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**The Politics of Institutional Reform: Vulnerability and Bureaucratic Independence in Asian Agriculture**

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**Abstract:**

Although effective bureaucracies are seen as key for service provision in developing states, we still have limited explanations for their emergence. I argue getting these institutions right is a political, rather than technical, challenge based on a set of theoretical predictions for reform outcomes acknowledging the interaction between a state's political vulnerability and degree of bureaucratic independence. I apply these predictions to a controlled comparison of irrigation sector reforms in three Asian countries. The results demonstrate that the success of institutional reforms necessary to implement policies is contingent on both the degree of vulnerability experienced as well as the extent to which the bureaucracy can influence the policy-making process. In states with highly independent bureaucracies, reforms falter or are reversed due to bureaucratic resistance. This highlights the impact of politics in shaping second-generation reforms and suggest that researchers should pay greater attention to the role bureaucracy plays in forging institutions.

**Key Words:**

Second-Generation Reforms, Institutional Reform, Bureaucracy, Southeast Asia

Getting institutions right is one of the most prominent concerns for developing countries (Rodrik 2007; Andrews 2013; Ricks & Doner 2021). This is especially true in the case of reforms designed to improve service provision, which are often called second-generation reforms.<sup>1</sup> These include transforming state services such as education, healthcare, and agricultural extension. In these areas, states must develop the organizations and rules necessary to both provide services as well as adequately and efficiently monitor civil servants as they perform their duties. To be successful, these actions require states to “increase their technical and managerial capacities” to address the needs of service recipients (Naim 1994: 32; Nelson 1999). Because these types of reforms require institution-building, they pose considerable challenges for many developing countries, particularly in cases where services require complex interactions between state officials and service recipients (Pritchett and Woolcock 2004; Batley and McLoughlin 2015). Strong institutions are often in high demand but short supply, leading to frequent lamentations regarding failed efforts. Despite a wealth of knowledge about “best practices,” the emergent institutions often fall short.

While some practitioners and economists have argued that a deficiency in ‘political will,’ inadequate design, and problems of context specificity are to blame for the lack of success (Andrews 2013), these analyses tend to omit the role of politics (Doner and Schneider 2016; Levy 2014). Institutional reforms necessary to enhance service provision, though, are immensely political in a way unique from first-generation reforms (Navia and Velasco 2003).

I argue that the reform outcomes necessary to engage in better service provision are contingent on two factors. First, in line with the political economy literature on the pressures

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<sup>1</sup> First-generation reforms, in contrast, are those designed to reduce state regulation and involvement in the market, such as opening markets, privatization of state-owned industries, and relaxing exchange rate controls. The goal of these actions is to allow market forces to drive economic growth. First-generation reforms, then, involve paring down the state, while second-generation reforms involve building up state capacity. For more details see Naim (1994) and Navia and Velasco (2003).

that can shape institutional reforms (Doner et al. 2005; Grindle and Thomas 1991; Ricks 2017; Woo-Cummings 1999), I propose that political vulnerability shapes the incentives of political executives in their decisions to enhance, establish, or transform state agencies that engage in service provision. In essence, political considerations serve as the source of the ‘political will’ necessary to spur reform efforts.

Second, the political role of the bureaucracy is also central to reform outcomes for enhancing service provision. While many acknowledge the importance of autonomous agencies in achieving developmental goals (Johnson 1982; Evans 1995; Evans and Rauch 1999), too often we look outside the bureaucracy for explanations of the failure to achieve ideals rather than acknowledging the pathologies and obstructions that emerge from bureaucracies (Fukuyama 2013). The political economy of development literature “has tended to ignore the bureaucracy itself” (Pepinsky et al. 2017: 250). I propose that the degree to which bureaucrats enjoy independence from politician oversight has vast implications for the potential success of institutional reforms necessary for enhanced state capacity and, accordingly, better developmental outcomes. Thus, I take a step up the explanatory ladder from those who sing the praises of autonomous, Weberian-style bureaucracies (Cingolani et al. 2015) to demonstrate why we see so few of them.

Based on these two variables, political vulnerability and bureaucratic independence, I garner a set of theoretical predictions regarding reform outcomes. In short, I predict that the adoption of reform efforts is more likely under conditions of high political vulnerability, but the successful implementation of those efforts depends on the level of bureaucratic independence. If a bureaucracy is highly independent, it will have the capacity to resist reforms. On the other hand, implementation of reforms will be more likely under conditions of lower independence. I apply these predictions to the reform experiences of three Asian countries in a specific sector: irrigation. I demonstrate that political vulnerabilities initiate

reform efforts, but the success of those reforms is contingent upon the bureaucracy's degree of independence. In the Philippines, vulnerability paired with a subservient bureaucracy, allowing for relatively successful irrigation sector reforms during the 1970s-1980s. Indonesia, in contrast, saw the bureaucracy resist reform efforts over time, despite an ephemeral effort to reform institutions from 1999-2001. And in Thailand we see a situation of low vulnerability combined with a highly independent bureaucracy, leading to the failure of reform efforts.

These findings afford important insights, as irrigation agencies around the world have been subject to repeated and extensive attempts at service-oriented reforms, yet most have failed to achieve their goals (Molle et al. 2009; Suhardiman and Giordano 2014). By interacting policy pressures with a greater understanding of bureaucratic forces that may resist, we gain a more precise appreciation of the political challenges shaping institutional reform.

### **Institutional Reforms, Vulnerability, and Bureaucrats**

Reform outcomes, or the dependent variable in this paper, occur in two steps. The first level, policy shifts, occur when a state assumes a new policy, such as decisions to improve quality in education, healthcare, or irrigation management. Adopting a policy shift is relatively easy to accomplish; the challenge comes in implementation (Andrews 2013). Implementation frequently requires the second step, especially in arenas where extensive service provision is at stake: institutional reform. Institutional reforms involve changing the “rules of the game,” i.e. restructuring bureaucratic incentives to implement the policy goals of the government more effectively. This is much more challenging than merely adopting a policy shift. Institutional reforms require that the bureaucratic agency in question embrace real change: line agencies must modify their orientation; bureaucrats must adopt new roles and change their behaviors; and internal incentives must be restructured to meet new

demands. These efforts often fail due to their complicated and onerous nature (Andrews 2013: 42-56). Reform is therefore bifurcated. Thus, the outcome variable of interest is composed of these two processes: policy shifts and institutional changes. A successful reform would include both; unsuccessful reform attempts, though, occur in cases where the state adopts a new policy but fails to transform the institutions necessary to implement it.

How, then, do we get to successful reforms? Development scholars have repeatedly demonstrated the effect of exogenous pressures that prompt states to engage in policy reform. Grindle and Thomas (1991: 58) argue, “Policy deliberations and reform decisions of public officials must constantly take into account the vulnerability of the regime and the effect of any change in policy on its political fortunes.” When a government or politician experiences vulnerability, they become willing to engage in costly reforms, including changes that may be against the interests of state agencies. This logic has been used to explain the emergence of strong institutional capacity in the developmental states of East Asia (Woo-Cummings 1999). At the extreme, systemic vulnerability, a combination of external threat, domestic pressures, and resource limits, compelled politicians toward the difficult and costly task of building state capacity (Doner et al. 2005). Dangers to both the nation and political leaders, which Chalmers Johnson (1982: 307) referred to as “situational imperatives,” drove the creation of unique institutional arrangements to achieve economic growth and stave off impending threats. The ensuing institutional capacities spawned the developmental processes of these states.

Developmental states, though, are rare. Most states do not experience the type of systemic vulnerability that propelled their governments to engage in broad-scale capacity building. Instead, most developing countries experience varying levels of capacity within their bureaucracies, or what McDonnell (2017) calls “Patchwork Leviathan.” Evans (1995) refers to them as intermediate states, or those which include some elements of successful

bureaucracies combined with kleptocratic behaviors. These states face challenging conditions wherein their bureaucratic capacities are limited; they are unable to mimic developmental states, instead exhibiting rare pockets of efficiency.

I propose that, in these cases, politicians are driven to develop capacities by more distinct and fleeting types of pressures, which are often concentrated on unique policy arenas. These policy-specific vulnerabilities can urge governments toward sector-specific reforms and institution-building while not rising to the level of a developmental state. Following Ricks (2017: 571-572), policy vulnerability emerges when executives experience credible threats in specific policy arenas. These threats can come from both internal as well as external sources, such as international donors. For instance, if urban workers protest over rising food costs, the executive faces particular pressure in food policy. Alternatively, an external donor may demand new irrigation policies or laws before distributing a loan for the water sector. Unlike Doner et al.'s (2005) systemic vulnerability which threatens the very existence of the state, these pressures focus attention on a specific sector.

Such demands, though, can often be addressed through access to resources. With sufficient means, a leader can buy food stocks and distribute them, or, with a growing local economy, an executive can ignore donor demands for reform. It is only when executives face political pressure combined with resource limits do they find themselves between the proverbial rock and a hard place where they must engage in institutional development necessary to address the threat. The combination of political pressure and resource limits leads to policy vulnerability, and that vulnerability becomes one source of the 'political will' that drives reform efforts.

Thus, vulnerability exists along a spectrum. At the extreme sits systemic vulnerability, resulting in state actors adopting far-reaching institutional reforms culminating in a developmental state. Developmental states are beyond the scope of this paper, so we are



concerned with a lower level of vulnerability, where pockets of pressure emerge pushing executives toward reforming specific sectors rather than comprehensive reforms. At the other pole, with little or no vulnerability, the policy and institutional status quo is likely to endure.

Pressure for reforms, though, is no guarantee that they will succeed, especially since most countries experience something short of systemic vulnerability. Institutional reforms are difficult and costly. They involve major shifts in the power structure and activities of the bureaucracy (Andrews 2013: 49-52). As institutional changes progress, they most strongly affect the people and organizations charged with implementation, which in turn threatens entrenched bureaucratic interests (Moe 2006). When a bureaucratic agency faces institutional reforms, civil servants may even be charged with finding ways to end their own careers and those of their colleagues, or they may be forced to gain new training and skills. It is little wonder then, that they develop their own policy preferences and engage in strategies of shirking and sabotage away from the purview of their political masters (Brehm and Gates 1997).

If bureaucracies are sufficiently autonomous, they can even more openly halt reform efforts. Indeed, Fukuyama (2013: 356-360) described the effect of bureaucratic autonomy on state capacity as an inverted “U” in which moderate levels were beneficial but high levels would damage the government’s ability to accomplish tasks. The use of the term autonomy, though, potentially confounds two interrelated concepts (Verhoest et al. 2004). First autonomy describes a bureaucracy that maintains the ability to professionally pursue and implement policy free of overt societal control, either from political or economic forces (Evans 1995; Evans and Rauch 1999). Theoretically, and to a lesser extent, empirically, such agencies provide better services and achieve better policy outcomes than those subject to regular influence from outsiders (Cingolani et al. 2015). In the developmental state model, this autonomy operates under a “safety valve” of loose political oversight (Johnson 1982:

315-316). Primarily, though, technocrats make decisions about rules and policy implementation to provide services in accordance with state goals.

The second use of the term autonomy refers to the politician-bureaucrat relationship. Classic descriptions of this marriage between civil servants and politicians rely on a principal-agent model wherein political principals can control their bureaucratic subordinates; unfortunately, such models fail to account for dynamics in which the bureaucracy exercises its own influence over policymaking (Carpenter and Krause 2015; Moe 2006; Pepinsky et al. 2017). In this sense, autonomous agencies are those which operate free of oversight from their political principals, akin to what Verhoest et al. (2004) call interventional autonomy, or a situation in which an agency can operate with little expectation of sanction. Heredia and Schneider (2003: 14-15) further identify cases of “bureaucratic fusion” wherein “major political actors and their allies [also] hold bureaucratic positions in the top several levels of the executive” while non-bureaucratic actors are politically weak in comparison. This parallels the Administrative State model, wherein bureaucracies control most decision-making and executives and legislators have reduced roles (Peters 1987; Knill 1999). The implication is that bureaucracies can easily dismiss or derail reform proposals that counter their own interests. In essence, this type of autonomy exists when “agencies take sustained patterns of action consistent with their own wishes, patterns that will not be checked or reversed by elected authorities” (Carpenter 2001: 14).

Using a single term, autonomy, for both ideas potentially creates conceptual confusion. As such, I refer to the first concept as bureaucratic autonomy. Bureaucratic autonomy is the observed outcome of institutional forms that allow for bureaucracies to function independent from societal forces in a meritocratic and efficient manner but still under the purview of political principals (Johnson 1982: 315-316). This type of institutional arrangement is the goal of many reform advocates (Pritchett and Woolcock 2004: 192-194).

I refer to the second concept as bureaucratic independence rather than autonomy, and I contend that it is much more important for understanding the source of institutional arrangements. Rather than being the outcome of institutions, bureaucratic independence is key to understanding how rules and bureaucratic organizations are formed. Independent bureaucracies maintain their own sources of political power in relation to politicians, either through informal or formal arrangements with political actors, filling political positions themselves, or maintaining a power block external to the formal political system, resulting in political battles over subjective control of the agencies (Huntington 1957: 80-82). This contrasts with Johnson's (1982: 316) terminology in reference to developmental states in which politicians reign while bureaucrats rule. Under conditions of bureaucratic independence, bureaucrats rule but politicians fail to adequately reign. Power struggles between politicians and bureaucrats limit the capacity of politicians to ensure that their policy preferences are carried out. As such, bureaucratic independence serves as an explanatory variable in the rough and tumble of institutional reforms.

Like vulnerability, bureaucratic independence can be conceptualized as existing along a spectrum with highly independent agencies on one end, wherein the bureaucracy controls most policymaking in their sector and politicians legitimize those actions. High levels of bureaucratic independence reduce politicians' ability to both pass comprehensive policy reform as well as demand bureaucratic compliance and institutional changes necessary for policy implementation (Gehlbach and Simpser 2015: 212-214; Unger 2003).

At the opposite end of the spectrum are those states in which the bureaucracy is firmly under the control of the political executive. When bureaucratic independence is low, politicians face fewer barriers to policy reform, and they can engage in institution-building to ensure that their policy preferences are carried out. This does not take away from the

difficulty inherent in institutional reform, but it limits the potentially damaging resistance of bureaucratic actors.

Combining the two concepts, bureaucratic independence and political vulnerability, results in a set of theoretical predictions regarding reform outcomes.<sup>2</sup> Figure 1 presents a set of scenarios derived from these interactions, including the potentially endogenous relationship between bureaucratic independence and vulnerability.

[FIGURE 1 ABOUT HERE]

Policy vulnerability, or sector-specific pressures, may result in reforms, but this is conditioned on the degree of independence the bureaucracy exhibits in the policy arena. In conditions of low independence, executives have the capacity to compel bureaucratic compliance. This does not mean that bureaucracies will necessarily go along quietly, but their efforts to resist can be overturned by determined politicians. Thus, we can expect that *Sector-Specific Reforms* driven by high vulnerability have the best potential for adoption and implementation.

In contrast, when high policy vulnerability meets with an independent bureaucratic system, serious challenges emerge for politicians trying to implement changes. In such cases, the bureaucracy has enough political strength to resist the reform efforts and challenge the policy preferences of politicians (Carpenter 2001: 16-18; Unger 2003: 199-202; Bowornwathana and Poocharoen 2010). This can result in “gridlock” wherein reforms fail to take hold (Painter 2004: 365-366). Even if politicians adopt a policy shift, they will be unable to reform bureaucratic agencies and develop the institutional capacity necessary for implementation. In these conditions of *Bureaucratic Resistance*, the probability for successful reform is very low.

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<sup>2</sup> It is important to note that my theoretical framework focuses on the power relationship between politicians and bureaucrats (i.e. bureaucratic independence). As such, a discussion of the first type of bureaucratic autonomy as defined above (Cingolani et al 2015; Evans 1995) is beyond the scope of this paper.

Situations of low to moderate policy vulnerability, in contrast, are closest to the environment that Grindle and Thomas (1991: 83-92) described as “politics as usual.” When there are few pressing demands for reform in such situations, the most likely result is institutional stability (Sabatier 1988). This, though, does not imply that change absolutely will not occur. Instead, policy makers are able to exercise discretion in pursuing policies, thus the relative strength of the bureaucracy will determine whether or not they are willing to take on such challenges.

Under conditions of relatively low vulnerability but also low bureaucratic independence, politicians should have greater capacity for adopting policy changes, especially in the presence of policy entrepreneurs (Mintrom 1997). With an instrumental bureaucracy, policy and institutional changes can move forward as politicians develop coalitions to promote reform, but the most likely outcome is *Institutional Status Quo*.

As bureaucratic independence increases, though, attempts at reform from the side of politicians should decrease due to the amount of resistance that they would face during implementation. The more independent the agency, the more difficult it would be for an executive to exercise control, thus making administrative reform a less attractive option. We can predict, then, that when there is little pressure for reform combined with a highly independent bureaucratic system, politicians will leave bureaucrats to handle policy on their own, with the potential for reforms found within the bureaucracy rather than with politicians. Again, the most probable outcome is *Institutional Status Quo*.

We then come away with four reform scenarios based upon the dynamic interaction of policy vulnerability as well as bureaucratic independence. Of course, these are ideal types, and therefore unlikely to map perfectly onto empirical reality, but as states move along both

continua, they should exhibit approximations of these patterns.<sup>3</sup> I now turn to my research design.

## **Research Design**

Irrigation is especially prone to succumb to reform failures. In much of the developing world, state-run irrigation schemes have been the rule. Built by governments, often with funding from international donors, technical irrigation systems have reduced farmers to service recipients and frequently created bloated irrigation agencies tasked with almost all aspects of water delivery (Joshi and Moore 2004; Ostrom 1996). Irrigation officials, primarily engineers, tend to focus on construction and exhibit little concern for farmer involvement or needs. Decades of experience, though, have proven that even with extensive irrigation bureaucracies, states are unable to effectively manage, monitor, and carry out irrigation tasks without farmer participation (Wade 1988). Thus, to meet urgent water demands of today and in the future, experts around the world have repeatedly called for institutional reform of the irrigation sector (Meinzen-Dick 1997; Ostrom 1992).

International experts and donors advocate the following irrigation sector reforms: shifting focus from construction to operations and maintenance; enhancement of farmer participation; introducing or expanding irrigation service fees; and irrigation management transfer (Suhardiman and Giordano 2014: 91-92). Each of these requires a major reorientation of the irrigation agency and institutional reforms wherein the role of engineers and central planning is reduced in favor of a more service-based bureaucracy with strong links to farmer interests and needs. In essence, irrigation agencies ought to achieve what Evans (1995) termed “embedded autonomy,” wherein officials and farmers cooperate in

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<sup>3</sup> The theory also operates on an underlying assumption that the political will driving policy shifts and institutional reforms comes mostly from politicians rather than bureaucrats.

service provision. Efforts to promote these changes, though, have resulted in a mixture of outcomes with many failures (Garces-Restrepo et al. 2007) that persist despite lessons learned from prominent successes (Lam 1996; Moore 1989). The issue is not one of training and technical expertise, it is one of getting the institutions right. Only recently have irrigation experts turned to the study of politics to address this failure (Mollinga and Bolding 2004).

Here we see two elements to our outcome of interest. First, we have policy shifts, which occur when a country adopts new policies regarding irrigation management, such as a commitment to increase farmer participation. Second, to implement those policies, the agency must embrace institutional changes, such as an agency-wide policy to limit hiring engineers in favor of hiring community organizers to help establish farmer organizations in preparation for farmer-managed operations and maintenance. Reforms in rules and agency orientation are much more difficult to accomplish than a mere policy shift.

To test the implications of the theory proposed above, I engage a structured, focused comparison of three countries (Slater and Ziblatt 2013). Focusing on a single sector, irrigation, across different countries allows for me to exert additional control over the comparison, as the prescribed reform efforts are essentially the same. As I am interested in the “causes of effects,” I chose the countries according to the policy and institutional outcomes they experienced regarding irrigation reforms (Mahoney and Goertz 2006). For each state, I distinguish between policy shifts and institutional changes, as new policies are often adopted but never implemented (see Table 1).

[TABLE 1 ABOUT HERE]

One state, the Philippines, experienced extensive institutional reforms of their irrigation agency. The two alternate states, Indonesia and Thailand, have adopted irrigation policy shifts that proclaim participatory goals, but both have largely failed to implement the necessary institutional reforms. Indonesia temporarily adopted extensive institutional reforms

in 1999, but these were reversed after 2002. Thailand, on the other hand, has never seriously engaged in policy reforms. Thus, we see one country that saw relatively successful reforms (the Philippines), one country that engaged in a temporary reform effort (Indonesia), and one country that has persisted in resisting reform pressures (Thailand). Each country has also experienced variation in their reform policies over time, granting even greater leverage for testing my theory. In the analysis, I focus on periods in which irrigation bureaucracy institutions remained relatively stable, beginning and ending when a major shift to either policy or the method of making policy occurs.

Each of these countries devotes a significant portion of their national budget to irrigation expenditures, and each relies heavily on water management for crop production. They have similar agricultural backgrounds and climates, including an abundance of precipitation concentrated in a single season, making irrigation important for both drainage and water storage. Rural populations and agriculture exports were all historically vital to their respective economies, although both have declined in importance. All three also have experienced variation in regime type throughout history. Thus, these states provide variation on the independent and dependent variables, while allowing me to control for alternative possible explanations such as climate, crop type, level of development, involvement of international donors, and regime type.

Drawing on secondary and primary sources, I trace the emergence of institutional reforms and policy shifts for each of these states, seeking evidence of the hypothesized presence of vulnerability and the degree of bureaucratic independence during points in history when policy changes were under consideration. Following the discussion above, I look for evidence of policy vulnerability as external and/or internal pressures combined with resource constraints. These three components determined the degree of vulnerability present during each policy period. A combination of these components with reference to irrigation



would result an evaluation of the government having experienced policy vulnerability (Ricks 2017). Such indicators include food security concerns, the capacity of rural groups to threaten the government through mass protests or a political party, or the bargaining power of international donors. Weaker mixtures of pressures are judged to present moderate vulnerability, and at lower levels I consider the government to have experienced low or no vulnerability.

Bureaucratic independence is gauged in two ways. Following Painter (2004: 367-381), I evaluate this according to the strength of the executive in relation to his or her legislature. The reasoning behind this is that executive power is conditional on the executive's capacity to manage his or her governing coalition. Weak coalitions or divided governments would result in a higher degree of bureaucratic independence (Huber and Shipan 2001: 147-148). For instance, if a prime minister holds an absolute majority in parliament, she will be able to exert greater control over the bureaucracy by appointing allies from her own party to ministerial positions. Alternatively, if a prime minister governs a weak coalition, she will be forced to give up control over certain agencies to alternative parties. The more powerful the executive in reference to other political actors, the more likely that the bureaucracy is under her control. In other words, bureaucratic independence is conditional on the executive's ability to wield political authority. Secondly, bureaucracies can maintain independence when they build coalitions with political actors to protect their interests (Carpenter 2001: 16-18). Such coalitions occur when bureaucracies align with political parties or strong political figures. The combination of these two indicators determines the degree of bureaucratic independence.

### **Controlled Comparisons**

In the following pages I provide a brief discussion of each country's irrigation policy history; the results are summarized in Table 2. For each of the comparative cases, I discuss the presence of vulnerability indicators (external and domestic pressures in the irrigation sector as well as resource limits) to identify the level of policy vulnerability present in the case. I also examine the degree of bureaucratic independence found in each case. Again, as we compare empirical findings to the theory, it is important to recall that the predictions are ideal types rather than literal depictions of reality.

[TABLE 2 ABOUT HERE]

### *The Philippines*

Institutional performance in the Filipino irrigation sector can be roughly divided into two time periods. The first, running from about 1972 until 1985 was a period of surprising success, with the country be touted as “the undisputed international leader in irrigation decentralization” (Araral 2011: 113). The National Irrigation Administration (NIA) transformed from a focus primarily on infrastructure construction to a reform model promoting participatory management, earning praise from around the world (Korten and Siy 1988). The reforms bore fruit, with the NIA leading a geographic expansion of irrigation systems, greater support for farmer participation, as well as achieving financial viability during the period (Ricks 2017). In other words, this period saw both the adoption of policy shifts as well as a series of institutional changes to enhance service provision.

The early successes, though, stand in stark contrast to what occurred after 1986, when NIA performance no longer “exhibited the same level of dynamism as ... previously” (Asian Productivity Organization 1998: 3). A World Bank memo explained that by the late 1990s, the agency faced a set of negative incentives and was no longer effective at implementing reforms (Briscoe 2000). Araral (2011; 2009) states that the bureaucracy's incentives changed,

inhibiting further implementation of participatory reforms. Politicians began to offer subsidies to farmers, reducing irrigation fee payments and diminishing the NIA's effectiveness in carrying out service delivery. Policy shifts turned away from enhancing irrigation management, and the status quo institutional environment persisted and deteriorated.

Why, then, did we see successful sector-specific reforms in the first period while the second period saw a dramatic reduction in the NIA's institutional capacity? Policy vulnerability was a major driving force behind the institutional reforms from 1972 through the early 1980s (Ricks 2017). Filipino executives have long sought to control rice prices through increasing the domestic supply, which until the 1960s focused on expanding the land frontier (David and Balisacan 1995; Davidson 2018; Doranila 1992). Ferdinand Marcos, though profligate spending during his first term in office, achieved self-sufficiency in rice and reduced domestic prices (Davidson 2016). Continued efforts at controlling prices, though, fell short when typhoons in 1971, Luzon floods in 1972, and the subsequent rice hoarding resulted in a spike in prices; the political crisis of the early 1970s was made worse by a rice crisis. After promulgation of martial law in 1972, rice prices continued to increase, as they would until 1974 (Boyce 1993: 100-101; Mangahas 1972). Marcos faced pressure to legitimate his rule through controlling consumer costs (Wurfel 1988: 154), but the country's financial situation precluded the government's ability to easily spend its way out of crisis. The Marcos administration turned to enhancing domestic production through adopting high-yield varieties of rice and expanding irrigation (Hayami and Kikuchi 1978: 70-71). Thus, the pressure of a rice crisis combined with resource shortages, amounting to policy vulnerability in the irrigation sector, resulting in the executive's close attention to the sector.

Marcos, though, was not appeased with merely adopting policy shifts to encourage expansion of irrigation. He enacted significant reforms of the NIA, choosing skilled

technocrats to lead the agency, providing strong support, both financial and political, to their efforts to improve agency performance. This included a series of institutional reforms adopted between 1974 and the early 1980s, which were backed by a set of Presidential Decrees. The most important of these included expanding the scope of the agency, reforming agency revenue streams, granting legal rights to farmer organizations in irrigation management, and providing administrative oversight (Panella 2004: 105-113). These changes resulted in a greater focus on service delivery and farmer participation, a doubling of irrigated area, and allowed the NIA to become financially solvent, a rare feat for irrigation agencies (Oorthuizen 2003: 206-208). Praise for the institutional reforms flooded in (Korten and Siy 1988). Policy vulnerability, emerging from a rice crisis as well as resource shortages, had driven Marcos to both adopt policy shifts as well as engage in the institutional reforms necessary to implement them.

At the same time, the Filipino bureaucracy, especially the NIA, was far from independent. Roughly based on the American system, the ethos of the civil service emphasized deference to politicians. One researcher even pigeonholed the bureaucracy as “dominated” and “timid” (Carino 1989). This subservience only increased during Marcos’ rule, as the president frequently dismissed officials who failed to do his bidding. The NIA, established only in 1964, was in its infancy when Marcos won his first election. He took special interest in the agency, appointing a technocrat in 1966 and requiring personal accountability (NIA 1990). Beyond this, after martial law was declared in 1972, the legislature was disbanded, and the 1973 constitution gave Marcos both executive and legislative powers, increasing his control over government agencies. Irrigation officials experienced relatively little independence from political oversight, meaning that the agency would have been unable to effectively resist reforms. In other words, its level of bureaucratic independence was low.

From 1972-1985, then, the Philippines fits our theoretical expectations for sector-specific reforms. A high degree of policy vulnerability fostered both policy shifts as well as institutional reforms while a low level of bureaucratic independence gave space for those reforms to take hold.

The NIA's successful years, though, were short-lived. After Marcos' fall, politicians no longer felt vulnerable in the irrigation sector. The importance of controlling rice prices had diminished considerably; global rice prices had dropped, and the Philippines found it could buy rice for less than the cost of production (Davidson 2016), which reduced pressure to continue improving irrigation operations and management (Orthuizen 2003: 205-211). Elected politicians, many of whom were critical of the Marcos regime and its policies, began dismantling the NIA's institutional capacity by reducing its access to funding, removing technocrats and replacing them with political appointees, and making promises to farmers that they would no longer need to engage in the elements of participatory irrigation management, such as paying irrigation service fees, to the same degree (Ricks 2017). As policy vulnerability disappeared, so did the political will that had supported the institutional capacity of the NIA. By the late 1990s, the NIA could no longer be considered a world leader in irrigation management as poor maintenance of systems resulted in the loss of 188 thousand hectares of irrigated area between 1990 and 2000.

The bureaucracy, just as before, remained subservient to politicians. Separation of executive and legislative power in the 1986 constitution, while weakening the executive, still left the irrigation agency firmly under politician control. When Corazon Aquino took office in 1986, top technocrats within the NIA were replaced with political appointments who had little experience and almost no expertise in irrigation (NIA 1990; Panella 2004). The NIA had no power to resist, and it became subject to frequent political interventions from both the executive and legislative branches.

The experience of the NIA, then, fits our theoretical expectations, as seen in Tables 1 and 2. The sector-specific reforms from 1972-1985 were driven by Marcos' feelings of policy vulnerability and facilitated by the executive's control over the bureaucracy. When that policy vulnerability disappeared, so did political efforts to support the agency's mission, allowing institutions to decay, resulting in a reduction in the NIA's effectiveness in service provision.

### *Indonesia*

Indonesia's experience with irrigation sector policy reforms can be divided into three periods, with the bureaucracy generally dominating the process (Bruns 2004; Suhardiman and Mollinga 2012). First, from the late 1980s through 1997, Indonesia adopted the 1987 Irrigation Operations and Maintenance Policy, meant to encourage the irrigation agency to grant responsibility over operations and maintenance to farmer groups. This policy, though, was poorly implemented due to a lack of accompanying institutional reforms (Arif 2009; Vermillion et al. 2000). Second, in the aftermath of the 1997 Asian Financial Crisis, Indonesia adopted an ambitious irrigation reform program thanks to pressure from international donors, which was implemented along with notable institutional reforms from 1999 through the early 2000s (World Bank 2005). The third policy shift occurred in 2002 as the devolution of authority over irrigation to farmer group was reversed and the irrigation agency returned to policies and institutional arrangements similar to those during the 1990s resulting in relatively little effective service provision (Ricks 2016). Thus, we have one period of weak policy shifts, but they resulted in no institutional reform nor serious implementation (1987-1997). We also have a period in which the government adopted and initiated extensive institutional reforms (1999-2001). And finally, we have a period in which the prior reforms were reversed (2002-2010). Theoretically we expect that higher levels of

policy vulnerability led to policy changes in the first two periods, but these were met with a relatively independent bureaucracy that was able to resist them and finally, when vulnerability decreased after 2001, reverse reforms.

The cause of this variation across the periods can be found in fluctuations in the degree of vulnerability that successive Indonesian governments experienced in the irrigation sector. During the first period in question, Suharto's authoritarian New Order (1966-1998) was in full swing. Suharto was committed to achieving food security, both for reasons of national pride and national security. This included a massive expansion of the country's irrigation systems, and from 1968 through 1993, approximately ten billion dollars were spent on irrigation infrastructure, with 70 percent of the funds coming from external donors (Bruns 2004). The irrigation agency, nestled within the Department of Public Works, oversaw this expansion. The agency's engineers focused primarily on infrastructure construction, with little attention paid to the day-to-day issues of operations and maintenance (World Bank 1991). Ignoring these issues, though, did not mean they disappeared. By the early 1980s, as the country briefly achieved rice self-sufficiency, it became clear that additional investment was necessary to maintain irrigation systems. This coincided with a fiscal crisis due to fluctuations in oil prices. Financial resource limits imperiled the hard-fought battle for rice production. Suharto's regime turned to international loan agencies, which mandated irrigation reforms and reliance on participatory irrigation management as a solution to the high costs of operations and maintenance. According to Soenarno, the director of the irrigation agency in the late 1980s, these fiscal pressures and the demands of foreign loans were the direct drivers behind the creation of the 1987 Irrigation Operations and Maintenance Policy (Soenarno 1995). Thus, the Indonesian government felt moderate policy vulnerability in irrigation, and it responded with a policy shift. But this reform failed to reach the level of institutional change. Once the loans came through and the government complied with

international agency demands, at least on paper, the political pressure lessened (Bruns 2004: 145-165).

The irrigation agency resisted changes detailed in the policy, instead continuing to behave as it had for the past decades, focused on construction. Suharto's New Order government dominated the legislature, meaning the bureaucracy faced a strong government. Even so, the bureaucracy enjoyed strong connections with the Suharto regime, which allowed leaders in the bureaucratic agency to feel secure in largely ignoring the 1987 policy shifts. Farmer participation was something talked about but rarely done and there were no legal changes to force implementation (Suhardiman 2015: 84-92). No incentive structures were developed for street-level officials to engage in participatory work, and most contact between the irrigation agency and farmers was conducted through contract employees rather than civil servants. In other words, bureaucratic resistance coupled with only moderate policy vulnerability resulted in policy shifts but no real institutional reforms.

Another financial crisis, this time much deeper, would serve as the next impetus for irrigation reforms. When the 1997 Asian Financial Crisis hit Indonesia in August, the rupiah's value plummeted, destroying support for the New Order. In 1998 Suharto stepped down, initiating a transition to democratic rule. The fiscal crisis threatened to turn Indonesia into a failed state; millions of Indonesians fell into poverty and government ministries struggled to pay their employees. Indonesia turned to international donors, including the World Bank and the Asian Development Bank which had invested millions in the Indonesian irrigation systems with few of the promised results. These agencies, along with a few Indonesian officials, saw the crisis as an opportunity to force through substantial irrigation reforms. With fiscal failure looming, Indonesia needed access to international donor's money more than ever. That money, in the form of the Water Sector Adjustment Loan (WATSAL) program, was conditional on reforms (World Bank 2005).



Indonesia embarked on a new series of policy changes, including institutional reforms to assign more responsibility to farmer groups and reduce the influence of central bureaucracies. In 1999, the government adopted the Irrigation Management Reform Program through a presidential decree, which was followed by a government regulation in 2001. The drafting process was also initiated for a new water law to replace the 1974 Water Law that placed control of irrigation management in the hands of central government ministries. These policies created new roles for farmer organizations, placed responsibility over irrigation in the hands of district governments, and decentralized fiscal management of irrigation. Beyond this, the irrigation agency's capacity for resistance had been effectively sidelined. Old alliances between irrigation officials and the Suharto regime had collapsed, and the Abdurrahman Wahid government (1999-2001) pursued an anti-corruption policy that aggressively targeted government ministries. In 1999, the Ministry of Public Works was abolished, pushing officials opposed to irrigation reform into positions where they were no longer able to hinder policy implementation (Suhardiman 2015: 64-68). The irrigation bureaucracy had lost much of its independence. A high degree of policy vulnerability due to the financial crisis combined with a weakened bureaucracy, resulting in the type of institutional reforms that had been completely absent after the 1987 policy shift.

The emergence of sector-specific reforms in Indonesia, though, was bogged down in the implementation phase. The changes involved a huge number of individuals as well as high monitoring and enforcement costs. Reforms were slow.

As reform plodded forward, external circumstances were changing in ways that diminished the pressure on the irrigation sector, bringing us into Indonesia's third reform period, and the resurgence of bureaucratic influence in irrigation management. In 2001, when Megawati Sukarnoputri took office as president, she appointed a former irrigation official as the head of the Ministry of Settlement and Regional Development, the successor of the

Ministry of Public Works. This signaled the return of an alliance between irrigation bureaucrats and major politicians. Following this appointment, pro-reform officials throughout the agency were replaced by those who preferred construction projects, in essence, returning the agency to its former focus (Suhardiman 2015: 68-70). The Directorate General of Irrigation was reestablished as the Directorate General of Water Resources, and the former Ministry of Public Works official logo was also reintroduced as a logo for the newly reconstituted Ministry of Settlement and Regional Infrastructure, removing all doubt that the Ministry of Public Works was back in business in fact, if not yet in name. By 2004, the name had returned as well. While the laws and institutional changes were still in place, the people behind them began resisting implementation.

Additionally, Indonesia's economic growth had returned to a respectable four percent by 2002, reducing the government's reliance on foreign aid. In 2003, with only half of the \$300 million WATSAL loan dispersed, Indonesian ministers and politicians publicly declared that the remaining funds were no longer necessary (*The Jakarta Post*, 20 October 2003). By mid-2004, Ministry of Agriculture officials claimed that the agricultural sector had completely recovered from the financial crisis (*The Jakarta Post*, 16 August 2004). Politicians paid less and less attention to the irrigation sector, giving greater sway to irrigation officials in the drafting of the new water law. The law, originally drafted to reform the irrigation agency, was suddenly returned to irrigation officials for revisions; they quickly eviscerated the bill. In response, the World Bank threatened to cancel the last half of the WATSAL program loan. The government easily ignored these threats, resulting in the cancellation of the loan, demonstrating that policy vulnerability had all but disappeared.

In essence, bureaucratic independence increased at the same time as policy vulnerability decreased, culminating in a move from sector-specific reforms to bureaucratic resistance until finally Indonesia settled into an institutional status quo, wherein irrigation

reforms that took place from 1999-2001 were reversed through the new 2004 Water Law. Indonesia's irrigation reform efforts had come full circle, leaving the country with institutional arrangements like those that existed prior to the Asian Financial Crisis.

Tables 1 and 2 again summarize this discussion, wherein the 1987-1997 policy outcome resulted from moderate vulnerability matched with bureaucratic independence. While the policy shift was adopted due to international donor requirements, the reforms were poorly implemented, and the government maintained the institutional status quo. Vulnerability jumped in the wake of the 1997 crisis, as did the government's efforts at reform. The old bureaucrat-politician alliances crumbled as Suharto fell, decreasing bureaucratic independence. Institutions were quickly changed, and participatory irrigation policies took hold briefly from 1999 through 2001. These reforms soon met with strong bureaucratic resistance, though, as bureaucrats rebuilt their links with political leaders. Vulnerability waned as the country recovered from the financial crisis, and the bureaucracy was again able to dominate policy decisions and reverse reforms. We saw a situation of bureaucratic resistance and halted implementation.

### *Thailand*

The third country in this analysis provides an example of a bureaucratic agency which has enjoyed decades of institutional stability, almost free from threat of reform. Thailand's Royal Irrigation Department (RID), despite massive changes in the country's reliance on agriculture and irrigation, continues to focus primarily on the tasks of irrigation construction and rehabilitation while avoiding farmer participation in almost all aspects of irrigation, ranging from operations and maintenance to management to decisions on where to build crucial infrastructure (Ricks 2015: 196-198). Until a new Water Resources Act was enacted by the military junta in 2018, the lack of institutional reform was reflected in an outdated

legal framework regarding irrigation. Laws governing irrigation included the 1939 People's Irrigation Act, 1942 State Irrigation Act, and 1962 Dykes and Ditches Act. The RID enjoyed extensive autonomy, and the institutional status quo endured relatively unchallenged in the Thai context for decades; even the 2018 Water Resources Act failed to include provisions for enhancing irrigation management.

Such institutional stagnation is not due to the effectiveness of the antiquated laws nor the professional capacity of the RID. Problems in Thailand's irrigation management practices have long been evident, including periodic flooding and drought as well as the exclusion of interests of farmers in decision-making (Marks 2015; Molle et al. 2002; Unger and Sriroros 2011). Periodic reform efforts repeatedly failed in the face of opposition from the irrigation agency as well as other branches of the state bureaucracy: 38 departments across nine ministries share some level of responsibility over water management (Ricks 2013: 159-161). International aid agencies have unsuccessfully endeavored to convince Thai policymakers in the irrigation realm of the importance of reform efforts. Even after the 1997 Asian Financial Crisis, which saw the bargaining power of aid agencies increase, efforts to implement a set of service-oriented policies in the irrigation sector faltered as the RID only implemented the international donor's minimal requirements, most of which were easily reversed in 2001 (Abonyi 2005; Molle 2005). In 2008, the RID did establish the Office of Public Participation Promotion, which some participation-oriented officials within the agency saw as an opportunity to encourage improved service delivery. The office, though, is relatively small and has limited influence in the agency, even seeing its budget subject to seizure in the pursuit of infrastructure projects. In sum, the RID's formal institutions are geared toward infrastructure construction and engineering rather than service provision (Molle 2005).

The cause of this reform inertia can be found across both our variables of interest. On the one hand, Thailand's political executives have experienced very little vulnerability in

irrigation management. As a major rice producer and exporter, Thailand has not been forced to engage in productivity drives or improvements in output, in stark contrast to both the Philippines and Indonesia. This meant that irrigation development was far from the forefront of policymakers' minds. Interventions in agriculture and irrigation have served other goals, such as negating rural unrest, appeasing international donors, or cutting government costs (Molle et al. 2002; Ricks 2015; Walker 2012). Policy vulnerability in the irrigation sector has remained low. The only exceptions were during sporadic crises, such as the 2011 floods that inundated Bangkok or the 1997 financial crisis. These crises, though, were short-lived, and as an advisor to the Ministry of Agriculture and Cooperatives explained, “[if] the crisis isn’t long enough, the [opportunity for] policy reform passes” (personal communication, Bangkok, 14 February 2012).

Rather than shaping legislation or pursuing service-oriented bureaucratic reforms, when they have paid attention to irrigation, politicians have focused on projects, such as lining canals with concrete or building infrastructure (see Walker 2012, chapter 5). Members of parliament built connections to the RID to gain access to the resources housed in the department and target projects to their constituencies (see Nishizaki 2011). This project-based decision-making leaves the RID with a great deal of discretion and suits the agency’s preferences for infrastructure-based tasks rather than enhancing service provision for farmers. Little pressure has emerged for politicians to compel the agency to improve its interactions with farmers (Ricks 2015).

On the other hand, the RIDs bureaucratic independence is high. Thailand during the 1960s was famously described as a “bureaucratic polity” in which politics took place as competition within government agencies rather than in a separate political sphere (Riggs 1966). While civilian politicians become more influential during the 1990s and early 2000s, with the exception of the Thaksin Shinawatra (2001-2006) and Yingluck Shinawatra (2011-

2014) governments, civilian regimes have almost always presided over weak coalition governments, leaving bureaucratic officials with relatively high levels of policy influence (Bowornwathana 2005; Ockey 2004; Ricks 2018; Unger 2003). The irrigation department stands out among these as one of the most influential departments. It commanded over 50,000 employees during the 1990s, and, as of 2016, it still had a workforce of approximately 25,000. Its 2016 departmental budget, at over 46 million baht, was larger than that of many full ministries.

Beyond mere size and financial resources, the RID has a long history of political alliances with important politicians. The department's authority over water distribution and infrastructure projects makes it particularly attractive to politicians, and since the early 1980s, the agency has had close links with the political parties associated with former prime minister Banharn Silpa-archa (Marks 2015; Nishizaki 2011). From 2008 to 2012, Theera Wongsamut, a retired irrigation official, was appointed to the highly coveted position of cabinet Minister of Agriculture and Cooperatives before stepping down to head the Chart Thai Pattana political party until 2018, evidencing the close alliance between the irrigation agency and politicians.

Between bureaucrat-politician alliances and a long history of weak government coalitions, the Thai bureaucracy has enjoyed sustained bureaucratic independence. The only exception was under the Thaksin Shinawatra administration, whose rare legislative majority allowed him to take on the challenge of administrative reforms (Phongpaichit and Baker 2009; Ricks 2018). The reforms, though, did not reach the irrigation agency.

We see that Thailand's long history of irrigation inertia can be credited to both the lack of policy vulnerability as well as the presence of an independent bureaucracy, as identified in Table 2. Even when pressures for reform did emerge in the wake of the 1997

financial crisis, the agency was able to block policy reforms. Thailand exemplifies the outcome of unchallenged bureaucratic independence.

## **Conclusions**

Investigating irrigation reforms in these countries provides a set of lessons regarding the politics of policy implementation. By breaking policy reform into the components of policy shifts and institutional changes, we observe that the easier task, policy shifts, occurred in all three countries; institutional reforms, in contrast, were limited. Only under high levels of vulnerability do reform efforts move beyond superficial policy shifts to reach the institutional reforms necessary for enhanced state capacity and effective implementation. While systemic vulnerability can explain the emergence of the relatively rare developmental states, we also see that reduced forms of vulnerability can result in targeted institutional reforms, as in the case of the Philippines (1972-1985) and, to a lesser extent, Indonesia (1997-2001). Resource shortages combined with political pressures compelled both states toward institutional reforms in irrigation, demonstrating that the concept of vulnerability has explanatory power beyond the developmental states. Political vulnerability can also help us understand the emergence of pockets of bureaucratic efficiency emerge in intermediate states (Evans 1995; McDonnell 2017).

Furthermore, in conditions where political executives experience little or moderate vulnerability, they have insufficient incentives to exercise oversight and promote enhanced service provision. In Thailand and Indonesia prior to 1997, this precluded the institutional reforms necessary for efficient irrigation management. Moderate levels of political pressure alone are insufficient to encourage institutional reforms. Furthermore, in the Philippines after 1986, the institutions built during the Marcos administration quickly decayed and service provision deteriorated significantly. This suggests that institutions require continued attention

and maintenance from political leaders. Unfortunately, though, in the absence of sustained vulnerability, it appears that neglect is more common.

In addition, we see that reforms face a second obstacle. Line agencies are often tasked with implementing the policy shifts and reforms designed to uproot and transform themselves. These disruptive events threaten internal bureaucratic interests, and the civil servants who must take part in their implementation often have strong incentives to find ways to block the policies. Thus, as shown here, when agencies have sufficient independence in the policy-making process, they will seek to obstruct institutional reform efforts and protect themselves from the aftermath of the reform process. Bureaucracies, therefore, can become one of the integral actors determining the success or failure of institutional reforms. Institutions such as bureaucracies are the product of a historical process, and the prior institutional form is a strong determining factor as to the shape of things to come (Grindle 2012). More work remains to be done regarding the path-dependent evolution of bureaucratic agencies.

This paper, then, contributes to the growing research on the political foundations of strong, and weak, institutions. The theoretical frame provides an explanation for institutional reforms in intermediate states that experience sporadic reforms rather than the broad-scale reforms that characterize developmental states. Effective and efficient bureaucracies rarely emerge from institutional reforms in these states not only due to a lack of political will or context specificity. They also fail to emerge because their independent bureaucracies resist the move towards improved service provision. Many developing states have bureaucratic institutions which were established prior to current political structures due to the processes of decolonization or democratization. In such cases, the bureaucracy may have much more political influence than current theories allow. A careful consideration of the degree of bureaucratic independence found among bureaucratic agencies can further our understanding



of these states' abilities to adopt and implement second-generation institutional reforms and pursue development strategies, especially in those bureaus tasked with service delivery.

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**Table 1: The Dependent Variable**

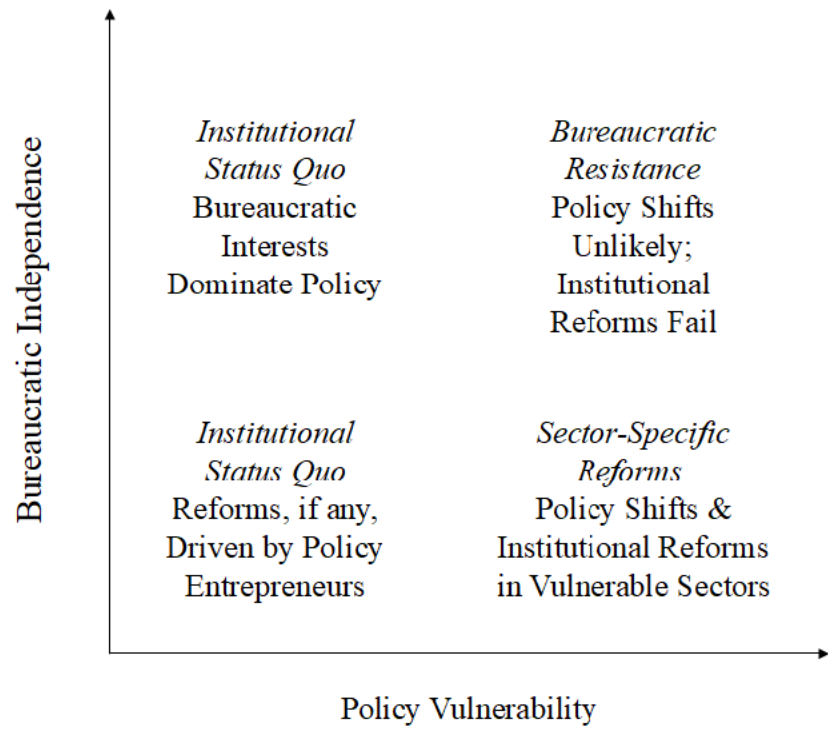
|  | <b>Philippines<br/>1972-1985</b>   | <b>Philippines<br/>1986+</b>   | <b>Indonesia<br/>1987-1997</b>                     | <b>Indonesia<br/>1998-2001</b>   | <b>Indonesia<br/>2002+</b>  | <b>Thailand</b>  |
|--|--|--|--|--|---|--|
| <b>Reform Outcome</b>                              | <i>Sector-Specific Reforms</i>   | <i>Institutional Status Quo</i>  | <i>Bureaucratic Resistance</i>                     | <i>Sector-Specific Reforms</i>   | <i>Bureaucratic Resistance</i>  | <i>Institutional Status Quo &amp; Bureaucratic Resistance</i>  |
| <b>Policy Shifts</b>                               | 1974 – PD 552 & PD 424<br><br>1976 – PD 1067<br><br>1980 – PD 1702   | 1993 – Legislation to abolish water fees surfaces<br><br>1998 – Estrada abolishes water fees | 1987 – Irrigation Operation and Maintenance Policy | 1999 – Irrigation Management Reform Program<br><br>2001 – Government Regulation on Irrigation  | 2004 – Water Law<br><br>2006 – Presidential Instruction on Water Law  | 1963 – RID establishes WUA<br>1979 – RID abandons WUA promotion<br>1980s – RID establishes WUG<br>1999 – ADB Agricultural Sector Loan Program<br>2004 – RID adopts PIM Policy in Strategic Plan<br>2008 – Establishment of OPPP in RID |
| <b>Institutional Changes for Service Provision</b> | Expanded scope of NIA<br><br>Directed NIA to recover costs from farmers<br><br>National Water Council oversight<br><br>Legal rights granted to WUG | Weakened NIA   | N/A  | Ministry of Public Works abolished<br><br>Directorate General of Irrigation abolished<br><br>Funding directed to local gov.<br><br>Legal rights granted to WUG | Reversed 1999-2001 institutional reforms<br><br>Ministry of Public Works Returns<br><br>Role of water user groups constrained | Minor adjustments, always easily reversible  |

Sources: (Philippines) Araral 2009; 2011; Barker and Levine 2012; Korten and Siy 1988; Oorthuizen 2003; Panella 2004; Ricks 2017. (Indonesia) Arif 2009; Bruns 2004; Ricks 2016; Suhardiman 2015; Suhardiman and Mollinga 2012; Vermillion et al. 2000. (Thailand) Abonyi 2005; Duncan 1976; Molle et al. 2002; Molle 2005; Ricks 2015; Wachiraporn and Sinclair 2011.

Note: NIA = National Irrigation Administration; PD = Presidential Decree; RID = Royal Irrigation Department; PIM = Participatory Irrigation Management; OPPP = Office of Public Participation Promotion; WUA = Water User Associations; WUG = Water User Groups

**Table 2: Controlled Comparisons**

|                               | <u>Vulnerability Indicators</u>                          |  |   | <i>Degree of Policy Vulnerability</i> | <u>Bureaucratic Independence Indicators</u>      |   | <i>Degree of Bureaucratic Independence</i> | <b>Dependent Variable (Table 1)</b>                |
|-------------------------------|--|--|---|---------------------------------------|--|---|--|--|
|                               | <b>External Pressure (Security Threat/Donor Demands)</b> | <b>Domestic Pressure (Coalition/Food Security)</b> | <b>Resource Limits (Financial Crisis/Natural Resources)</b> |                                       | <b>Bureaucratic Strength vis-à-vis Executive</b> | <b>Coalitions with Political Actors</b> |  |  |
| <b>Philippines, 1972-1985</b> | Moderate   | High   | High  | <i>High</i>                           | Weak   | No                                      | <i>Low</i>                                 | Sector-Specific Reforms                            |
| <b>Philippines, 1986+</b>     | Low  | Low  | Moderate  | <i>Low</i>                            | Weak   | No                                      | <i>Low</i>                                 | Institutional Status Quo                           |
| <b>Indonesia, 1987-1997</b>   | Moderate   | Low  | Moderate  | <i>Moderate</i>                       | Weak   | Yes                                     | <i>Moderate</i>                            | Bureaucratic Resistance                            |
| <b>Indonesia, 1998-2001</b>   | High   | Moderate   | High  | <i>High</i>                           | Weak   | No                                      | <i>Low</i>                                 | Sector-Specific Reforms                            |
| <b>Indonesia, 2002+</b>       | Moderate   | Low  | Low   | <i>Low</i>                            | Strong   | Yes                                     | <i>High</i>                                | Bureaucratic Resistance                            |
| <b>Thailand</b>               | Low  | Low  | Low   | <i>Low</i>                            | Strong   | Yes                                     | <i>High</i>                                | Institutional Status Quo & Bureaucratic Resistance |



**Figure 1.** Theoretical Predictions