Theory of Endogenous Institutions and Evidence from an In-depth Field Study in Indonesia

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Abstract

We study how endogeneity between welfare and institutions recommends the efficacy of subtle institutional reforms that must be exogenous. We use evidence from a field study conducted in five Indonesian districts, and build a model that illustrates how initial socioeconomic conditions and quality of institutions generate certain institutional attributes, such as a particular level of local capture (that is, gaining of influence over institutions, and hence over policy, by local elites), local leadership and participation. These institutional attributes, which evolve with changing welfare, create self-reinforcing processes in the long run that could be either vicious, virtuous or neutral. The policy question we investigate is how to break a vicious cycle between low welfare and low institutional quality. Reform must be exogenous and multi-dimensional, requiring welfare and institutions to be mutually reinforcing. In the context of post-decentralization Indonesia, any multi-dimensional institutional reform must include not only policies to strengthen local institutions, but also policies to increase welfare.

Keywords: *endogenous institutions, welfare and poverty, regional analyses*

JEL Classification: *E02, O17, P36, P46, R13*

1. INTRODUCTION

Although there have been many studies on institutions, there has been little empirical or field study on institutions. Moreover, institutions have often been understood to be exogenous factors that affect welfare with little thoughts given to the endogeneity issues of the formation of institutions. North (1990) wrote, "What makes for efficient markets? If poor countries are poor because they are the victims of an institutional structure that prevents growth, is that institutional structure imposed from without or is it endogenously determined or is it some combination of both?... Still to be undertaken is systematic empirical work that will identify the costs and underlying institutions that make economies unproductive" (p.134-135). Indeterminacy and context-specificity of institutions make traditional social science empirical study on institutions difficult because neither deductive nor inductive analysis is sufficient to explain the complexity of institutions (Greif, 2006). In this paper, we study the theory of endogenous institutions in the light of institutions in Indonesia by using an in-depth field study on institutions conducted in five districts in Indonesia. During our field study, we collected primary data on the net effect of local capture on welfare, local leadership, and participation level as well as various social indicators. We conducted interviews with local key informants including Regents/ Mayors, other high-ranking public officials, political parties, oppositions, NGO's, local media, business associations, and poor-family card holders and quantified our primary data into scale-based indicators. We then show how these institutional elements are correlated with various indicators of both the current and lagged socioeconomic conditions that suggest the endogeneity of institutions.

This paper provides a game-theoretical approach to illustrate the strategic behaviors of the players and the two most important concepts in the theory of endogenous institutions (Greif 2006), namely self-reinforcement and quasi-parameter. We then integrate Greif's game theoretical approach with Azis' typology of leadership model (Azis, 2008) to explain the persistence of low welfare level and poor-quality institutions through institutional mechanisms, such as local capture, local leadership, and participation level as well as local accountability. Similar to Greif's approach, we do not attempt to highlight all institutional mechanisms to explain institutional changes through game theory. But we would like to capture the driving forces behind the persistence of an institution. In general, self-reinforcement factors work through quasi-parameters that are defined as parameters in the short run but as variables in the long-run. As a parameter, a quasi-parameter could *self-enforce* a behavior, but as a variable, a quasi-parameter could *self-reinforce* or *self-undermine* a behavior. We illustrate how decentralization in

Indonesia, which has shortened the political distance between local leaders and local elites, could exacerbate the quality of institutions in a poor district that had a diminished quality to begin with. This poor district can be associated with self-undermining factors such as low education that can be further associated with low local accountability, rendering local policies more corruptible.

2. LITERATURE REVIEW

Endogenous institutions have been discussed in literature as early as Myrdal's *An American Dilemma* (Myrdal, 1944). In what he calls "the theory of the vicious cycle," Myrdal argues that white prejudice and discrimination keep the Negro oppressed and more oppressions in turn exacerbate white prejudice. Moreover, he argues that the original change of either white prejudice or Negro oppression could set a different future trajectory that spirals either upward or downward. North (1990) defines institutions as rules of the game in a society that consist of three main elements: formal rules, informal constraints, and enforcements. Institutional equilibrium is defined as "a situation where given the bargaining strength of the players and the set of contractual bargain that made up total economic exchange, none of the players would find it advantageous to devote resources in restructuring the agreements" (p.86).

Among the more recent theories on endogenous institutions are those of Greif (2006) and Acemoglu (2008). Greif's (2006) theory of endogenous institutional change argues that institutionalized rules, beliefs, norms, and actions constitute an equilibrium if players find it optimal to follow the institutionalized rules, which would in turn generate behaviors. Using the historical studies on the Genoese and Maghribis traders, game theoretical analysis on inter-agency relationship is discussed. Acemoglu (2008) discusses the reasons a dysfunctional institution continues to persist, and relates this to the theory of endogenous institutions. He argues that distributions of resources and initial political institutions affect the *de facto* and *de jure* political power that affects the economic institutions and political institutions of the next period. Economic institutions and political institutions further affect the economic growth and the distributions of resources in the period after next. This framework illustrates the evolution between distribution of resources or growth and institutions, and thus, the endogeneity of institutions.

Acemoglu and Robinson (2008) show an equilibrium that is called captured democracy. The *de facto* investment on political power by the elites is high enough that the economic institution is captured by the elites despite democratic political institution. In the context of decentralization in Indonesia, the *de jure* political structure in the post-

decentralization period is democracy. However, because local regulations are now regulated at the local level and political leaders are now directly elected by the people, more opportunities arise for local elites to become politically closer to the local leaders or local regulators. This increases the level of local capture and investments in the *de facto* political power by the local elites post-decentralization. Hence, what we see in some districts in Indonesia in the post-decentralization period, despite the *de jure* democratic political regime, are economic institutions that are captured by local elites.

Cai and Treisman (2005) find that there are two effects of capital flows liberalization: competition and polarization. The result is not a convergence, but a polarization of policies and government qualities if unit homogeneity assumption that every region starts from the same initial condition fails. This paper helps to explain the possible factors that could result in the failures of decentralization and the divergence of welfare among districts in Indonesia. Pepinsky and Wihardja (2009) use the synthetic control methodology to generate a counterfactual case of Indonesia if it would not have been decentralized and show by comparing the real and synthetic Indonesia that the effect of decentralization on national development is at best very small and at worst non-existent. Azis (2008) studies the effect of a higher degree of local capture on welfare in decentralized Indonesia. Using a typology of leadership, he argues that the net effect of local capture on welfare can be both negative and positive (what is also termed the "backward bending curve of local capture on welfare") depending on the poverty level, participation level and local leadership. Von Luebke (2009) discusses the importance of local leadership and societal pressures in shaping local governance. He argues that variations in local governance are better explained by local leadership than by societal pressure. Although this literature has a lot of overlaps with this paper in terms of methodology of field studies and topic of interests, our paper concentrates on the endogeneity of institutions. That is we attempt to answer why some districts have high-quality local leadership and/or high societal pressures, which are observed as exogenous explanatory variables in Luebke's paper, while other districts do not. We will argue that local leadership and societal pressures are not exogenous variables but are endogenously determined by the initial socioeconomic conditions and past institutions.

3. A THEORETICAL FOUNDATION OF ENDOGENOUS INSTITUTIONS

It is important to define some terms on endogenous institutions and institutions as an equilibrium, which we take from Greif (2006). An institution is defined as a system of rules, beliefs, norms, and organizations that together imply a regularity of (social) behavior. In the context of a corrupt institution, rules may constitute a regulation of payment of bribes such as the amount paid, how, and to what effect. Organizations may constitute the state administration, police, courts of law. Beliefs and internalized norms may constitute the notion that the responses of the state, police, and courts to bribery renders it profitable to take and the belief that paying the bribe is the least costly way to advance one's interest. An institution is an equilibrium if it constitutes the structure that influences behavior, while the best behavioral responses of agents to this structure reproduce the institution. The fact that players play against institutionalized rules explains the phenomenon of a persistence of an institution that constitutes some implied behaviors. Persistence or inertia, institutional path dependence, or steady-state equilibrium in institutional setting are among the names used in describing the dynamics of endogenous institutional change.

The two important features to study Greif's theory of endogenous institutional change are *quasi-parameters* and *self-reinforcement factors*. Quasi-parameters are parameters that determine self-enforcibility in the short run but are endogenously determined and hence variables in the long run. Quasi-parameters may therefore take the form of payoffs of the players that change over time, such as economic gains in the next period from playing a certain strategy today. To define a self-reinforcement factor, an implied behavior is called positively, neutrally, or negatively self-reinforcing if the existence of this implied behavior changes the quasi-parameter that makes this implied behavior more, neutrally, or less likely to self-reinforce respectively. An increase of the payoff from cooperation tomorrow if there is cooperation today is an example of positive self-reinforcement factors in which cooperation today makes cooperation tomorrow more likely and hence positively self-reinforced.

To illustrate how a quasi-parameter can positively, neutrally, or negatively self-reinforce some implied behaviors, we take an infinitely repeated, three- player Coordination game (see Appendix I[2]). The players in this game are a local leader, a local elite, and a citizen. The pure strategies of the local leader, the local elite, and the local citizen are `Cooperate' (C) and `Defect' (D). The sum of the payoffs of the players

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[2] Available from authors upon request.

can illustrate the level of welfare in the society. This example may illustrate the strategic behaviors of local leaders, local elites and citizens in cooperating. What makes this example different from the standard Coordination game is the time-variant payoffs from cooperating by all players. If cooperation by all players in the previous period results in a higher (lower, unchanged) payoff from cooperation by all players in the current period, then we call this time-variant payoffs positive (negative, neutral) self-reinforcement factors. There are two one-stage, pure-strategy equilibria in the first period (t=0), namely all players cooperating and all players defecting. Moreover, only in the case of positive and neutral self-reinforcements is `all cooperating' self-reinforcing (an equilibrium) when players infinitely repeatedly meet (see Appendix II[3]). In the case of negative self-reinforcement, after some T periods, some of the players will have an incentive to deviate to defecting. Note that our equilibrium result does not change with payoff matrix that is different from this example as long as it constitutes a payoff matrix of a Coordination game. This game theoretical example is discussed more in Azis and Wihardja, 2009.

The more crucial point of this theory is the explanation of why local leaders, local elites, and local citizens fail to coordinate even if there is a better equilibrium, such as everyone cooperates. Ability to coordinate alone, mutually benefiting players, is not enough to make them coordinate and cooperate. Sunk costs associated with coordinating change, the free-rider problem, distributional issues, uncertainties, limited understanding of alternatives, and asymmetric information are among the factors that prevent coordination from arising. More importantly, implicit mutual trusts or distrusts that are formed from the past behaviors of the players and are institutionalized in people's mind may shape the focal point for players to either coordinate or defect.

Self-reinforcement factors are the forces behind the persistence of the evolution between welfare and the quality of institutions. Under negative self-reinforcement factors, low welfare evolves with poor quality of institutions in which the local leader, the local elite, and the citizen behave "mischievously" or non-cooperatively. Conversely, under positive self-reinforcement factors, high welfare evolves with high quality of institutions in which the local leader, the local elite, and the citizen behave cooperatively. Three main elements that determine the evolution between welfare and qualities of institutions and which could explain the persistence of non-cooperative or cooperative equilibrium are the initial welfare of the district, the self-reinforcement factors and the qualities of institutions.

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[3] Available from authors upon request.

We argue that in the long-run a stable improvement in the qualities of institutions and welfare relies on the self-reinforcement factors. Moreover, negative (positive) self-reinforcement factors can be associated with a low (high)-level of welfare in the following way. In a poor district, citizens are uneducated. The high costs of educating the citizens about health to make health programs work effectively may make implementing health programs unattractive to local leaders and local elites in the long-run. In other words, the expected return from providing health programs is perceived to be small because of the low health awareness of the citizens. Hence, they stay away from health care provision altogether.

Past behaviors that have become a culture institutionalized in people's beliefs and norms are more difficult to change than one might predict. In other words, past institutions, in particular one that has turned into a culture, matter. In order to change people's beliefs of corrupt government in Indonesia, for example, the new leaders must transform the bad image of government by creating a body with leaders of high integrity in order to prevent an institutionalized distrust in government. Moreover, in order to erase the culture of corruption, there must be a reform in the beliefs and norms of the people for a stable equilibrium, which may be more gradual. In the context of corruption, an institution entails changing the beliefs of how others might behave and what one believes is right in order to induce good behaviors. Therefore, corruption that has become a culture requires a more complex process in order to change. This process involves a significant investment of time as it requires changes in observable behaviors. The dependence of current institution on past institutions was observed by von Luebke (2009): "...decentralization and democratization took place not on a `blank slate', but on an authoritarian foundation...The high level of corruption and preferentialism - readily observable in the irregularities of public recruitment and contracts revealed by our surveys - confirms that democratic norms compete with patrimonial conventions." (p.221)

4. EVIDENCE AND PROPOSITIONS OF ENDOGENEOUS INSTITUTIONS IN INDONESIA

We have seen in the game theoretical model above how an institution may or may not self-reinforce cooperative behaviors. In the context of endogenous institutions, we formalize evidence gathered from our field survey conducted in Indonesia between June 9 and July 31, 2008, in five

districts in Indonesia[4]. During this field study, we interviewed local key informants in each district to collect primary data on local capture, local leadership, and participation level. We also collected secondary data on social indicators. Specific indicators, including questions asked to various local key informants, for these four variables are given in Appendix III[5]. In this section, we are going to combine Greif's game theoretical approach to endogenous institutions as it is described in the previous section with the typology of leadership in Indonesia by Azis (2008) (see Appendix IV[6]) to explain our findings from the field study. By combining these models, we attempt to better illustrate the endogeneity of institutions in the context of Indonesian institutions during the post-decentralization period, in which institutional constraints take effect mainly in the forms of high degree of local capture and other changes in political structures, particularly with regards to local elections. By quality of leadership (Azis, 2008), we mean the integrity of local leaders. By quantity of local leadership, we mean the degree to which a leader is effective in generating local revenues and economic growth. A Type-A leader is one who could increase the local budget under some degrees of local capture. A Type-B leader is one who uses the benefits of local capture for his/her own private benefit and thus, does not contribute to the local budget. A Type-C leader is one who does not only use the benefit of local capture for his/her own private benefit, but also corrupts the local budget, such as a kleptocratic local government.

The model in this paper also shows how one could endogenize the participation level and local leadership assumed to be exogenous in Azis, 2008. It could also explain the persistence of low welfare and poor-quality institutions in some districts in Indonesia in the presence of negative self-reinforcement or self-undermining factors, such as low education. How these self-reinforcement factors could generate the evolution between welfare and qualities of institutions is illustrated in the game-theoretical approach in the previous section. (Also see the term "persistence" of a dysfunctional institution in Acemoglu, D., 2008). We argue that starting with an initial welfare, a district is associated with some socioeconomic factors, such as the level of education and political awareness of the citizens, that could be the negative, neutral, or positive self-reinforcement factors to the progress of the district. These self-

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[4]The following section is based on the field survey on the effect of local capture on welfare in the post decentralization era in Indonesia, conducted between June 9 - July 31 2008 in five districts in Indonesia (see Azis and Wihardja, 2008). See Appendix III (available from authors upon request) for how the field survey was conducted and the summary of primary and secondary data on the five districts collected during the field study.

[5] Available from authors upon request.

[6] Available from authors upon request.

reinforcement factors generate certain institutional attributes, such as local accountability, local capture, participation level, and the local leadership. These institutional attributes along with exogenous factors in turn affect welfare in the next period.

We find that in the presence of self-reinforcement factors, the evolution between welfare and qualities of institutions that could persist may be associated with complete, incomplete, stagnant, or deteriorating progress as discussed in Azis, 2008. We propose that the initial welfare and past institutions affect future institutional trajectory through the election of local leadership, the effect of local capture on social welfare, the participation level and so on. The self-reinforcement factors in Greif's model on endogenous institutions help to explain the self-reinforcing forces behind the different types of progress discussed in Azis, 2008.

From the field study, we find a correlation between various social indicators and institutional attributes, namely local capture, local leadership, and participation level. To test for causality, we lag the time for the variables on socioeconomic conditions. We find a correlation between socioeconomic conditions in the pre- and early decentralization period and institutional elements, namely local leadership, participation level, and the effect of local capture on welfare, in the post-decentralization period, suggesting the endogeneity of institutions.

We observe that of the five districts studies in Indonesia, one of them, Manggarai Barat, Flores, is identified to have deteriorating progress. By deteriorating progress, we mean that this district experienced the negative effects from increasing local capture on welfare in the post-decentralization era because of incompetent leadership and high levels of poverty as well as low participation levels that can be associated with uneducated and politically uninformed citizens. Two districts (Prabumulih and Sragen) are identified with stagnant progresse, meaning negative local capture is present with relatively moderate poverty levels but low quality of local leadership. Prabumulih is an oil-and-gas producing region, although corruption among local leaders is pervasive as is evident from the recent records of legal corruption charges among public officials, including heads of departments. Sragen has local program aimed at reducing poverty rates, unemployment rates, and improving infrastructures even though the quality of local leadership is ranked low based on our in-depth interviews. The other two districts are characterized by complete progress, meaning they experienced positive effects from increasing local capture on welfare in the post decentralization era because of competent leadership and low poverty levels as well as high participation levels that can be associated with educated and politically informed citizens.

From our observation, the district identified with deteriorating progress is a poorly developed region with a high poverty rate above 25%, poor basic infrastructures, and a below-average literacy level below 90%, as well as low Human Development Indices of below 70. Its economic condition is characterized by a low GRPD's per capita, excluding oil and gas of below Rp.2 million and a low ratio of the local revenue to the total local budget of below 5%, implying a high dependency on the central government's funds. Moreover, besides having poor social and economic conditions, this less developed district also tends to have low participation levels and a high intimidation level as compared to more developed regions. However, these might be the endogenous effects of having poorly educated and politically unaware citizens who elect bad local leaders.

In order to determine the causality of social conditions on institutions, we take different social indicators including the 1999 Human Development Index, the 1999 Human Poverty Index, the 2000 Infant Mortality Rate, and the 2003 Literacy Rate (see Appendix V[7]) and plot them against institutional indicators from our field study, namely local capture, local leadership and participation level. These graphs show some evidence that poor social conditions negatively affect institutional elements. The causality between welfare and institutions in the post-decentralization era is harder to determine because there has not been data since the decentralization. Moreover, changes in institutional elements take time. In the evolution process, local leadership, participation level and local capture will constitute the new institutional elements of a district, which in turn affect welfare in the next period. Welfare endogenously affects the new institution, and so this becomes an evolutionary process.

5. PAST INSTITUTIONS AND INITIAL CONDITIONS

Greif (2006) argues that past institutions affect the evolutionary process of a new institution through three factors: environment, inclusion, and coordination effects that play roles in determining future trajectories of institutional change as a function of past institutions. Environment effects explain why institutions that could better adapt to the past institutions are more likely to be adopted as new institutions. Inclusion effects explain why past institutions rather than new institutions are more likely to be adopted as new institutions. Coordination effects explain why past institutions are focal points in the case of multiple selections under the new institutions. Evidence of environment,

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[7] Available from authors upon request.

inclusion, and coordination effects in Indonesian institutions in the post-decentralization period is ever-present. Von Luebke (2009) recorded this: "...small firms remain skeptical about the effectiveness of reform petitions. Based on their experiences during the Soeharto era, many interviewees concur that the personal risks involved in criticizing government shortcomings clearly outweigh the possible benefits of doing so...Chinese communities strictly refrain from engaging in public debate. This cautious behavior emerges as a response to social hardship in recent decades." (p.222) Past observable outcomes certainly shape current beliefs and norms that eventually lead to some implied behaviors and institutions. Table 1 and 2 set the initial conditions and the three effects on institutional change as a function of past institutions. Table 3 and 4 show the initial conditions for less and more developed regions, and possible outcomes that arise based on both the initial conditions and past institutions. As mentioned above, past institutions create fundamental asymmetry and, together with initial conditions, generate certain institutional complexes. Given past institutions and initial conditions, certain self-reinforcement factors arise that determine the evolution of institutions and welfare.

Table 1

Initial Social Conditions	Indicators
Social Indicators	Poverty Level
	Education
	Health
	Unemployment

Table 2

Effects	Sub-Indicators	Explanations
Environment	Political	The role of central government
		The role of local government
		The role of (Local) People's Representative Body
	Social	National social insurance programs
		National micro-finance programs
Inclusion	Institutional	The past local capture
		The past corruption/collusion/nepotism
Coordination	Legal system	The reward and punishment/ other legal system

Table 3

Past Institutional Effects & Initial Conditions	Less (More) Developed Regions
Initial social conditions	High (low) poverty level, IMR, unemployment; Low (high) literacy rate
Environment (political and social)	The persistence of central government control An increase in the role of local leaders A less effective role of (Local) People's Representative Body Continued national social programs Continued national micro-finance programs
Inclusion (institutional)	An increase in local capture Inherited past corruption/collusion/nepotism
Coordination (legal system)	Continued ineffective legal punishments

Table 4

Possible Outcomes in Less (More) Developed Regions
a. Social and micro-finance programs are inefficient (efficient)
b. Low (High) quantity-quality local leaders are elected
because of low (high) political awareness of the citizens
c. Policies tend to be top-down (bottom-up)
d. Citizens do not (do) serve as a controlling body
e. Participation level is low (high) , access to information is poor (easy),
and intimidation level is high (low)
f. The effect of local capture on social welfare is negative (positive)
because local accountability is low (high) (c, d and e)
=> Deteriorating (Complete) progress; Incomplete (stagnant) progress,
if quantity-quality of local leadership is high (low)

In these tables, we show that all five districts are affected by the past institutions equivalently. However, the five districts are affected differently by their initial social conditions. We argue that different initial social conditions are associated with different self-reinforcement factors that could develop into different institutional attributes and complexes. A district with a high poverty level can be associated with low education and low political awareness of the citizens, leading to `negative local capture' (influences of local elites on local policies that hurt local welfare) because of a lack of local accountability, for example.

6. EVIDENCE OF ENDOGENOUS INSTITUTIONS

The complete primary and secondary data collected during the field study are given in Appendix III[8]. The results from the field survey show that based on the typology of Azis (2008), the less developed regions as defined in the above section of the five districts studied are associated

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[8] Available from authors upon request.

with deteriorating progress, the more developed regions are associated with complete progress, and the more developed region but with low quality of local leadership is associated with stagnant progress. None falls into incomplete progress although we contend that it is because of a lack of observation and not because this type of district does not exist. We can show that the net effect of local capture is positively correlated with the social conditions. Note that the indicator on "local capture" in areas of public procurement auctions, local regulations, and social programs as specified in the questionnaires of the field study measures the effects of the relationship between local leaders and local elites in these three areas. This indicator, however, measures the intensity of "negative" local capture by the designs of the questions, while the intensity of the "positive" local capture is captured from the questions on the quality of leadership in organizing social programs and the quantity of leadership in generating and managing local revenues and GRDP growth by establishing relationships with the private sector. The latter indicators question how local leaders use their relationship with the private sector to increase local revenues and economic growth as well as to implement social programs. The net effect of local capture is equal to positive local capture minus negative local capture. Social conditions are measured by the poverty rate, IMR, literacy rate, and unemployment rate with equal weights. We also show a positive correlation between local leadership and social conditions. The participation level is also positively correlated with social conditions.

Although we cannot determine the causality of these variables, we show that various social indicators in the *pre*-decentralization or early post-decentralization periods affect the net effect of local capture on welfare, local leadership and participation level in the *post*-decentralization period. We show that the high Human Poverty Index in 1999 is associated with negative net effects of local capture on welfare (Figure 1), low quality-quantity local leadership (Figure 2), and low participation level (Figure 3)[9]. Other plots, except for literacy rates, show the relationships between these social indicators in 1999, 2000, and 2003 and institutional elements in 2008 that support our hypothesis that poor social conditions are associated with low quality institutions, and vice versa. They further suggest that social conditions in the current period could affect qualities of institutional elements in the future. This gives us some clues as to why high or low quality of institutions persists and there are stylized levels of welfare that can be associated with this quality of institutions. In the next subsection, we will endogenize local capture as a function of initial conditions.
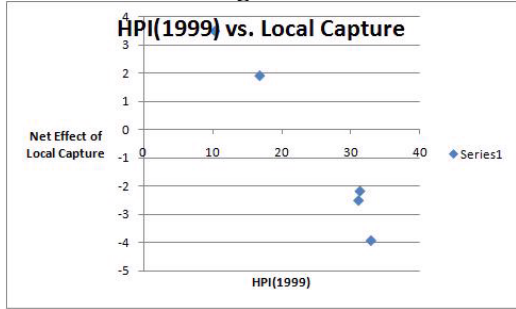
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[9]Figure 1-3 can be re-produced by combining the data in Appendix III and V.
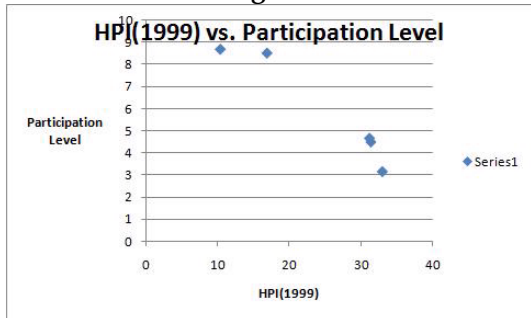
Figure 1
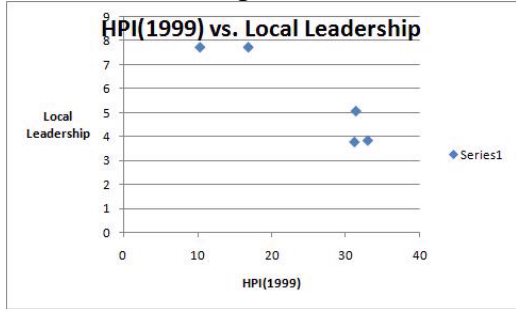
Source: Primary and secondary data from authors' 2008 field study

Figure 2

Source: Primary and secondary data from authors' 2008 field study

Figure 3

Source: Primary and secondary data from authors' 2008 field study

7. PROPOSITIONS OF ENDOGENOUS INSTITUTIONS

In this section, we will show an example of how institutions can be endogenized, leading to a long-run progress or a persistence in the evolution between welfare and institutions. We will assume that initial conditions consist of the socioeconomic conditions and past institutions as we have in the previous section. The participation level, local leadership, and the net effect of local capture are considered endogenous variables. This is slightly different from the typology of leadership model in Azis, 2008, in which local leadership is exogenous. In the example that follows we show how the presence of self-reinforcement factors associated with different initial conditions could reinforce different types of progress.

The five districts surveyed are categorized into four types of institutions, which we will call *Institution 1*, *weak Institution 1*, and *Institution 2* as well as *weak Institution 2*. These categories are distinguished by their self-reinforcement factors and institutional complexes. In other words, the four types of institutions are different with regards to their initial socioeconomic conditions that create different self-reinforcement factors and institutional elements, namely local leadership, local capture, and participation level. Institution 1 is associated with good socioeconomic conditions, positive self-reinforcement factors, and positive institutional elements, namely high quantity-quality of local leadership (Type A), high participation level, and positive net effect of local capture on welfare. Institution 2 is associated with poor socioeconomic conditions, negative self-reinforcement factors, and negative institutional elements, namely low quantity-quality of local leadership (Type C), low participation level, and negative net effect of local capture on welfare. Weak Institution 1 is associated with moderate socioeconomic conditions and neutral self-reinforcement factors, but is associated with negative institutional elements, namely low quality of local leadership (Type B/C), low participation level, and negative net effect of local capture on welfare. Weak Institution 2 is associated with moderate socioeconomic conditions and neutral self-reinforcement factors, but is associated with positive institutional elements, namely high quantity-quality of local leadership (Type A), high participation level, and positive net effect of local capture on welfare. Although there are four types of institutions that we consider, none of the five districts we studied falls into the category of weak Institution 2.

We divide institutions in the five districts studied into four types. Institution 1 is associated with high levels of initial socioeconomic conditions, high participation level, and high quantity and/or quality leadership (Type A) as well as positive net effect of local capture on

welfare. Examples of districts that fall into the "Institution 1" category based on our field study are Balikpapan and Yogyakarta City (Table 5).

Table 5

Indicators \ City	Balikpapan	Yogyakarta City
Poverty Level	9.5	7.5
IMR	8.75	9
Literacy Rate	8.75	9
Unemployment Rate	8.75	8
Average Socioeconomic Conditions	8.91 (Good)	8.375 (Good)
Participation Rate	8.67 (High)	8.375 (High)
Local Leadership	8.125/7.33 (High/High)	8.125/7.33 (High/High)
Local Capture	3.5 (Positive)	1.92 (Positive)

Source : Authors' 2008 Field Study

Weak Institution 1 is characterized by moderate socioeconomic conditions but a low participation level, and low quality of local leadership (Type B/C) as well as negative net effect of local capture on welfare. Two districts that fall into the "Weak Institution 1" category are Prabumulih and Sragen (Table 6).

Table 6

Indicators \ City	Prabumulih	Sragen
Poverty Level	7.3	2
IMR	1.5	5.5
Literacy Rate	9.1	4.9
Unemployment	5.3	9.2
Average Socioeconomic Conditions	5.8 (Moderate)	5.4 (Moderate)
Participation Rate	4.67 (Low)	4.5 (Low)
Local Leadership	2.875/4.57 (Low/Low)	4.625/6 (Low/High)
Local Capture	- 2.5 (Negative)	- 2.17 (Negative)

Source : Authors' 2008 Field Study

Institution 2 is associated with low initial socioeconomic conditions, low quantity-quality of local leadership (Type C), low participation level, and negative net effect of local capture on welfare. A district that falls into the "Institution 2" category according to the field study is Manggarai Barat (Table 7).

Table 7

Indicators \ City	Manggarai Barat
Poverty Level	1.5
IMR	1.5
Literacy Rate	6.67
Unemployment Rate	8
Average Socioeconomic Conditions	4.4 (Bad)
Participation Rate	3.167 (Low)
Local Leadership	4.125/3.67 (Low/Low)
Local Capture	- 3.92 (Negative)

Source : Authors' 2008 Field Study

None of the districts from our field study falls into the "Weak Institution 2" category. Weak Institution 2 might be less likely to arise than other institutions because high quality of institutions in the long run will generate high socioeconomic conditions. This however does not mean that weak institution 2 does not exist. Based on a KPPOD discussion forum (August 6, 2009), some participants suggested that Blitar City could fall into this type of institution. All types of institutions are associated with the same environment, inclusion, and coordination effects as specified in Table 3.

We claim that the endogenous institutional effect of the initial socioeconomic conditions and the past institutions, namely the environment effect, the inclusion effect, and the coordination effect, are the participation level, the type of local leadership, and the net effect of local capture on welfare as well as beliefs and norms. In Institution 1, the participation level tends to be high, high quantity-quality leadership (Type A) is more likely to be elected, and the net effect of local capture on welfare is positive. In Institution 2, the participation level tends to be low, low quantity-quality leadership (Type C) is more likely to be elected, and the net effect of local capture on welfare is negative. In weak

Institution 1, participation level tends to be low, low quality leadership is more likely to be elected (Type B or C), and the net effect of local capture on welfare is negative. In weak Institution 2, the participation level tends to be high, high quality leadership is more likely to be elected (A), and the net effect of local capture on welfare is positive. The districts studied are specific examples of these types of institutions. Other districts with similar properties could fit into one of these types of institutions.

The claim above is based on our field study. In order to distinguish between weak institutions 1 and 2, in which initial socioeconomic conditions are moderate, we consider the specifics of the initial conditions that make one institution have a low quality of institution and the other a high quality of institution. For example, weak institution 1 could be associated with regions that are rich in natural resources thus reducing the will to reform institutions. Conversely, weak institution 2 could be associated with regions that are poor in natural resources, thus motivating people to work harder to reform institutions. These examples also suggest that initial conditions determine the capacity in which new institutions develop. For example, a district with uneducated citizens and politically unaware voters, or low participation of the citizens may not be capable of electing good leadership, preventing the district from reforming.

8. LONG-RUN INSTITUTIONAL TRAJECTORY

We can now model Institution 1, weak Institution 1, and Institution 2 as a game theoretical model described earlier. We will assume that weak Institution 2 is an unstable institution that over time will fall into one of the other three types. In this model, we see how self-reinforcement factors reaffirm initial trajectories that lead to either a complete, stagnant, or deteriorating progress through the incentives of the players to initiate good cooperation (associated with positive local capture) or bad cooperation (associated with negative local capture).

Take an example of Institution 1: Balikpapan. In this district, because the initial socioeconomic conditions are high, citizens are capable of participating in the political arena. Because the citizens are politically informed and participation level is high, a high quantity-quality of leadership is elected (Type A). If the local leader, the local elites, and the citizens cooperate, local capture is positive and welfare increases. Because welfare increases, a better leader is elected in the following period and participation level is higher. The payoff from all cooperating in the next period is even higher. In the long run, more cooperation among the local leader, local elites and citizens are established. This is evident from the growing business activities with the supports of the local government.

Take an example of Weak Institution 1: Prabumulih. In this district, despite the high initial socioeconomic conditions because of oil and gas, the quality of local leaders is low (Type B/C) and the participation level is low. Cooperation by the local leader and the local elites as well as the citizens does not increase welfare or even decreases welfare because low quantity-quality of the local leaders reaps the benefits from cooperation or initiates projects for private gains. However, because the district is rich in rubber, and other natural resources, the citizens are able to maintain a moderate standard of living. It is known that villagers are able to maintain fixed incomes by working in rubber plantations and sharing the incomes with the owners, while city dwellers are more likely to fall into poverty. There is no gain from cooperation in the next period by cooperating in the current period. In the long run, cooperation among local leaders, local elites and citizens are stagnant.

Take an example of Institution 2: Manggarai Barat. In this district, the initial socioeconomic condition is poor, the participation level is low, and hence, the quality of local leadership is low (Type C). Cooperation today may result in bad projects, such as the Aldira project in which cooperation by the local leaders, local elites, and citizens to plant new cassava seeds fails because of the wrong choice of season (low quality and unprofessional leaders without sufficient local accountability), thus lowering welfare. An even worse quality local leader is elected in the following period and the participation level is lower. The gains from cooperation in the next period is therefore lower. In the long run, less cooperation among local leader, local elites and citizens is established. This is evident from the shrinking business activities.

Although our field study reveals no district we studied that falls into weak Institution 2, a possible example of weak Institution is Blitar, in which socioeconomic conditions are moderate, and the local leadership is relatively good. We might argue that weak institution 2 might arise despite poor natural resources because the citizens work hard to establish high-quality institutions and because of this, a good local leader is elected.

The evolution between welfare and qualities of institutions in the presence of self-reinforcement factors is shown in Appendix VI[10]. In the long-run, Institution 1 can be associated with "complete" progress; Institution 2 can be associated with "deteriorating" progress; weak Institution 1 and 2 can be associated with "stagnant/ incomplete" progress respectively (Azis, 2008).

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[10] Available from authors upon request.

9. POLICY RECOMMENDATIONS

From the previous result, we introduce new insights on institutional reform. Initial welfare entails different institutional complexes that set different capacities to reform. Our results have two major policy implications. One is that institutional reform must ensure some level of welfare in which high qualities of institutions will be sustainable. Efforts to reform institutions may therefore include ensuring that low-ranked public officials receive sufficient wages and other welfare benefits to support their families. Well-paid public officials could also be corrupt, as is evident in developed countries, but we argue that not paying public officials sufficiently could exacerbate institutional problems. In the context of Indonesia, Seda (2001) inserts, "although Soeharto is no longer in power today, however, petty corruption in the Indonesian government as well as in society at large is very likely to continue for a long time. There are several sets of conditions that are conducive for corruption to endure (King 2000:608). One set of conditions pertains to the social economic status of government bureaucrats. Their salaries are notoriously low and have not kept pace with the cost of living, particularly in the major cities."

Second, because initial welfare is associated with different institutional complexes and set different capacities to reform, institutional reform must be targeted differently among different districts. In the case of a very poor district, for example, before institutional reform can occur, citizens must be capable of participating in the social programs. We call this type of institutional reform a *welfare-based* approach.

It is also important to note that in order to change an endogenous system, policy reforms need to be *multidimensional*. Policy reforms will only work to change an evolution between low welfare and poor quality of institution if it is approached from multiple angles, improving *both* welfare and the quality of institutions. Myrdal (1944) wrote, "a rational policy will never work by changing only one factor" (p.77). This is particularly true in the case of an endogenous system. In order for the system to work well, these two variables must reinforce each other. Moreover, Greif (2006) writes that,"...rather than focusing only on helping countries specify rules, it will have to seek to change organizations, beliefs, and intertransactional linkages" (p.403).

One important observation that we made during the field study was that corrupt poor districts tend to carry many mega or white-elephant projects despite the rampant poverty. It has been known that white elephant or mega projects may elicit high mark-ups because of their size and value and these illegal payments are shared between the local government and the local elites who implement the projects. It is therefore recommended that independent watchdogs be able to recognize this.

Endogenous institution creates an evolution between welfare and qualities of institutions. In order to break the cycle, an *exogenous* shock is sometimes needed. This shock may come from outside the system, such as a natural disaster (e.g., the case of Aceh) or adopting Western or formal style institutions, or it may come from within, such as a sudden demand for a change or "voice" (Hirschman, 1970), such as a revolution. Dixit (2004) writes that the institutional reform is often faced with the question of whether to adopt Western laws or to keep local customs, or, in other words, whether to induce an external shock therapy or to allow gradualism. However, he argues that typically, the best choice is a subtle combination. In some cases, in Indonesia, for example, exogenous shocks from outside the system such as modern medical treatment without adjustment to the local customs, in this instance traditional medical treatment, might not work. A health care program that gives free health care services might not work if the local people do not believe in medical treatment, but believe in magical treatment (or Dukun, in Indonesian). Again, it must be adjusted to the institutional complexes, namely cultural beliefs, norms, and social as well as political conditions. Dixit (2004) further calls for the need of country-specific knowledge to generate policy prescriptions for a one specific country. Hence, institutional reforms must also be *context-based*.

Dixit (2004) argues that a relation-based contract enforcement that is based on localization of information and honesty is not sustainable after some level of development, or some size of economic activities because of constraints on communication technology. Because of this, middle-income countries, such as Indonesia, might be trapped in a situation in which a relationship-based contract enforcement no longer works, but the size of the economic activities or level of development is not big enough to afford a rule-based contract enforcement. Moreover, issues surrounding collective action and political incentives of those who stand to lose from a change in institutions make institutional transition still more difficult. In most cases, the relation- and rule-based systems coexist. Dixit argues that the best combination between relation- and rule-based systems will depend on the history and economic prospects of each country. In the context of Indonesia, institutions are still dominated by relation-based systems.

We discuss the importance of the participation level in determining the long-run progress of a district in Indonesia. The importance of participation level in curbing corruption is ingeniously captured by Serra (2008), who conducted an experimental study on bribery games that showed that combining bottom-up and top-down monitoring on corruption is most effective even if the institution is weak. Trust-based, informal institutions may also help to attenuate institutional constraints (Della -Giusta, 2008). Providing access of information to voters, thus

avoiding a narrow flow of information to only specific interest group is necessary (Economic Review, RIETI, 2009). Some specific interests groups with access to the government can overcome asymmetric information between the government and voters. Hence, specific interest groups have an informational advantage over general voters about government internal information in order to organize activities. However, these specific groups could hurt the majority of voters by organizing activities that serve the group interests only. In general, access of information to general voters is necessary because the failure to retrieve government information could distort the outcome of the election, and as a result, create a vicious cycle of bad leadership and low welfare with poor and uninformed participation of voters.

In summary, policy implications on institutional reform are subtle. However, this study highlights a few possible ways to reform. Institutional reform must be welfare-based and context-based to allow adjustments to different institutional complexes and capacities to reform as well as different cultural beliefs, norms, political and social conditions. Due to the endogeneity of the system, it must come from some exogenous shocks, such as formal (or rule-based) institutions. It might be that these exogenous shocks come from a sudden demand for change or revolution. Moreover, institutional reform must be multidimensional due to the endogenous nature of the problem, requiring both variables, welfare and institutions, to reinforce.

In the context of Indonesia during the post-decentralization period, reforms must focus on local institutions. Due to the closer political distance between local leaders and local elites and the political and fiscal transfer of authority from the central government to the local governments, the degree of local capture increases and in many cases, local leaders become "local kings". Thus, one possible way to reform both institutions and welfare is to have the central government introduce incentive systems that both punish corrupt local leaders, for instance, by an establishment of an anti-corruption body and reward districts that achieve some targeted social indicators, for instance, giving awards to districts that are able to consistently reduce the poverty level. Another possibility could be to introduce a combined top-down and bottom-up approach as is suggested by Serra (2008). The central government must be able to provide legal rules to ensure the participation of citizens in regulating local policies, and must be able to empower the citizens to raise their voices and demand for change (Hirschman, 1970). Relationship-based systems, such as cooperation between local leaders and local elites, must be combined with rule-based institutions. Thus, investments in rule-based institutions may also be necessary. Because of the heterogeneity of Indonesian districts, welfare-based and context-based approaches are also important.

Finally, we propose that a good policy must not only improve outcomes but also change the incentives of the stakeholders to improve their behaviors, which will lead to a longer-term equilibrium. There are three types of approaches to formulating policies under institutional constraints. The first is the type of policies that do not explicitly consider the fact that the quality of institutions may be low. Many policies failed because they only worked under the assumption that there was not any institutional friction. The second type was the type of policies that explicitly considered the fact that there were institutional frictions and hence, in order to achieve an institutional equilibrium, policies were made based on the assumption that institutions were imperfect. The third type was the type of policies that endogenize institutions. These types of policies not only would internalize institutional attributes and complexes but also would be able to change low-quality institutions by giving the stakeholders incentives to improve their behaviors.

10. CONCLUSION

In this paper, we combine Greif's endogeneous institutions model with Azis's typology of leadership in Indonesia to fit the Indonesian case. We take concrete examples from our field study to substantiate the precision and validity of the model. Based on this, we attempt to explain the endogeneity of institutions in Indonesia and their long-run progresses.

We show that institutions are not exogenous and the policy implications on institutional reform could be more complicated. Districts with low level of socioeconomic conditions have different institutional complexes than districts with high level of socioeconomic conditions. Because of the poor socioeconomic conditions, the participation level tends to be low, local capture tends to hurt the citizens, and the quality of leadership tends to be low. Moreover, we agree with Greif's remark (2006) that initial socioeconomic conditions and past institutions determine the capacity of how an institution can change. Efforts to reform may fail simply because poorly educated and politically unaware citizens do not have the capability to participate in government programs or elect good local leaders. It is true that wealthy countries also face issues of bad institutions. Hence, there are other factors aside from socioeconomic conditions that affect institutions. However, we argue that the low level of welfare could make institutional reforms even more difficult. For a policy recommendation, we suggest that institutional reforms be taken differently among regions with different levels of welfare, accounting for different institutional complexes and capacities in which institutions are formed. We also suggest that policies to reform endogenous institutions must be multidimensional and exogenous to the system.

Our theoretical framework and results could complement existing literature on institutions in Indonesia, such as those of Von Luebke (2009) and Azis (2008), by endogenizing some variables that were assumed to be exogenous and by looking at the long-run trajectory of local institutions and welfare. Our results on the diversity of progress among districts in Indonesia could be related to the Cai and Treisman (2005) paper in that these districts are not homogeneously endowed. The fact that some regions have strong power of political and business elites that tend to dominate both political and economic institutions in this *de jure* democratic country may partly correspond to what Acemoglu and Robinson (2008) call "captured democracy." In these districts, the *de jure* political democracy has been captured by *de facto* investments by the elites. Democracy in Indonesia might have been failing because it exists with a high degree of local capture in the post-decentralization period.

The purpose of this paper is to understand the driving force behind the persistence of low welfare and poor qualities of institutions, and hence identify the factors that could change it. The game theoretical model used in this paper merely illustrates how this driving force could self-reinforce or self-undermine the existence and quality of an institution. A more sophisticated game theoretical model could be useful to better understand the evolution of institutions.

Moreover, more empirical studies are needed to advance the studies on institutions. Interactive, deductive, inductive, context-specific, and evidence-based model complemented by comparative and counterfactual analyses is the empirical method that is proposed in Greif (2006), which we believe is the appropriate method to use. Our model could be improved by eliminating a multiplicity of outcomes or indeterminacy that could still arise given an initial socioeconomic condition. For example, given a moderate socioeconomic condition, both low and high quality of institution could arise (Weak Institution 1 and 2). Moreover, it could be improved by distinguishing different types of beliefs, norms, and other institutional elements that could give rise to the same initial socioeconomic condition. For example, in the case Prabumulih and Sragen, both districts have moderate socioeconomic conditions, however, each of districts has different institutional elements that give rise to the same level of socioeconomic condition. In the case of Prabumulih, rich natural resources combined with poor quality of leadership yield moderate socioeconomic condition. However, in the case of Sragen, moderate natural resources combined with "forced" local government programmes yield moderate socioeconomic condition. In the long-run, these two districts will have different types of institutions and progress. This work is miniscule when compared to the works left to be done in endogenous institutions and institutional reforms.

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