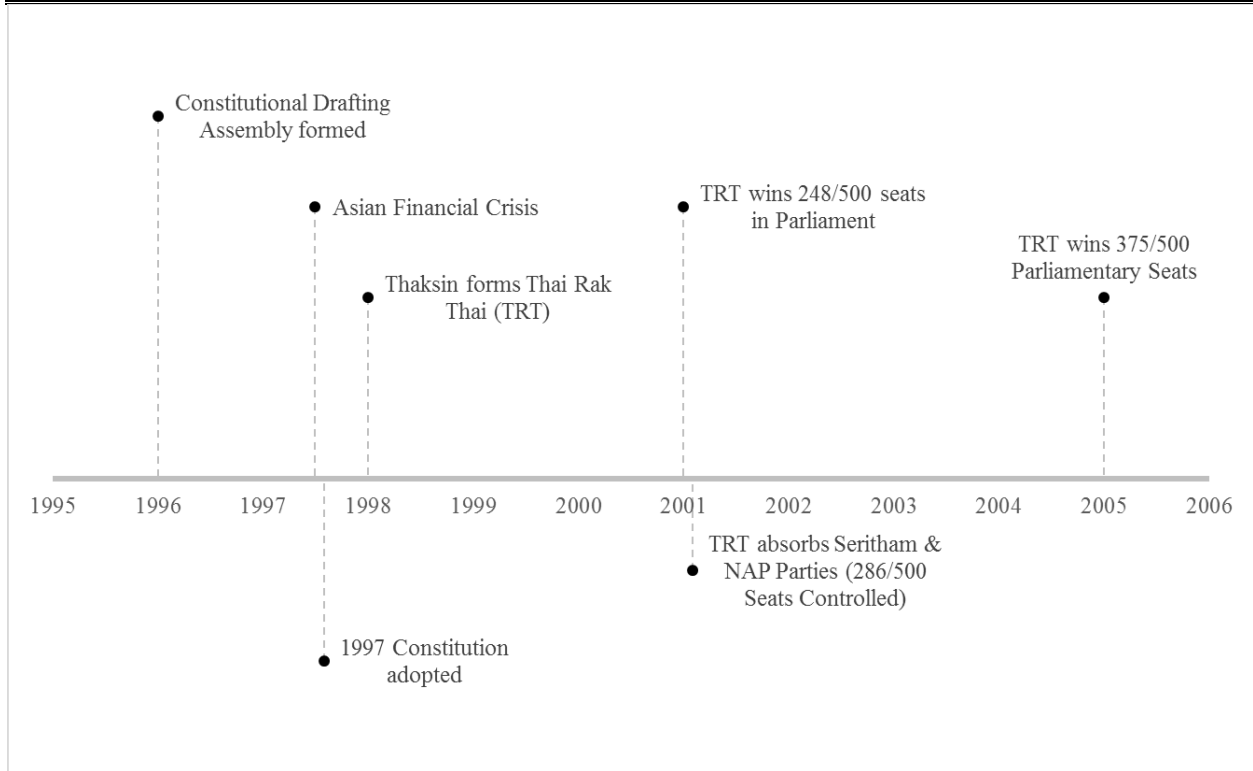
In this case, establishing a timeline is relatively simple. In 1996 the national assembly passed a bill to form a Constitutional Drafting Assembly (CDA). In August 1997, the CDA introduced a constitution that changed the electoral formula to the national assembly, transformed the Senate from a body of appointed officials to elected representatives, imposed restrictions on party-switching, created institutionalized alternative channels for ordinary citizens to influence policymaking, and required decentralization (Hicken 2006).

The following year (1998), Thaksin formed TRT. In the 2001 election, the first election since the new constitution, TRT won a plurality of votes (41%) and almost half of the seats in the national assembly (248 of 500). After the election, not content to merely achieve a majority, TRT absorbed one small party (Seritham Party) and formed a coalition with the Chart Thai Party and the New Aspiration Party (NAP), giving the coalition control over 65% of the parliamentary seats. NAP later merged with TRT. In the next election (2005), Thaksin and TRT won by a landslide with 61% of the votes and 375 of the 500 seats. These events are highlighted in Figure 2.1.

Step 3: Construct Causal Graph

Our primary outcomes of interest are the 2001 and 2005 election results, which embodied the massive gains made by TRT. As such, the events and conditions leading up to those two points are of chief importance to our theories, specifically (1) the adoption of the 1997 Constitution and (2) the

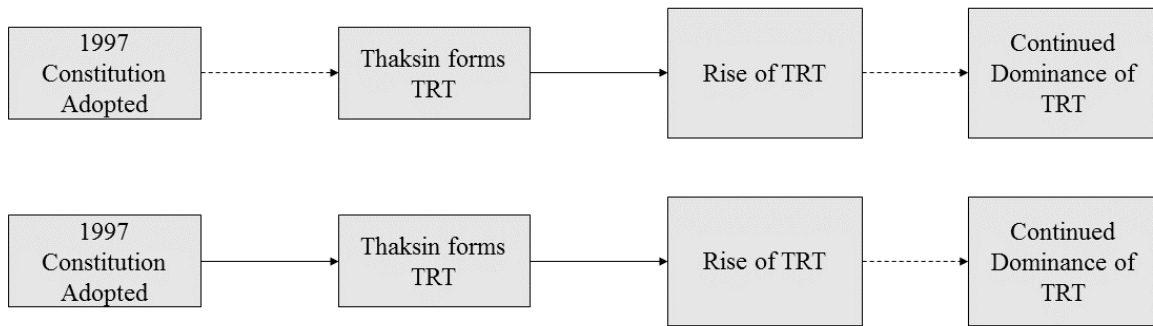
Figure 2.1. Timeline of Party Politics in Thailand



actions taken by Thaksin to establish TRT in 1998. Thus we can outline two competing explanations in our causal graphs (see Figure 2.2).

In both graphs we have identified the same set of four major events of interest. But in the top graph – using dashed lines – we show that the continued dominance of TRT is not a necessary component of our explanatory story. In essence, it occurs after our outcome of interest (rise of TRT) occurs. We also highlight that the 1997 Constitution is not part of the first hypothesis, i.e., Thaksin is the source of TRT’s rise. This too is identified via a dashed line. In the bottom graph representing the institutional mechanism, the intermediate variable, the formation of TRT, is part of the causal process not the ultimate explanation for the party’s rise. In other words, the formation of TRT is on the causal path, but it is not causal itself. Thus the causal graphs points us towards the evidence necessary to establish a causal chain.

Figure 2.2. Causal Graphs of Party Politics in Thailand



Step 4: Identify Alternative Choice/Event

The alternative choices available would have included (1) the choice by Thaksin to not create TRT and (2) the exclusion of the electoral rule changes and institutions by the constitution drafters in 1997.

Step 5: Identify Counterfactual Outcomes

One counterfactual, as clearly explained by Hicken (2007), would have been a 1997 Constitution bereft of institutional changes to the electoral system. The prior Thai electoral rules would have continued to encourage spreading votes among a number of smaller parties. Beyond this, without those changes, barriers to party-switching (i.e., abandoning TRT) would have been much lower. In essence, we expect that this alternate universe would have seen more coalition governments like those of the 1990s. Fear of such situations motivated the constitutional drafters to embrace electoral reforms.

The other counterfactual, in which Thaksin would not have founded his party, allows us to consider what would have happened to the Thai political system. Despite the absence of one ultra-wealthy political figure, we can safely envision the effects of the new institutional rules in the 1997 Constitution producing more consolidated political parties. In fact, in the 2001 election, we observed

that the 400 new single member district constituencies resulted in dramatic shrinkage in seat numbers held by small parties. The two largest parties shared 376 of the 500 parliamentary seats between them (75.2% of the legislature). Compare this to the 248 of the 393 seats shared by the two largest parties in the 1996 election (63.1% of the legislature). As Duverger's Law suggests, single member districts would have likely continued to concentrate power in the two large parties, regardless of Thaksin's influence. Rules limiting party-switching would have also contributed to the consolidation of larger parties.

Together, these two counterfactuals provide us with strong suggestions about our two theories. They also give us some direction as to what evidence types we should seek.

Step 6: Find Evidence for Primary Hypothesis

The primary hypothesis focuses on Thaksin. If the story of TRT's success is because of Thaksin, we need proof that Thaksin's presence was necessary. Table 2 outlines the different evidence types that can help us validate or falsify this claim.

First, any data that suggests personal assets and leadership are important aspects of Thai politics would be considered **straw-in-the-wind**. Thai politics has been long characterized by elites looking to bolster their status and accumulate wealth (Ockey 1994). Of course this data tells us only that personalities can be important, not that Thaksin was.

Next, we need **hoops** evidence that Thaksin was a man of wealth and leadership. In this case, we have information to suggest Thaksin was an elite of great influence. Prior to his political career, in 1986 Thaksin founded Advanced Info Service (AIS), a mobile operating company. Shortly thereafter, AIS secured a monopoly contract from the government. AIS went on to become the largest mobile carrier in Thailand. In the mid-1990s, Thaksin entered politics and joined the Palang Dharma Party (PDP). His first major position was that of foreign minister in the Democrat Party-led

government. He later assumed the presidency of PDP (McCargo and Ukrist 2005; Pasuk and Baker 2009). These facts suggest that by all accounts Thaksin was a man of assets and capabilities.

Table 2. Evidence Needed for Party Politics in Thailand

Research Question: What explains Thai Rak Thai's (TRT) dominance?

	Primary Hypothesis Thaksin's personal assets and leadership led to TRT's dominance.	Rival Hypothesis The 1997 Constitution changed the electoral landscape, thereby ending multiparty coalition parties.
Straw-in-the Wind	Personalities can influence Thai politics.	Constitutions affect electoral institutions in Thailand.
Hoops	Thaksin had wealth and leadership talent prior to TRT's rise.	The 1997 Constitution changed electoral institutions and it preceded Thaksin's rise.
Smoking Gun	Thaksin used his wealth and leadership ability to force politicians to join his party.	The reforms created incentives for politicians to consolidate in one large party.
Doubly-Decisive	(A) Thaksin's wealth/leadership linked to his rise. (B) Politicians did not respond to incentives of 1997 Constitution.	(A) Reforms linked to party consolidation. (B) Thaksin's prior weakness in leadership – even with wealth.

Third, we should seek **smoking gun** evidence. Here, we need proof that Thaksin was sufficient for TRT's dominance. We do not have direct confirmation of this. We do, however, have clues about the counterfactual: Could any other elite have established a TRT-like party? The evidence suggests no. As Chambers (2008) notes, there have been other wealthy and influential politicians who have tried to cobble together a majority party out of smaller parties and factions. But, unlike Thaksin's, these efforts have been futile each and every time. Thaksin's wealth was

unparalleled in the history of Thai prime ministers. Estimates put his personal expenditure for the party at about 1 billion baht (approximately \$25 million USD) per year between 2000 and 2005 (Nelson 2007, 140-141).

Finally, we look for some **doubly-decisive** evidence. This needs to show that Thaksin's presence was both necessary and sufficient for TRT's rise and success. With the smoking gun evidence, we have indirect information that Thaksin was sufficient. But this begs the question, could he have done this without the new constitution? Put differently, could the rise and success of TRT have happened prior to 1997? Available information says no.

TRT was not Thaksin's first time as a party leader. In 1995, two years before the constitutional reform, Chamlong Srimuang, PDP leader and founder, resigned and hand-picked Thaksin to succeed him. PDP subsequently declined under Thaksin. Factional conflicts were widespread. In the 1996 election, PDP won only one seat in the national assembly. Thaksin resigned shortly thereafter (McCargo 1997). While it is true that many other factors were at play in PDP's failure (Nelson 2007), Thaksin's personal charisma, and even his wealth, would have been unlikely to have held TRT together in the face of factional quarrels (see Hicken 2007).

While we do have information that Thaksin was influential to TRT's survival, these pieces of evidence when put together fail to exclude this hypothesis on its own. We lack doubly-decisive evidence, although we do have some strongly suggestive data regarding his influence. Thus we have neither falsified our primary hypothesis nor excluded others. At this point, we must repeat our data-collection efforts for the second hypothesis.

Step 7: Find Evidence for Rival Hypothesis

We now consider the hypothesis that TRT's dominance was due to the 1997 Constitution. Let us systematically examine the four evidence types. The first is the **straw-in-the-wind**. Do constitutions

affect electoral institutions in Thailand? Prior to 1997, the electoral rules favored provincial politicians. They also did not discourage party-switching. Given these incentives, we should see (1) a proliferation of parties contesting elections; (2) many parties in the national assembly; (3) oversized government coalitions; and (4) short-tenured governments. On average, 15.3 parties contested elections between 1983 and 1996. Of these 15.3, 12 won representation in the House of Representatives. And of the 12, on average 5.3 were in the government coalition. It is no surprise that these governments were short-lived. In Thailand's democratic era, no elected prime minister served out their complete term. The one exception is Thaksin in 2001-2005.

For the **hoops** test, we see that the 1997 Constitution was adopted before Thaksin rose to political prominence. While this fact singularly does not validate the second hypothesis, it does ensure the hypothesis is not falsified. Imagine if TRT's rise predated the constitutional reform. If true, logic would dictate that the constitution cannot account for TRT's electoral dominance.

Next is the **smoking gun** that the 1997 Constitution created incentives for politicians to consolidate into larger parties. One way to prove this is to simply count parties. Hicken (2006) demonstrates this change. Prior to the reform, 7.2 effective parties contested the national elections. After the reform, this number dropped to 3.8 and then 2.6 for the 2001 and 2005 elections, respectively. The trend is similar at the local level even if the magnitude of change is smaller: 3.2 pre-reform, 2.7 in 2001, and 2.0 in 2005. These changes support the claim that electoral changes were sufficient to force elites to consolidate under one political banner. As mentioned above, for the 2001 election, TRT brought several political leaders and their supporters into its fold. Even after the election, the incentives were still present to form a broad, nationally-oriented party. Many MPs from other parties defected to join TRT.

Finally, we look for **doubly-decisive** evidence that would suggest it was the constitutional reform, and *not* Thaksin, that was responsible for TRT's rise. This is where our counterfactual is

particularly useful. If we considered a universe where electoral reforms had not been included in the 1997 Constitution, could we justifiably say that Thaksin's party would have still become dominant (Hicken 2007)? Here, we highlight a point already mentioned in Step 6. TRT was not the first time Thaksin led a party. It was, however, the first time he led a party in the post-reform era. Thaksin's prior work with PDP ended in failure. This suggests that his own personal capacity at managing parties may have been limited. Additionally, we have indications that at least one major faction, led by Sanoh Thienthong, would have abandoned TRT if it had not been locked into the party by constitutional rules (Vatikiotis and Tasker 2002).

These pieces of data taken together provide strong support for the second hypothesis as an explanation for TRT's dominance. In a different world where Thaksin tried to rise to power in the absence of the 1997 electoral reforms, we would have probably seen a stronger reliance on coalitions and faction politics as characterized the 1990s (Chambers 2008). However, this evidence is not exactly doubly-decisive. It is possible that Thaksin learned from his earlier mistakes, and given Thaksin's considerable monetary and personal influence, a party like TRT would have emerged regardless of the electoral environment. Thus, at this point, we are left to infer causality. This leaves us with two hypotheses to explain TRT's success. We do not find this unsettling since many political phenomena exhibit "equifinality" (George and Bennett 2005: 20). We find evidence supporting both hypotheses, suggesting that Thaksin and the 1997 Constitution together contributed to TRT's electoral success. While these hypotheses are competing, they are not mutually exclusive. Without conclusive proof eliminating either one, we can only accept that both hypotheses are supported. In other words, we have not yet identified the test necessary to distinguish the effect between the two.

That said, one of the benefits of in-depth case studies is a deep familiarity with the case. Thus we are able to weigh the support for both theories against each other. We know party factions within TRT would have abandoned Thaksin if not for the new electoral rules. Hicken (2007) points

to tenuous loyalty of Sanoh and his faction, who repeatedly expressed the desire to defect from TRT. Yet Sanoh stayed because breaking away risked political exclusion if a new election were called before the required ninety-day period of waiting to join another party, the product of the new party-switching regulation, transpired. Weighing this information leads us to judge the rival hypothesis, the institutional explanation, as a more credible explanation while still acknowledging the valuable influence of the individual.

APPLICATION 3: ENGLISH STANDARDIZATION IN SINGAPORE

In this third application, we examine the standardization of the English language in Singapore.

English, the language of the colonial powers and a lingua franca for the country's three major ethnic groups (Chinese, Malays, and Indians), is spoken by more than 90% of the population today: 50% speak it as a first language and another 40% as a second language. These numbers, however, betray the linguistic landscape at the time of independence: Only 21% of the population had literacy of any sort in English (Dixon 2005). What explains the standardization of the English language?

Step 1: Identify Hypotheses

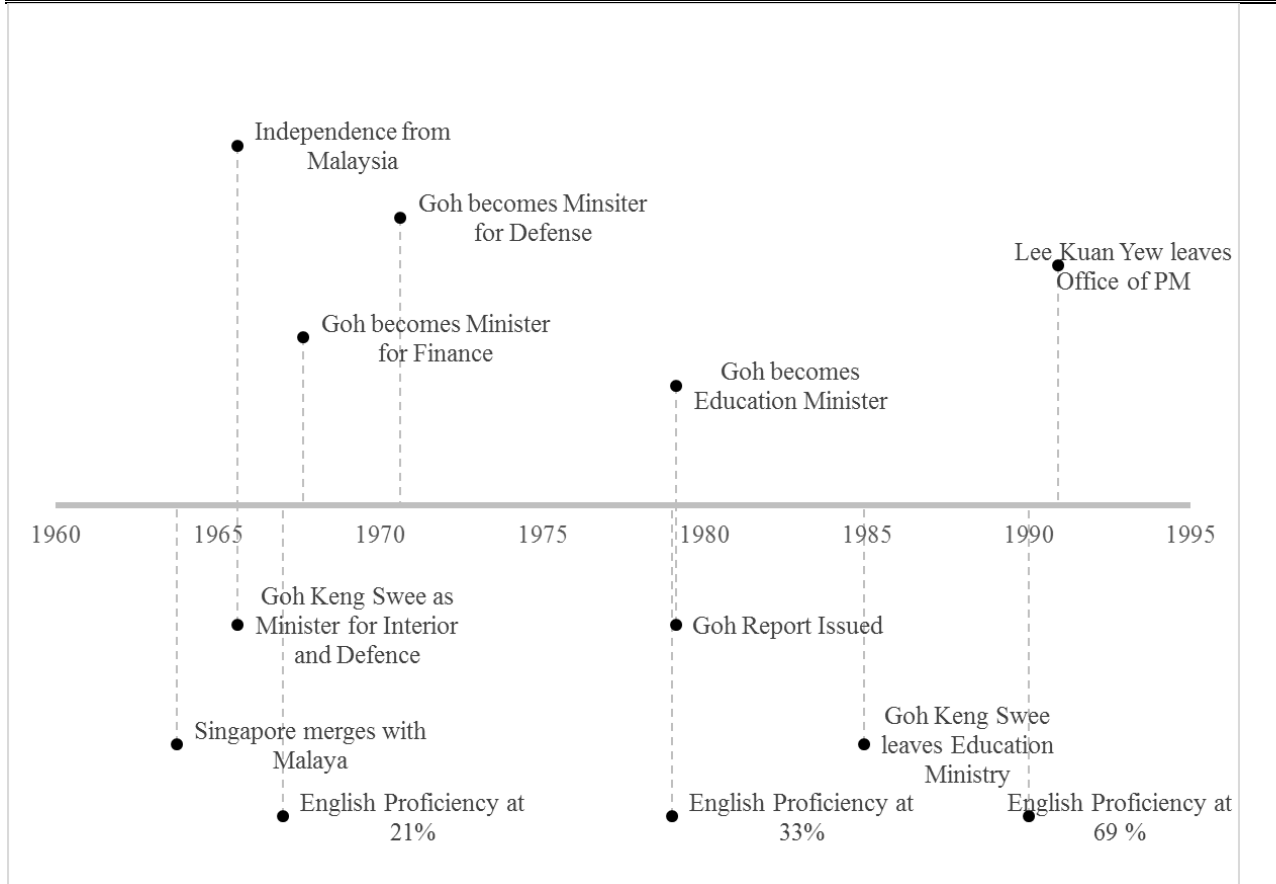
Here, we examine two competing hypotheses. The first focuses on state strength. Specifically, Singapore's success with spreading English has to do with its high institutional capacity. This capacity, characterized by developmental institutions (Doner, Ritchie, and Slater 2005) and embedded autonomy (Evans 1995), is what allowed the Singapore government to adopt and implement policies. In contrast, a rival explanation put forth by Liu and Apfeld (2016) emphasizes the government's politicization and prioritization of the education ministry. This is most evident by Goh Keng Swee's appointment as the education minister. Goh was not only the deputy prime minister, but he was also one of the most influential ministers in the government. His appointment would see both an increase in the ministry's budget and the recruitment of talented bureaucrats from other ministries to education.

Step 2: Establish Timeline

Since Lee Kuan Yew is the founding father and ruled for three decades (1965-1990) during the most formidable state-building years, we restrict our analysis to his tenure. As we see in Figure 3.1, in 1965, just after a two-year stint, Singapore separated from Malaysia. The education system would

remain largely untouched until 1979. That year, Lee appointed Goh, who had been previously the defense (1965-1967, 1970-1979) and finance (1967-1970) minister, to oversee the education ministry.

Figure 3.1. Timeline of English Standardization in Singapore



With a team of twelve, known as the “Daring Dozen,” Goh reviewed the “innumerable” problems with the ministry (Tan 2007, 152; Lee 2000). The resulting study was the Goh Report. The Goh Report identified and set out recommendations to address three shortcomings: high education wastage, low literacy, and ineffective bilingualism. Students were separated into different tracks, “normal,” “extended,” and “monolingual,” based on linguistic abilities and scholastic potential. The first separation happened in third grade; the second separation, in sixth grade. And so by the time

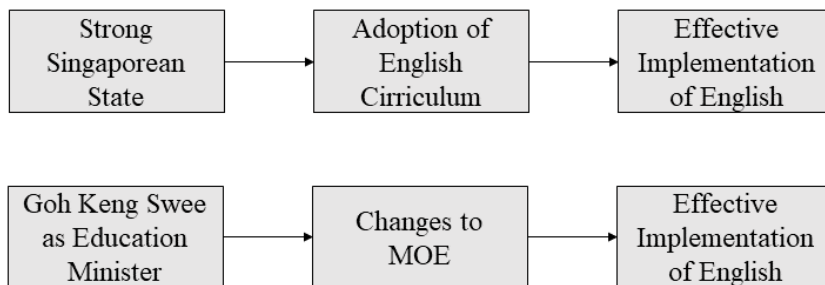
students entered junior high, they were already placed into a specific curriculum where English was taught to maximize proficiency (Gopinathan 1998).

By the time Goh left the education ministry in 1984, English had become the *de facto* first language of the country (Goh and Gopinathan 2008). In a matter of ten years after adopting the Goh Report (1990), English proficiency levels had more than doubled from 33% to almost 69%, either as a first or second language (Liu and Apfeld 2016).

Step 3: Construct Causal Graph

We are interested in the spread of English, most notably during the 1980s. Given the two hypotheses, we outline two competing causal graphs as illustrated below (Figure 3.2). The top graph shows that as a strong state, Singapore institutions had the capacity to adopt and implement language policies that helped bring about the standardization of English. In contrast, the bottom graph illustrates how with Goh's appointment, this not just changed, but drastically shook, the education ministry. The appointment and change would in turn bring about the Goh Report, which is responsible for the spread of English.

Figure 3.2. Causal Graphs of English Standardization in Singapore



Steps 4-5: Identify Alternative Choice/Event and Counterfactual Outcomes

There are two alternatives. The first is that Singapore is a weak state where institutional capacity is lacking. Under such conditions, the government would have struggled to implement pro-English language policies. Even if such laws had been adopted, there is no guarantee the laws would have yielded a population highly proficient in the colonial language.

The second alternative choice is that Lee does not assign Goh to the education ministry. In this counterfactual scenario, Goh would have remained in a different ministry. Moreover, a different individual would have been the education minister. Most likely the status quo would have prevailed. But even if the counterfactual minister had sought to change the education curriculum, these changes would have paled in comparison to those put forth in the Goh Report.

Step 6: Find Evidence for Primary Hypothesis

One common hypothesis for Singapore's linguistic success is state strength. The ability of the government to adopt and implement policies is the reason why the government was able to standardize the English language. Table 3 outlines the different evidence types we need to validate or falsify this claim.

First, let us consider **straw-in-the-wind** evidence. We need to establish that bureaucracies matter for policymaking. And we have reason to believe this. The fact is that Lee appointed his best men to the top cabinet positions. For example, the three deputy prime ministers – Toh Chin Chye, Goh, and S. Rajaratnam – were respectively the ministers of science and technology and health; of defense and finance; and of labor and foreign affairs. Collectively, these individuals formed the first generation of Singapore politicians, i.e., “Lee’s Lieutenants” (Lam and Tan 1999), that helped transform the country from “third world to first” (Lee 2000).

Table 3. Evidence Needed for English Standardization in Singapore

Research Question: What explains standardization of the English language in Singapore?

	Primary Hypothesis A strong state led to the standardization of English.	Rival Hypothesis Goh's appointment as education minister resulted in English standardization.
Straw-in-the Wind	Bureaucracies matter for policies.	The education ministry matters for language standardization.
Hoops	Singapore has strong bureaucracies.	(A) English was not widely spoken prior to Goh's appointment. (B) Goh was a highly competent and well-respected bureaucrat.
Smoking Gun	There was a bureaucracy tasked with standardizing English.	The Goh Report brought about curriculum changes.
Doubly-Decisive	Standardization levels changed independent of Goh's appointment to the education ministry.	Only Goh as the education minister could have brought about these changes in the ministry.

Next, we need **hoops** evidence that Singapore has strong bureaucracies. There are different ways to measure bureaucracy strength. One way is to focus on the recruitment and promotion protocols. Strong bureaucracies are characterized by meritocracy (Evans 1995). In contrast, weak bureaucracies are plagued with corruption; bribery, not meritocracy, is the currency for getting a government job and the mechanism for upward mobility. To this end, we see Singapore has long been characterized as one of the least corrupt states. Ever since Transparency International began published its annual Corruption Perception Index in 1995, Singapore has always been one of the best performing countries. That year, it ranked third of 41 countries; in 2016, seventh of 176.

Another way to measure bureaucracy strength is to look at the policy outcomes. Consider what the Singapore government faced following the Malaysian separation. The economic outlook was grim. Unemployment numbers were high (about 14%) and trade volumes low. Average annual income was less than \$500 USD. With limited land and even less in natural resources, Singapore relied heavily on investments. Simultaneous to the economic woes were military concerns. Singapore was a “little red dot in a sea of green” (*The Economist*, July 16, 2015). It was sandwiched between two Islamic states on the verge of war with each other. Moreover, Singapore lacked a cohesive military. A lack of morale, inadequate training, and the absence of a unifying language rendered Singapore effectively paralyzed. And finally, there was always the threat of mass uprising, no thanks to strong latent communist sympathy. The ability of the government to address this “systemic vulnerability” (Doner, Ritchie, and Slater 2005) is evident today. The robustness of the economy, one of the highest growth rates and GDP per capita globally, is a far cry from the “razor’s edge” in 1965 (Lee 2000, 66). The professionalization of the military, from conscription to the high budget spending, also betrays the linguistic pandemonium in the aftermath of the separation. There was a smattering collection of languages spoken in the military. Additionally, the loyalty of the Malays was believed to be uncertain (Ostwald 2013; Tan 2007). And the extensive social provisions, from housing to health care to public transportation, suggest a government that has taken into consideration the welfare of the population.

Corruption scores and policy outcomes notwithstanding, it is important to note that the use of present-day indicators to measure past levels employs fallacious reasoning. First, from a temporal standpoint, these normatively “good” outcomes have not always been constant. They do not, and did not, appear overnight. The Singapore state was certainly anything but strong in the aftermath of the separation. Moreover, it did not become strong just because the government set out to tackle these issues. Second, from a spatial consideration, measures of a “strong state” do not always

manifest uniformly across all bureaucracies. Just because corruption levels have been low and the defense ministry “performed” well does not mean all ministries were afforded the same attention from the outset. The education ministry was one that was left untouched. Note that none of the deputy prime ministers held that portfolio until Goh in 1979. And until then, the education system was abysmal. Moreover, the civil servants in the ministry were “not very congenial, not very interested ... poor quality generally” (Tan 2007, 155). All this suggests that our primary hypothesis has failed the hoop test: It was not a strong state per se that led to linguistic standardization. Rather, it was the prioritization of the education ministry specifically, which included notably the appointment of Goh as the head minister, that mattered. In the next section we elucidate this argument.

Step 7: Find Evidence for Rival Hypothesis

We now consider that English standardization was the product of the Singapore government prioritizing the education ministry, most notably with Goh’s appointment as the education minister in 1979. As what we did in the previous section, let us first consider the **straw-in-the-wind** evidence. Does the education ministry matter for language standardization? The answer is yes, and this is by no means specific to just Singapore. Education is an important forum for exposing a large subset of the population to the government’s nation-building visions. These visions often involve language. And this is why it is no coincidence that governments often employ the education ministry to carry out their language planning efforts. And in fact, there are some instances when the task falls exclusively to the education ministry (Kaplan and Baldauf 1997).

For the **hoops** test, we need two sets of evidence. First, we need to establish that English was not widely spoken prior to Goh’s appointment. Despite being a British colony, only 21% of the population was literate in the English language at independence (1967). In the ensuing fourteen

years, before the adoption of the Goh Report, proficiency levels increased by a little more than ten percentage points. Yet within another ten years after the report, the numbers had increased to almost 70% (Dixon 2005; Liu and Apfeld 2016). While it is possible that an explanation other than Goh's appointment drove that number up, it is important to recognize that there was an increase, and that this increase happened after Goh was appointed, at a minimum does not falsify our argument.

Second, we need to verify that Goh was a highly competent and well-respected bureaucrat. Indeed, he was. From the outset, Goh was Lee's right-hand man. When Singapore was a part of the Malaysian Federation, Goh was the finance minister. In fact, he was the individual in charge during the negotiations that would result in the island's separation from Malaysia in 1965. After the separation, Lee tasked Goh first to the defense ministry (1965-1967), then to the finance ministry (1967-1970), and then back to the defense ministry (1970-1979), before reassigning him to the education ministry in 1979. Goh's success in the other two ministries is evident that Singapore was not only able to weather its economic and military woes in the first decade but to also build both institutions up to global standards. When Goh died in 2010, the state flag flew at half-staff for four days, up to that point the longest for any government official. In his eulogy, Lee singled out Goh as the "cabinet colleague...who made the greatest difference to the outcome of Singapore." While the political influence of Goh is important for this rival hypothesis, note that the value of this evidence is not in its confirmation. Rather, it is again in the non-falsification: If Goh had not been such an influential minister, his appointment as the education minister in 1979 would not yielded language standardization.

Next, we need **smoking gun** evidence, specifically, that the Goh Report brought about the curriculum changes. Prior to the report, Singapore's education system was mother tongue-English bilingualism on paper, but in practice it was ineffective. Moreover, there was a high dropout rate:

This suggests there was a subset of the population lacking the opportunity to learn, and hence be proficient in, English. As the education minister, Goh adopted policies that emphasized “social efficiency rather social equity” knowing full well that they did little to “substantially address the roots of social inequality” (Kwok 1999: 62). Specifically, students were separated into different tracks, “normal”, “extended”, and “monolingual,” based on linguistic abilities and scholastic potential. The first separation happened in third grade; the second separation, in sixth grade. And so by the time students entered junior high, they were already placed into a specific curriculum where English was taught to maximize proficiency (Gopinathan 1998). And while Goh left the education ministry in 1984, the changes he adopted to the curriculum would remain in place and be the foundation of Singapore’s educational policy for the next several decades (Ostwald, Ong, and Gueorguiev 2017). In effect, English had become widespread and the *de facto* first language of the country (Goh and Gopinathan 2008).

Finally, we focus on the **doubly-decisive** evidence that would suggest Goh’s appointment, only him *and* only as an education minister could have brought about these changes. First, it is important to recognize that prior to the appointment, the education system was considered effectively a disaster. If Lee had kept Chua Sian Chin as the education minister, the status quo would have prevailed. To be fair, there are reasons to believe English proficiency levels would have still increased. After all, in the fourteen years between 1965 and 1979, proficiency levels increased at almost one percentage point per year. However, no alternative education minister would have dared to poach talented bureaucrats from the other ministries as Goh did. And no other individual would have risked excluding the otherwise relevant education personnel from the important decision-making process. And in the absence of these bold moves, there simply would have been no Daring Dozen.

And without a Daring Dozen, there would have been no equivalent of a Goh Report. This is the case even if Goh had remained in another ministry and simply consulted on educational matters. Without the portfolio, Goh would have had no incentive to review the “innumerable” problems with the ministry. Instead, he would have avoided them. When Lee approached Goh about the reassignment, it was much to the latter’s chagrin. In fact, Goh considered leaving politics given the problems plaguing the ministry (Tan 2007).

All these pieces of evidence together offer strong support for the second hypothesis that focuses on Goh’s appointment to the education ministry. In a counterfactual world where Goh remained in charge of a different ministry, we would not have seen the recruitment of the Daring Dozen to the education ministry. And in the absence of their revolutionary ideas, encouraged greatly by Goh, there would have no report that would ultimately shake the education curriculum. This is not to deny the strength of the Singapore state. But it calls into question the timing of events: When Goh took over the helm of the education ministry, the country was still a far cry from what it looks like today. Moreover, the ministry itself was decrepit. It was not until after the Goh Report that we see exponential growths in English proficiency. And it was not until after the Goh Report that we start seeing more evidence of a “strong state”.

APPLICATION 4: IRRIGATION BUREAUCRACY REFORMS IN THE PHILIPPINES

Scholars familiar with the Philippines frequently bemoan the country's weak state institutions (Bello et al. 2004; Hutchcroft and Rocamora 2003; Slater 2010). Surprisingly, though, during the 1970s and 1980s, one state agency proved to be an exception. International experts heaped praise on the National Irrigation Administration (NIA) thanks to a series of policy reforms that began in 1974 and continued into the early 1980s (Korten and Siy 1989; Uphoff 1991). The agency rapidly expanded irrigation infrastructure, balanced its finances, and embarked on an ambitious set of reforms that encouraged greater farmer participation in the irrigation process (Ricks 2017). Why did the NIA become a rare case of institutional capacity in an otherwise weak state?

Step 1: Identify Hypotheses

In this application, we evaluate two hypotheses. The first, put forth by several international irrigation experts, focuses on the presence of a select set of benevolent bureaucrats. Some scholars praised top officials within the Philippines irrigation agency during the 1970s who implemented reforms that pushed the agency toward a participatory framework (Korten and Siy 1989; Ostrom 1992).

According to this perspective, the main cause of policy reforms and the ensuing success of the agency was the presence of dedicated and skilled technocrats who ran the agency. The personal influence of specific bureaucrats, then, was the main impetus for policy reforms. It is an actor-centered explanation.

A rival hypothesis draws from the work on institutional development, which argues that policy reforms take on different characteristics due to their context. Under normal situations, policymakers allow bureaucrats to control policy responses. This means changes are incremental. In contrast, crisis-based reforms involve powerful political actors who embark on more monumental policy reforms (Grindle and Thomas 1991). It follows, then, that the Philippines irrigation agency

experienced institutional strength not due to technocratic expertise, but because a political crisis forced political leaders to emphasize and enhance state capacity through reform efforts (Ricks 2017). Let us now work through the checklist.

Step 2: Establish Timeline

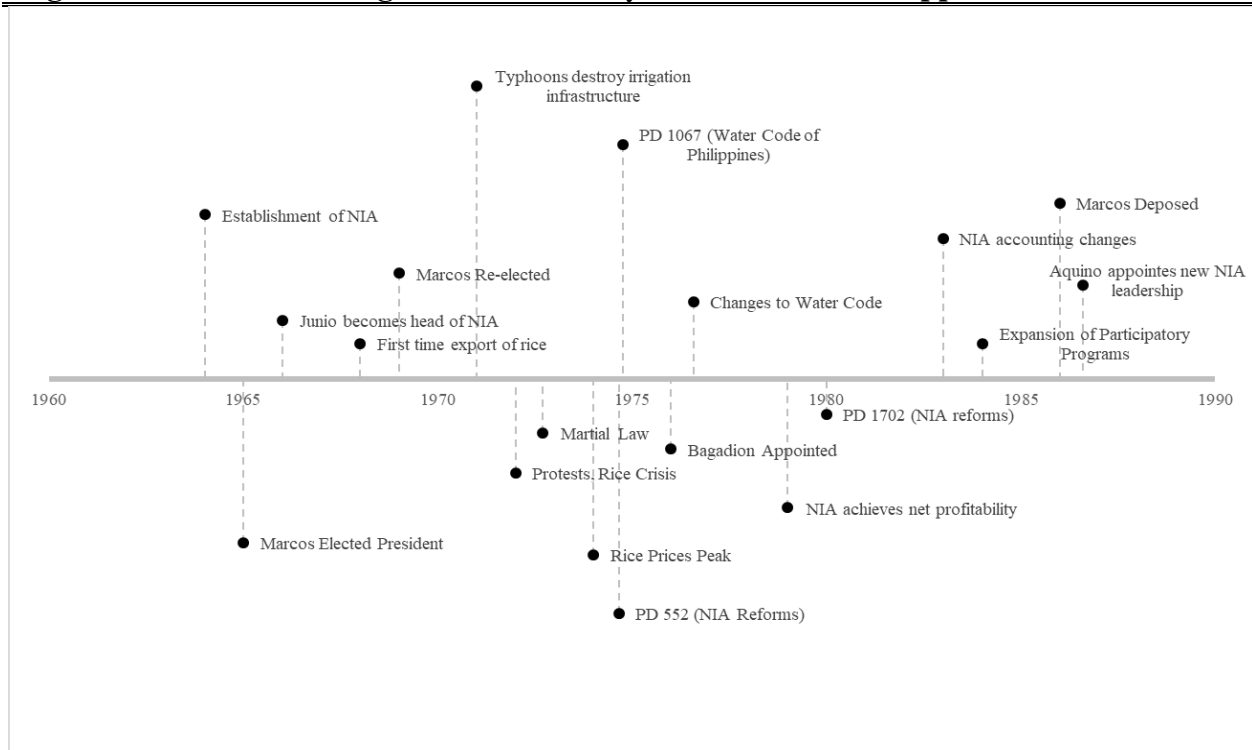
The next step requires us to establish a timeline of institutional development. For brevity purposes, we only discuss highlights from the timeline here (see Figure 4.1). The NIA of the Philippines was established in 1964 to help manage the expanding irrigation infrastructure in the archipelago. Shortly after its genesis, the NIA grew rapidly to help the country achieve increased agricultural production. In 1966, the agency was rather small, with only 635 permanent and 2,101 temporary employees. But after just one year, it ballooned to 1,632 permanent and 13,616 temporary employees. The agency, via irrigation expansion, assisted the Philippines to achieve self-sufficiency in rice production for the first time in 1968. At this time, though, there was little institutional reform to speak of, especially regarding that which would garner the agency international fame.

It was only the 1970s under the Marcos administration that the NIA would start to draw praise from irrigation experts around the globe. The reforms emerged from a series of laws beginning in 1974. The most important of the laws, PD 552, laid the groundwork for extensive reforms within the NIA. It created rules that linked NIA incentives with those of farmers and forced the agency to shift its service orientation. PD 424 also established National Water Council with some oversight over the NIA. These policy changes were followed by additional laws in 1976 (PD 1067) and 1980 (PD 1702). Each of these laws further shaped the NIA's institutional capacity for working with farmers and achieving developmental objectives.

Because of success from irrigation expansion, the Philippines was able to again enjoy self-sufficiency in rice production from 1978 through 1983. During this period, the NIA's programs

continued to expand throughout the archipelago. And it was this irrigation expansion that deserves credit for the increased rice production (*Bulletin Today*, August 21, 1978). Later, after the end of the Marcos dictatorship, the NIA's level of success decreased for a variety of reasons detailed elsewhere (Araral 2005; Ricks 2017).

Figure 4.1. Timeline of Irrigation Bureaucracy Reforms in the Philippines



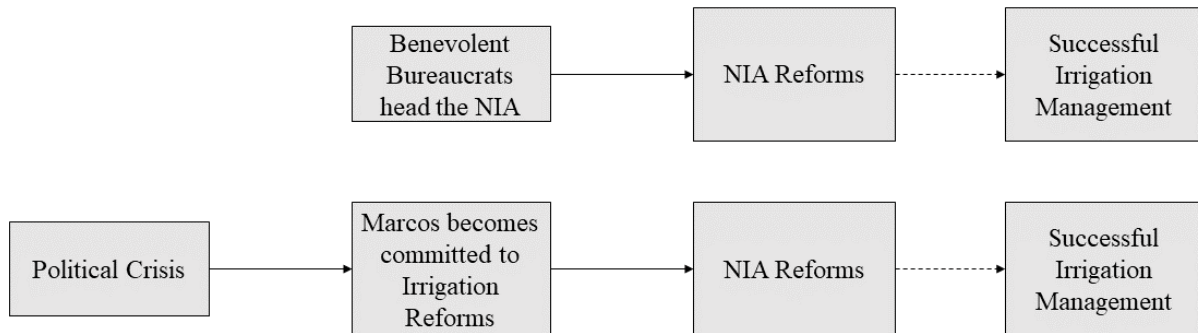
Step 3: Construct Causal Graph

Like our other applications, we have two hypotheses regarding the development of the NIA. Here, we are particularly interested in the institutional reforms of the NIA, which occurred from 1974 through the early 1980s. Admittedly, NIA's success is important. However, it is taken as a given in both scenarios. And as such, we illustrate this with dotted lines in Figure 4.2.

The main events of interest coincide with our theories. In the first, the major explanatory variable is the ability of benevolent bureaucrats to direct reforms. This is a fairly straightforward

causal graph, then, tying bureaucrats with the reforms. The hypothesis supposes that these bureaucrats were the direct cause of the reforms.

Figure 4.2. Causal Graphs of Irrigation Bureaucracy Reforms in the Philippines



The second hypothesis requires an additional step. It does not exclude the effective NIA officials. But at the same time, they were not the cause of institutional reforms. Those changes emerged from a political crisis. As such, first, there must be a political crisis of some sort that will prioritize irrigation reforms. Second, the main politician of the time, primarily Marcos, must have then become interested in reforming the irrigation agency.

Step 4: Identify Alternative Choice/Event

There are two potential alternative paths we can consider. The first is that benevolent bureaucrats, such as Alfredo Junio and Benjamin Bagadion, were not placed in positions of authority. The second is that there would have been no crisis that focused on irrigation during the early 1970s.

Step 5: Identify Counterfactual Outcomes

If the specific benevolent bureaucrats had not been at the helm of the NIA in the late 1960s and early 1970s, what might have happened? In other words, we need to identify exactly what effect the personalities of Junio and Bagadion had on the agency. In this thought experiment there are a few potential scenarios. The first is that the influence of international donors might have become even more pronounced, although their impact on Philippine agriculture was already strong. Perhaps the local officials would not have been as adept at adapting their demands to the local context. Second, there is potential that alternative officials would have risen to the challenge of the times. In essence, it is very difficult to tease out an alternative scenario where the pressures that emerged under the Marcos regime would not have resulted in some reforms.

Second, if the Marcos government had not faced a crisis during the early 1970s, what type of irrigation institutions might we have seen emerge? Without the crisis, it is likely that the NIA would have continued to exist in the same form: an irrigation agency focused on infrastructure building and reliant on the central government for funding. Without central government budgetary constraints, the government would not have been forced to rely on external loans and farmer participation – both of which created pressure for irrigation reforms. At the same time, without the financial and political crisis, the Philippines would have likely continued importing rice, much like the previous administrations. There would have been little pressure for the government to pursue rice self-sufficiency, i.e., improvements in irrigation management (see Davidson 2016).

Thus, beginning with the counterfactuals, we have already identified a potential weakness in one of the hypotheses. The rival hypothesis, the crisis explanation, appears stronger. This, however, remains up for testing.

Step 6: Find Evidence for First Hypothesis

The first hypothesis focuses on the benevolent bureaucrats. In this case, we seek evidence of benevolent bureaucrats acting to propose and promote the policy changes within the NIA. Table 4 provides a brief outline of the types of evidence we seek for both hypotheses.

Table 4. Evidence Needed for Irrigation Bureaucracy Reforms in the Philippines

Research Question: Why did the National Irrigation Administration (NIA) become subject to policy reform?

	Primary Hypothesis The presence of benevolent bureaucrats in the NIA led to policy reforms.	Rival Hypothesis A crisis led politicians to engage the NIA policy reforms.
Straw-in-the Wind	Bureaucrats can influence policy in the Philippines.	Politicians control policy decisions in the Philippines and care about irrigation.
Hoops	Benevolent bureaucrats were present in leadership roles in the NIA at the time of reforms.	A crisis relevant to the irrigation sector occurred immediately prior to the reforms.
Smoking Gun	Benevolent bureaucrats were involved in proposing and passing the policy reforms.	Politicians responded directly to crisis when they embraced policy reforms.
Doubly-Decisive	Influence of benevolent bureaucrats remain unchanged before and after 1974.	Influence of benevolent bureaucrats changed after the crisis.

First, we look for the evidence necessary for a **straw-in-the-wind** test. We need clues that bureaucrats could, and did, influence policymaking. With the Philippine bureaucracy being highly subservient to politicians, especially during the Marcos era, there is little clear evidence that this is

true (Carino 1989). Of course, specialists within different agencies can make recommendations to policymakers. Policy influence, however, is not synonymous with policy creation. As such, this leaves us with some concerns about this hypothesis, but it does not damn the claim.

Second, **hoops** evidence can falsify the hypothesis, but it cannot validate it. In this case, for benevolent bureaucrats to be the cause behind the policy changes, we need to know that they were in relevant leadership positions during the time in question. As it turns out, Alfredo Juinio, an engineering professor at University of the Philippines, had been appointed NIA administrator in 1966 and would remain in the post until 1980. He presided over the agency's development, and he was the administrator during the time of the policy changes. He could have been the source of the policy changes.

On the other hand, much of the literature credits the development of the NIA to Benjamin Bagadion, who was charged by Juinio to implement many of the agency changes (see Kortzen and Siy 1989; Ostrom 1992; Panella 2004). However, Bagadion was not yet in NIA leadership when the initial policy changes took place in 1974. He was only appointed as an assistant administrator in 1976, almost two years after the policy reforms became law. Prior to that, he was a project manager at the Upper Pampanga River Project and a civil engineer in Naga City. This presents a challenge to the hypothesis that benevolent bureaucrats were the source of the changes within the NIA. While it is true that the civil servants who implemented the laws were vital to their success, this does not mean that they were the originators of the law.

Thus, if Juinio were the benevolent bureaucrat, the hypothesis would pass the hoops test. But if it was instead Bagadion, then our hypothesis fails this test, and we could then stop. For the sake of illustration we will continue, albeit on rather shaky ground.

The third evidence we should seek is that of a **smoking gun**. In this case we would look for historical records indicating that the laws changing the NIA's role, especially PD 552, were proposed

or championed by the benevolent bureaucrats. This data may also come from interviews with those closely involved in the process. One secondary source, based on an interview with Bagadion, indicates that NIA officials were intimately involved in writing PD 552 (Panella 2004). They did this due to financial pressures placed on their agency. This piece of evidence provides support for the claim that benevolent bureaucrats were central to the policy reform process. However, in the bigger picture, this is the only one piece of evidence. Written records, meeting minutes, and other supporting evidence currently available to us neither corroborate nor refute said claim.

For illustration purposes, let us progress to seek out **doubly-decisive** evidence. We need proof that would support the benevolent bureaucrat hypothesis while excluding other possible explanations. Specifically, we want data to show that bureaucrats adopted some action, importantly, prior to 1974, that would account for their promotion of policy reform while in the absence of external variables. Examples could include the promotion of a new benevolent bureaucrat in that period or the release of a new internal memo regarding the direction of the agency. The evidence we have, however, is inconclusive on this point. We know that Junio was director long before the changes and that Bagadion was only promoted after the initial reforms started.

When we consider the combined evidence from each of these tests, we have some support for the claim that benevolent bureaucrats were at least part of the impetus behind policy changes. There are major concerns for the hypothesis, however, as the evidence is rather circumstantial. We have not yet identified any data indicating that this was the only variable in play. Thus, we cannot dismiss the rival hypothesis and therefore, we must move on to step 7.

Step 7: Find Evidence for Rival Hypothesis

Here we consider the hypothesis that crisis pushed policy actors to engage in reforms. First, **straw-in-the-wind** evidence would include the fact that Marcos presided over reforms in 1974, and that he

was strongly committed to increasing the Philippines' agricultural production. These two facts provide little support for the claim that the crisis pushed him towards reforms. But they do suggest that his own commitment to achieving rice self-sufficiency could have encouraged him toward such policies when faced with crisis.

Hoops evidence requires that a crisis occurred during the period immediately preceding the policy reform. Beyond this, the crisis must have had relevance to the policy in question. The Philippines was, in fact, embroiled in a political crisis in the years leading up to 1974. With a foreign exchange crisis looming in 1969, the government devalued the peso in 1970. By the end of the year, the currency had lost about 60% of its value. All this contributed to the political challenges Marcos faced early in his second term.

Shortly thereafter, the country was hit by a devastating typhoon season in 1971. The result was a severely damaged irrigation infrastructure. This was the same infrastructure that had allowed the Philippines to reach self-sufficiency in rice for the first time in 1968. A drought in early 1973 then followed the typhoons, which led to a precipitous drop in rice production. Rice prices jumped almost 40% between 1970 and 1972. Prices were only brought under control in 1973 by spending foreign exchange to import 336,000 tons of rice.

These twin crises had implications for irrigation policy. Firstly, the NIA had relied heavily on central government transfers to finance its irrigation expansion efforts. With a financial crisis, however, the Filipino state could no longer fund irrigation expansion as it had during Marcos' first term. Secondly, a crisis of agriculture production was directly related to NIA's capacity to handle both infrastructure repair and water management. Marcos staked much of his legitimacy on the ability to provide rice for his people, and this crisis would have had direct implications for his newly-minted authoritarian regime. In sum, the crisis hypothesis passes the hoops test.

In search for **smoking gun** evidence, we look for statements by Marcos or others involved in the policymaking process as to their motivations for the policy. We have multiple records of Marcos speaking directly about the importance of irrigation and rice production. For instance, in an address to the nation on September 21, 1973, Marcos linked the typhoons and droughts to the launch of the Masagana 99 policy program, which necessitated irrigation expansion. In a later speech titled “The Years of Crisis Government,” Marcos listed the expansion of irrigated areas as one of eighteen changes that his government made in response to crisis. These are only a few of the many examples wherein Marcos expressed support for irrigation expansion as a key to increasing rice production and achieving self-sufficiency. Even so, we are unable to identify any single instance in which he discussed the impetus behind the policy changes to the NIA. As such, we have some strong evidence that the crises of the early 1970s did push him to pursue policy reform, but we are still missing a smoking gun which could tie the presence of the crisis directly to the new laws on irrigation, especially PD 552.

Thus we are left to seek out **doubly-decisive** evidence, if we can find it. This evidence would demonstrate that policy reform emerged from the crisis alone, thereby dismissing the first hypothesis. But as noted above, we know that at least one benevolent bureaucrat was in office during this time and that the bureaucracy was involved in the reform process. Thus, without direct statements from Marcos himself or more detail from the individuals involved, we are left to infer causality. We have two hypotheses, both with supporting evidence, seeking to explain the emergence of policy reforms in the NIA.

Here, extensive familiarity with the case study allows us to weigh the evidence for both theories against each other. First, we know that Marcos exercised strong control over the bureaucracy during his time as dictator. In fact at one point, he dismissed more than 1,500 civil servants simultaneously (Carino 1992). Second, we know that Bagadion, who received much of the

praise from international experts, was not yet in NIA administration when the policy reforms began. Third, although we know that NIA officials were involved in policy formation, they may not have been the impetus behind them. Some event must have triggered the change. We have yet to identify evidence that this event was internal to the bureaucracy, but we do have evidence that the political crisis facing Marcos caused him to respond. Weighing these pieces of evidence leads us to judge the rival hypothesis about crises is the more credible explanation, while still acknowledging the valuable influence of bureaucrats in the policy reform process (Ricks 2017).

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