# Endogenous Institution in Decentralization

## Iwan J. Azis*

*Cornell University, ija1@cornell.edu

# Endogenous Institution in Decentralization[*]

Iwan J. Azis

## Abstract

Decentralization policy by itself is not a panacea for problems of accountability. A model is developed to exemplify a condition whereby given widespread 'capture' in local elections, voices or people's participation stands out as the most important factor that determines whether the decentralization system produces positive or negative local capture. The size of local budget and the initial welfare condition matter as well. The latter can also explicate the persistent gap between poor and rich regions observed in many countries. The welfare effect of the policy depends on the behavior and quality of local leader that govern the interplay of the above factors. The model can thus produce multiple equilibria. To the extent that the quality and behavior of local leader play a critical role, a three-player coordination game is constructed to reflect the hypothesis postulated by the theory of endogenous institution.

**KEYWORDS:** endogenous institutions, decentralization, peace

## 1. Introduction

Post-decentralization performance in many countries has not always been consistent with the promise. In some cases, the welfare effect of decentralization is either small or even negative. Imperfections in local provision and poorly trained local bureaucrats are among the suggested reasons (Prud'homme, 1994; Tanzi, 2002). Although conceptually corruption should be more difficult to commit under decentralization (Huther and Shah, 1998; Fisman and Gatti, 2002), problems due to lack of coordination in extracting bribes at the local level may lead to 'excess' rent extraction (Shleifer and Vishny, 1993). Some analysts suggest that the justification for decentralization should be based on the political economy explanation (Besley and Coate, 1999). Others argue that to be successful, decentralization should entail democratic, fiscal, and administrative components (Manor, 1999; Binswanger, 1999).

Decentralization also carries some risks, one of the most significant of which is the spread of *local capture* especially in regions with high degree of income disparity. Since the possibility of power sharing between contesting parties is typically smaller at the local than at the national level, in general the likelihood of capture by elites is greater at the local than at the national level. Yet, the verdict regarding the relative proneness of local and national governments is still out (Bardhan and Mookherjee, 2005). Lack of operational details about what the region should do also contributes to the greater likelihood of capture at the local level. Meanwhile, lack of clear performance indicators make it difficult to evaluate whether most benefits of decentralization had gone to majority of people or only to local elites.

Evaluating the post decentralization performance involves quality of the policy itself as well as institutional constraints that operate within the system. Negative welfare effect can be the result of wrong policies, but it can also be the product of right policies with wrong institutions. In some cases, policy matters more than institution (Henry and Miller, 2008), in others institution matters more (Rodrik, Subramanian and Trebbi, 2002; Easterly and Levine, 2002). Referring to the case in Sub-Saharan Africa, Sachs (2003) argues that institution matters, but not for everything.

My focus in this paper is on the theoretical concept of the role of institutional factors in decentralization, where given local capture the quality of local leaders matters in influencing the welfare effect of decentralization. To the extent that the latter depends very much on the local accountability and other institutional settings such as local capture, voices or people's participation, and the incentive system for local leaders, the quality of local leader can play a critical role in determining how the above factors influence welfare. In this context, leaders' behavior is subsequently studied by using a coordination game based on

the theory of endogenous institution. More particularly, different types of self-reinforcement factors dictate leader's behavior, producing different types of progress. This creates an evolution between welfare and institution. In this respect, the analysis can be seen as a contribution to the study of the establishment of endogenous institutions as emphasized by Caruso (2010) in his explanation to define the study of *peace economics*.

## 2. The Effect of Local Capture on Welfare: Theoretical Framework

Define the concept of equilibrium as the welfare outcome of the interplay among a set of variables including those representing institutional factors (local capture, participation, initial conditions, budget size, and quality of local leader). The basic framework in Figure 1 is interpreted as follows: decentralization policy (D) characterized by direct election for local leaders generates 'local capture' (L). The effect of L on local welfare (W), however, varies: in some regions the effect is positive, and in others negative (*positive local capture* and *negative local capture*, respectively). Among various factors that determine the effect of L on W, three stand out: initial welfare condition (S), people's participation (P), and the size of local budget (F). Note that the resulting W determines the subsequent level of initial condition S, that is, the steady-state level of initial welfare is influenced by any perturbations in the system that lead to changes in W, hence S in the subsequent period. The implied mechanisms also explicate the persistent gap between poor and rich regions observed in many countries (explored later).

**Figure 1. How Local Capture Affects Welfare: A Framework**
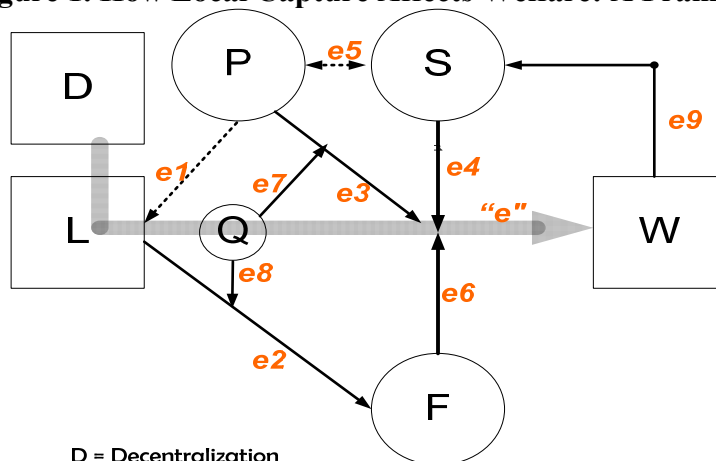


D = Decentralization
L = Local capture
W = Welfare effect of decentralization
S = Initial welfare condition
P = People's participation
Q = Quality of leader
F = Size of local budget

The key question is, how the interplay of all factors (*V*) works to influence the effect of local capture on welfare:

$$V: [L \to W]$$

For example, different degree of political participation (*P*) maybe influenced by the initial level of development (*S*) measured by, among others, per-capita income, poverty level, and income inequality. Greater inequality and larger proportion of the poor imply a smaller fraction of informed voters, thus lower political awareness. That is, upward mobility at lower end tends to raise political awareness more significantly than at higher end (*concavity*). When awareness is low, critical voices and the process of check-and-balance, which are important components of participation, are constrained. This can limit the quality of public services and the welfare outcome of decentralization in general (Azis, 2008; Azis and Wihardja, 2008). The quality of local leader is partly judged by his/her ability to motivate this type of participation (relation e7 in Figure 1). Two regions with the same initial level of development (*S*) but with different quality of leaders (Q) may perform differently in terms of welfare effect of decentralization.

Another important aspect of local leader's quality is his/her ability to augment the size local budget given local capture. Such ability to take advantage of local capture, and manage the budget well, can help produce more activities and provide public services that enable the region to achieve higher welfare. Indeed, when local elites are powerful and wealthy, a region can operate with financial resources in excess of the official budget due to payments made associated with local capture, if local leader is of Type-A. In such circumstances, greater local capture can still be welfare-improving (relations e2 and e8 in Figure 1). But other leaders may not have such ability (Type-B), while some may even corrupt by taking money from the official budget to repay local elites due to the capture (Type-C).

The dynamic nature of the system is explicated through relation e9: a low initial welfare (S) as a result of negative local capture will negatively affect W and S in the subsequent period, among others through a low level of participation (P), creating a persistent evolution of low-welfare states and low-quality institutions. The possibility that local capture can generate positive welfare effects provides a more complex yet useful analysis with direct policy implications. It can be shown, for example, that a policy to enable greater participation is superior to other alternatives because the welfare effect is higher given a (lower) level of capture. This is explained next.

### 3. Multiple Equilibria and the Superiority of Participation

Consider local capture L, participation P, and initial welfare S (say, poverty and inequality) to represent the *quality* component of institutions in decentralization. The size of local budget F, on the other hand, represents the *quantity*. Given the following welfare function:

$$W(.) = W(L, S, P, F) \tag{1}$$

where

$$\partial W(.)/\partial L < 0; \quad \partial W(.)/\partial S < 0; \quad \partial W(.)/\partial P < 0; \quad \partial W(.)/\partial F < 0$$

Since F is affected by L, decomposing (1) into quality and quantity components gives

$$W(.) = H(L, S, P).F(L)$$

where $\partial H(.)/\partial L$ and $\partial F(L)/\partial L$ are marginal quality and quantity, respectively.

From $\partial W(.)/\partial L = \partial F/\partial L \, H(.) + \partial H(.)/\partial L \, F(L)$ (2)

it is specified that in most cases $\partial H(.)/\partial L < 0$. However, a good quality leader capable of motivating participation (relation e7) may generate $\partial H(.)/\partial L > 0$, making the sign of $\partial H(.)/\partial L$ indeterminate. As discussed earlier, on the quantity side the effect of local capture can be negative or positive depending on the type of local leader (relation e2). If local leader is of a favorable type (Type-A), e.g., able to raise regional welfare by augmenting the size of local budget, the first term of equation (2) can be positive. Otherwise, it will be negative (Type-C). In this sense, from both quantity and quality perspectives the net effect of rising local capture on welfare depends on the quality of local leader (Q). While the signs of $\partial H(.)/\partial L$ and $\partial F(L)/\partial L$ are uncertain, however, somewhere in between there exists some critical values of H and F such that the effect of rising local capture leads to $\partial W(.)/\partial L > 0$.

When this occurs, the system produces a backward-bending curve instead of the "normal" negative-slope curve shown in Figure 2. Given a level of participation, this implies multiple equilibria, i.e., O, M, and N, where equilibrium

is defined as the point where the welfare function intersects with participation line[1].

**Figure 2. Relation Between L and W: Multiple Equilibria**
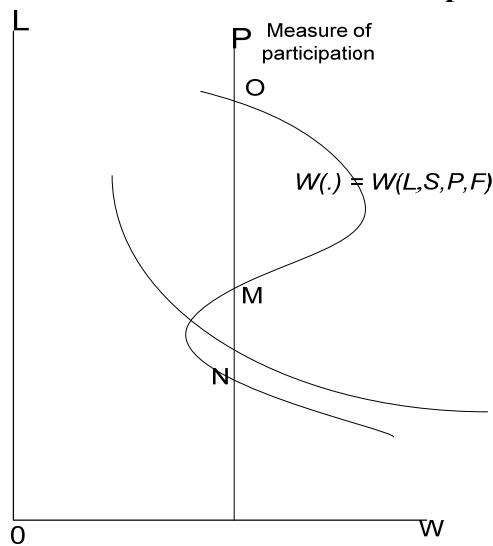


The goal is either to raise W given local capture L, or, minimize local capture L given W. The latter is equivalent to finding lowest L along the vertical line P. Reducing income inequality and poverty will facilitate such a goal since shifting the bending curve leftward will guarantee a new equilibrium with lower intensity of local capture (e.g., N1 and N2 in Figure 3).[2]

---

[1] Note that participation (P) is independent of capture. Some studies found that participation is also influenced by socio-culturally prescribed family (household heads, spouses, age range), and gender roles (married woman with children); see Beard (2005). While defining participation is not easy, Blair (2000) argued that the following elements should be incorporated: representation, empowerment, benefits for all, and poverty reduction.
[2] Recall that lower inequality and poverty tend to raise political awareness that can reduce the intensity of local capture.

**Figure 3. New Equilibrium Achieved By Lowering Inequality and Poverty**
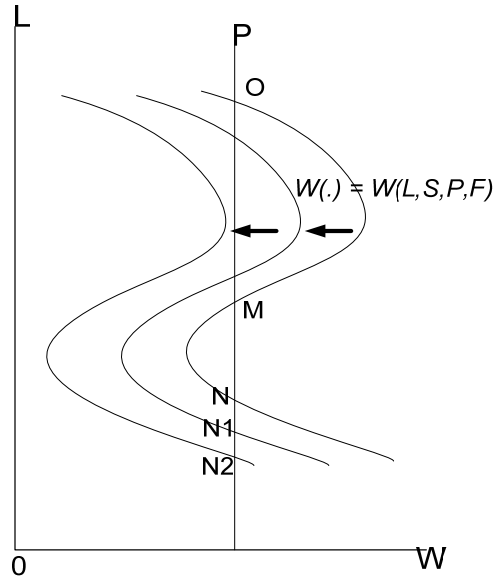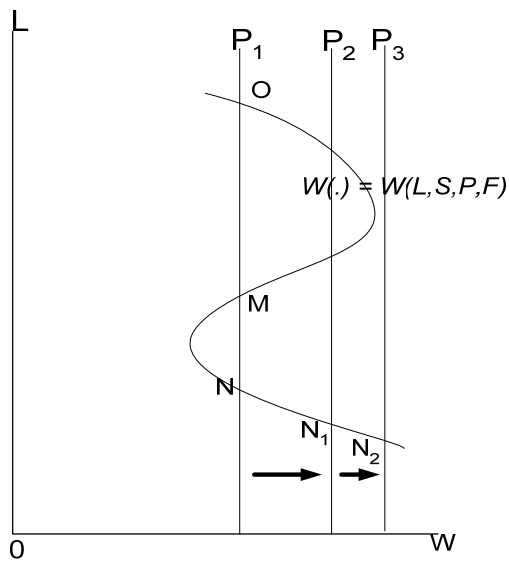


**Figure 4. New Equilibrium Achieved By Raising Participation**

Another policy direction to insure a low capture is to raise participation; this is depicted by a rightward shift of the vertical line P. As shown in Figure 4, such a policy is superior as it produces not only lower capture but also higher welfare at the same time. To the extent that a low capture is supported by greater accountability, it can be achieved when the following are present: (1) Clear specifications of the tasks of regional government; (2) Clear performance indicators with appropriate incentive system ; (3) No conflicting regulations, e.g., laws on mining, forestry, and environment; (4) Conducive distribution of socio-economic power, i.e., not dominated by wealthy powerful groups; (5) Transparency in decision making; and (6) Fair and open direct election of regional officials and representatives.

Based on the above specifications, a typology of local leader is constructed (Table 1). The most desirable condition, "Complete" progress, is achieved when participation and/or initial welfare condition is high, and at the same time local leader is of Type-A. If $\partial H(.)/\partial L < 0$, even with a type-A leader the expected outcome is not "Complete" progress, supporting the proposition that participation plays the most important role in determining the welfare effect of decentralization. Since the effect of participation is influenced by the quality and behavior of local leader in the presence of local capture, this subject is discussed next.

## Table 1. Typology of Local Leader and Decentralization Outcome

|  | $\partial F(L)/\partial L > 0$<br><br>**Type-A Leader** | $\partial F(L)/\partial L = 0$<br><br>**Type-B Leader** | $\partial F(L)/\partial L < 0$<br><br>**Type-C Leader** |
|---|---|---|---|
| $\partial H(.)/\partial L > 0$<br><br>**High participation and/or low inequality/poverty** | Complete progress | Propitious | Stagnant |
| $\partial H(.)/\partial L < 0$<br><br>**Low participation and/or high inequality/poverty** | Incomplete progress | Deviating | Deteriorating |

## 4. Endogenous Institutions and Coordination Game

It is well known that elements of "institution" such as rules, organizations, beliefs, internalized norms, and implied regularity of behaviors in a system define the incentive structure of societies and economies (North, 1993). Greif (2006) argues that this system is equilibrium if the implied regularity of behaviors to follow the rules is the best-response to the beliefs and internalized norms that are formed by the implied regularity of behaviors.[3] Many policies may fail to achieve their objectives because the institution in which these policies or rules were elements of, was not in equilibrium.[4]

Two important features in the theoretical concept of endogenous institutional change are quasi-parameters and institutional reinforcement.[5] 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 take the forms of payoffs of the players or actors that change over time, such as economic gains in the next period from playing or acting a certain strategy today. Implied behaviors may change due to a change in exogenous parameters, such as payoff values in game theory, but as implied behaviors changes, these exogenous parameters may endogenously change, resulting in either neutral, positive, or negative self reinforcement (SR) of the current implied behaviors (Greif, 2006).

Positive reinforcement of an implied behavior as a result of a change in quasi-parameters results in the *persistence* of that implied behavior. In other words, this implied behavior is positively self-reinforced. On the other hand, negative reinforcement of an implied behavior as a result of a change in quasi-parameters results in undermining of that implied behavior. After some periods, this implied behavior ceases to exist as it negatively self-reinforces. Neutral reinforcement results in no change of that implied behavior, neutrally self-reinforces. To clarify the description of reinforcement, an implied behavior is positively self-reinforce if the existence of this implied behavior changes the quasi-parameter that makes this implied behavior more likely to self-enforce.

---

[3] Persistence or inertia, institutional path dependence, or steady-state equilibrium in institutional setting are among the terms used to describe the study of endogenous institutional change.

[4] Equilibrium in a more practical term means that there is no individual or a group of individuals that has an incentive to deviate from an agreement or what is previously agreed. In other words, an institution that is in equilibrium consists of rules in which targeted individuals have incentives to follow the rules. Thus, a law regulating issuance of driving licenses may not be effective because bribing public officials renders it more profitable and time-saving.

[5] In this context, institutions can be categorized into three types: positively self-reinforcing institution, neutrally self-reinforcing institution, and negatively self-reinforcing institution.

Persistence of an implied behavior is the result of positively/neutrally self-reinforcing implied behavior. Quasi/exogenous parameter may not change if there is no observable change in behaviors. In the context of decentralization, economic gains from cooperation by local leaders and local elites that change over time given cooperation or non-cooperation in the previous period can be treated as quasi-parameters. For example, cooperation today by local leader and local elite creates positive institutional elements that make cooperation tomorrow more beneficial to both of them.

*Definition.*
*Self-reinforcement factors can be categorized into the following types:*
*1. Positive, if $a_{t+1}$-$a_t$ > 0*
*2. Neutral, if $a_{t+1}$-$a_t$ = 0*
*3. Negative, if $a_{t+1}$-$a_t$ < 0*

*Lemma.*
*In an infinitely repeated, coordination game, cooperative behaviors by local leader and local elite are self-reinforcing given that the self-reinforcement factor is either positive or neutral, while cooperative behaviors by local leader and local elite are not self-reinforcing given that the self-reinforcement factor is negative, for any discount factor.*

*Proof.*
*(i) Non-corrupt institution with neutral reinforcement, where $a_{t+1} - a_t = \varepsilon = 0$ is self-reinforcing since non-corrupt institution is a Nash Equilibrium in the one-stage game.*
*(ii) Non-corrupt institution with positive reinforcement, where $a_{t+1} - a_t = \varepsilon > 0$, is self reinforcing since non-corrupt institution with positive reinforcement is a Nash Equilibrium in the one-stage game.*
*(iii) Non-corrupt institution with negative reinforcement, where $a_{t+1} - a_t = \varepsilon < 0$, is not self-reinforcing since after some T periods, $a_T < b$, and players will deviate from the cooperative strategy.*
*Q.E.D.*

On the equilibrium outcome as a result of strategies by local leaders, local elites, and citizens, the analysis points to the importance of self- reinforcing (SR) factor. To the extent that the quality of local leader influences the way people's participation and local budget generate either positive or negative local capture, hence the level of welfare (W), a 3-player coordination game is developed to capture the most relevant scenario for the country case study. In a paternalistic

society, for example, the role of local leader is shown to be the most crucial in determining the net effect of decentralization.

**Table 2. A Three-Player Coordination Game**

| C plays G | | |
|---|---|---|
| LL/LE | G | B |
| G | at, at, at | 10, 0, 19 |
| B | 5-ε, 7, 7 | 10, 10, 2 |

| C plays B | | |
|---|---|---|
| LL/LE | G | B |
| G | 11, 11, 2 | 5-ε, 10, 10 |
| B | 10, 0, 12 | 6, 6, 6 |

| C plays G | | |
|---|---|---|
| LL/LE | G | B |
| G | 20, 20, 20 | 10, 0, 19 |
| B | 5-ε, 7, 7 | 10, 10, 2 |

| C plays B | | |
|---|---|---|
| LL/LE | G | B |
| G | 11, 11, 2 | 5-ε, 10, 10 |
| B | 10, 0, 12 | 6, 6, 6 |

In a three-player coordination game, define strategies of each player by either "cooperate" (G, for "Good behavior") or "defect" (B, for "Bad behavior").[6] The three players are: Local Elite (LE), Local Leader (LL), and Citizens (C). Each player has two possible pure strategies in the one-stage game: Cooperate or Good Behavior (G) and Defect or Bad Behavior (B).

In the above Table, there are two pure one-stage Nash Equilibrium: (G,G,G) and (B,B,B).[7] Let a0 be the payoff of each of the players from all cooperating. Assume $a_0 = 20$, and $a_{t+1} - a_t \geq (or <) 0$, where t = 0,.......∞. Similar to the

---

[6] A coordination game is a game that gives positive payoffs only if the players coordinate, and zero or negative otherwise. "Cooperate" or "Good behavior" here may mean cooperation that benefits the society or social welfare, while "Defect" or "Bad behavior" here may mean cooperation that hurts the society or social welfare. Collusion and corruption can be examples of "Defect" or "Bad behavior" while establishing joint public-private welfare programs can be examples of "Cooperate" of "Good Behavior".

[7] A Nash Equilibrium means that there is no incentive for a unilateral deviation.

proof of Lemma above, (G,G,G) is self-reinforcing (or not self-reinforcing) for any discount factor. Welfare is the sum of the payoffs of local leader, local elite, and citizen. If (G,G,G) is self-reinforcing, then the society (local leader, local elite, and citizen) could earn 60 in period 0, and $60 + t_{\varepsilon}$, for $t > 0$, assuming $a_{t+1} - a_t = \varepsilon; \forall t > 0$ (time-invariant self-reinforcement factor). This reflects a high-welfare society. If (G,G,G) is not self-reinforcing, then (B,B,B) is the only sub-game perfect Nash Equilibrium in pure strategies in this infinitely repeated game (Friedman, 1971), where society earns 18 in period $t \geq 0$. This can be called a low-welfare society.

Suppose there are three possible scenarios. Scenario 1: cooperation today makes cooperation tomorrow more likely; scenario 2: cooperation today makes cooperation tomorrow neither more nor less likely; and scenario 3: cooperation today makes cooperation tomorrow less likely. It can be shown that in an infinitely repeated three-player coordination game, all players "cooperate" are sustainable under scenarios 1 and 2, but not under scenario 3 (see Azis and Wihardja, 2008, for the proof of the proposition).[8]

Starting from (G,G,G), any defector will be "punished" by a lower payoff given the other two players do not defect. However, the degree of punishment is different for local leader, local elites, and citizens who defect. A local leader who defects from (G,G,G) is punished the least with a decrease in the payoff of (15+ε), where ε is the self reinforcement (SR) factor, local elites who defect are punished with a decrease in the payoff of (20), and citizens who defect are punished with a decrease in the payoff of (18). The degree of punishment from defecting is inversely related to political power. If starting from (B,B,B), any good cooperation will be "punished" by a lower payoff given the other two players do not cooperate. The degree of punishment from cooperating in this case is positively related to political power. However, welfare will be improved if one of the players cooperate.

---

[8] Note that as long as the properties of a coordination game are maintained, including multiplicity of pure-strategy equilibria under either "all cooperate" or "all defect", then the result still holds given any payoff matrix.

## Table 3. Sensitivity Analysis

| Highest W if Only One Player Plays G | | | | |
|---|---|---|---|---|
| Joint strategy | | | Social Welfare | |
| | | | W | |
| LL(G) | LE(B) | C(B) | 25-ε | |
| LE(G) | LL(B) | C(B) | 22 | |
| C(G) | LL(B) | LE(B) | 22 | |
| Assuming a small ε, LL(G) generates highest W | | | | |
| | | | | |
| Lowest W if Only One Player Plays B | | | | |
| Joint strategy | | | Social Welfare | |
| | | | W | |
| LL(B) | LE(G) | C(G) | 19-ε | |
| LE(B) | LL(G) | C(G) | 29 | |
| C(B) | LL(G) | LE(G) | 24 | |
| Assuming a small ε, LL(B) generates smallest W; LE(B) generates highest W | | | | |

Given a relatively small SR factor $\varepsilon$, the above scenario clearly shows that society's welfare is smallest if local leader defects. This reflects a paternalistic system in which local leader plays a most crucial role in determining the welfare effect of decentralization. Another way of showing the role of local leader is by comparing scenarios in which only one of the players decides to either cooperate or not cooperate. From the sensitivity analysis, it is shown that should local leader cooperate while others do not, social welfare will be highest $(25 - \varepsilon)$. On the other hand, should local leader choose not to cooperate while others cooperate, social welfare is lowest $(19 - \varepsilon)$; see Table 3.

How do the above coordination game and the underlying behaviors of players relate to the initial welfare condition (S) and participation (P)? Negative SR can be associated with a low-level of initial welfare (low S). In regions with high poverty, education level of the citizens is generally low. As a result, participation is also low. High costs of educating the citizens, say, about health to make health programs work effectively, make implementing health programs unattractive to LL and LE. Hence, they stay away from health care provision altogether. As a result, the next period's welfare will still be low, poverty remains high, participation is low, and the attractiveness to implement the program also continues to be low, if not lower $(a_{t+1} - a_t = \varepsilon < 0)$. In another case, despite high initial welfare the quality of local leader can be low in such that citizens are

not motivated to participate. There is no incentive for LL to continue to cooperate since no gain can be reaped in the next period $(a_{t+1} - a_t = \varepsilon = 0)$. In the case of positive self reinforcement $(a_{t+1} - a_t = \varepsilon > 0)$, the initial level of welfare is high. Motivated citizens to participate in regular local forums increase local participation, and thus generating higher welfare in the following period. (G,G,G) is when all players cooperate well; this is the case of "positive local capture." An example of (G,B,G) is when local elites defect from good cooperation, and because local leader and citizens do not defect, defecting local elites will be punished, such as being put to jail, although welfare will decrease from that of the high-welfare state of (G,G,G). An example of (B,G,G) is when local leader defects from good cooperation. Since local elites and citizens do not defect, the defecting local leader will be punished, such as being put to jail. An example of (G,G,B) is when citizens defect from good cooperation. Because local leader and local elites do not defect, defecting citizens, say, a common businessman, will be punished, e.g., being put to jail. Since local leader has the most political power, punishment to the defecting local leader is the least severe but the loss to welfare is the greatest.

An example of (B,B,B) is when all players defect; this is the case of *negative local capture*. An example of (G,B,B) is when local leader initiates good cooperation, in which case welfare increases, although the local leader's payoff is lower because local elites and citizens still defect. Failures of good policies because local elites and citizens are not cooperating are examples of this case. An example of (B,G,B) is when local elites initiate good cooperation, in which case welfare increases, although local elites' payoff is lower because local leader and citizens still defect. Collusion, cronyism, or nepotism between local leader and a common businessman could hurt local elites. An example of (B,B,G) is when citizens initiate good cooperation, in which case welfare increases, although citizens' payoff is still lower because local leader and local elites still defect. Collusion, cronyism, or nepotism between local leader and local elites hurt common businessmen. Since local leader has the most political power, initiation of a good cooperation by local leader increases welfare the most, followed by local elites then citizens.

The above proposition says that if cooperation today by all players results in weakly higher payoffs from cooperation tomorrow, or cooperation is positively or neutrally self-reinforced, then "all cooperate" in each period is an equilibrium. However, if cooperation today by all players results in strictly lower payoffs from cooperation tomorrow, or cooperation is negatively self-reinforced, then "all defect" in each period is the unique pure-strategy equilibrium. In the former case, high-welfare state is sustainable, while in the latter only low-welfare state is

sustainable, which explains the persistence of low-welfare state driven by some negative SR factors.[9]

The incentives and disincentives of the players to act may depend on some self-reinforcement (SR) factors. These SR factors are the forces behind the persistence of the evolution between welfare and the quality of institutions. Under negative SR factors, low welfare evolves with poor quality of institutions in which local leader, local elite, and citizen behave *mischievously* or non-cooperatively. Conversely, under positive SR factors, high welfare evolves with high quality of institutions in which local leader, local elite, and citizen behave cooperatively. In order to break the persistence of non-cooperative equilibrium of low welfare and poor quality of institution, a region needs to change the self-reinforcement factors to motivate local leader, local elite, and citizen to behave well. The example above shows that an increase, no change or a decrease in the payoff from cooperation tomorrow if there is cooperation today is an example of a positive, neutral and negative SR factor respectively. SR factors that underlie these changes in payoffs, or the quasi-parameters, include the level of education and the political awareness of the citizens in the region. Three elements that determine the evolution between welfare and qualities of institutions and could explain the persistence of non-cooperative or cooperative equilibrium, are the initial welfare of the region, the SR factors and the qualities of institutions.

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 a corrupt government, 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. Furthermore, as mentioned above, past institutional elements

---

[9] In real life, "all cooperate" might change the institutional setting. Take the case of a fair election that results in a new policy. This new policy may decrease the payoffs that accrue to political and business elites as well as few selected citizens, while the same policy in a very rich region may increase the payoffs that accrue to the political and business elites as well as a few selected citizens. In such a case, "all cooperate" in the following period decreases the payoffs from cooperation in the very poor region while it increases the payoffs from cooperation in the very rich region. Thus, the only sustainable high-welfare state is in the rich districts, while the only state that is sustainable in the poor regions is the poor-welfare state. This explains the persistence of low-welfare and high-welfare states that are endogenously determined by the initial levels of welfare (S) which are characterized by distinct institutional complexes. Self-reinforcements factors may of course experience exogenous shocks in which low-welfare states alternating with high-welfare states. A district is also more likely to experience time-variant self-reinforcement factors and hence, in real life, the dynamic process of institutional change and welfare is more complicated than what is illustrated in this model.

determine the initial conditions of the new institutions and the capacity of the current institution to change. An institution does not grow independently. It has players, namely the stakeholders of the rules. An unjust law with a wise judge might result in a more rational outcome than a just law with an unwise judge. 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.

When applied to political settings, the presence of SR factors may suggest that intrinsic personal values of individuals are important, honesty, for instance. Other external factors aside from the few elements mentioned above may also be significant. Allowing the establishment of relationships between public officials and citizens, allowing public officials to directly appoint citizens as participating bidders, and repeated interactions between public officials and citizens increase the incentives for public officials and citizens to coordinate to corrupt. Repeated interactions will allow public officials and citizens to form beliefs about how the others will behave, thus facilitating coordination of corruption. Frequent job rotations among public officials, prohibiting family members from participating or regulators from indirectly getting involved in bidding in public procurement auctions may prevent networks of cronyism among policy makers, public officials, and citizens, thus reducing the incentives to corrupt (e.g. the case of Venice). Hence, randomized instead of organized matching and fewer networks between public officials and citizens may prevent coordination to corrupt. Incentive mechanism designs must also change negative reinforcement of non-corrupt institutions. In other words, non-corrupt behaviors must be rewarded with higher payoffs in the following periods. Also, good reputation of public officials or citizens must be rewarding rather than harmful. Non-corrupt institutions must bring economic gains in terms of better public services and higher national economic performance, and thus, a higher standard of living. As long as an institution remains negatively self-reinforcing, no institutional change can be expected. Other incentive mechanism designs include collective punishments and rewards based on past behaviors of all, rather than only a few players, and the internalization of greater social identities. For example, a public official should identify him/herself as a public official and a law enforcer who serves the country, instead of just a public official. In the worst possible case, a completely new system, including new norms, new beliefs, new rules, new organizations, and new implied behaviors, must be introduced.

## 5. Conclusions

Focusing on the role of institutional factors in decentralization and based on the endogenous institution concept, I construct a model that shows the mechanism how the welfare effect of decentralization policy with local capture depends very much on institutional settings especially the 'voices' or people's participation and the quality of local leaders. Understanding how the incentive system works to affect the behavior of local leaders is therefore important, and I give details on this by using a coordination game based on the theory of endogenous institution. In particular, I show how different types of self-reinforcement factors dictate leader's behavior that can reinforce different types of progress, from which an evolution between welfare and institution is established.

What is the policy implication of all these? The growing popularity of decentralization policy around the world has to confront the problem of accountability. When the policy is put into operation in a newly democratic open election at the local level, there is an additional problem of widespread local capture. The extent and severity of accountability and local capture problems depend on the following factors: (1) Pre-existing distribution of power at the local level, e.g., allocation of social and economic power within communities; (2) Lobby and campaign contributions by wealthier groups; (3) Fairness and regularity of elections; and (4) Transparency in local decision-making processes. Establishing these conditions requires institutional and bureaucratic reforms, yet it is precisely this type of reform that is most difficult to conduct. Overcoming institutional factors is always more difficult than choosing the policy itself. It is complicated, involving a strong path-dependence, and often frustrating. But absence of this reform, the outcome of decentralization policy is likely to upset the proponent.

## References

AZIS I., (2008), Institutional Constraints and Multiple Equilibria in Decentralization, *Review of Urban and Regional Development Studies*, vol. 20, n. 1, pp. 22-33

AZIS I., WIHARDJA M.M., (2008). Theory of Endogenous Growth and Evidences from an In-Depth Field Study in Indonesia, mimeo, Cornell University.

BARDHAN P., MOOKHERJEE D., (2005), Decentralization, Corruption and Government Accountability: An Overview, *Handbook of Economic Corruption* edited by Susan Rose-Ackerman, Edward Elgar.

BEARD V.A,. (2005), Individual Determinants of Participation in Community Development in Indonesia, *Environment and Planning C: Government and Policy*. vol. 23, n.1, pp. 21-39

BESLEY T, COATE S., (1999), The Public Critique of Welfare Economics: An Exploration, *NBER Working Papers 7083*, National Bureau of Economic Research, Inc.

BINSWANGER H., (1999), Technical Consultation on the Decentralization of Rural Development, Proceedings of FAO conference, Rome, 16-18 December 1997, Rome, FAO.

BLAIR H., (2000), Participation and Accountability at the Periphery: Democratic Local Governance in Six Countries, *World Development,* vol. 28, n.1, pp. 21-39

CARUSO R., (2010), On the Nature of Peace Economics, *Peace Economics, Peace Science and Public Policy*, vol. 16, n.2

EASTERLY W., LEVINE R., (2002), Tropics, Germs, and Crops: How Endowments Influence Economic Development, *NBER Working Papers 9106*, National Bureau of Economic Research, Inc.

FRIEDMAN J.W, (1971), A Non-cooperative Equilibrium for Supergames, *Review of Economic Studies*, vol. 38, n.113, pp.1-12.

GREIF A., (2006), *Institutions and the Path To The Modern Economy*, Cambridge University Press, New York.

HENRY P. B., MILLER C., (2008), Institutions vs. Policies: A Tale of Two Islands, *NBER Working Paper No. 14604*.

HUTHER J., ANWAR S., (1998), Applying a simple measure of good governance to the debate on fiscal decentralization, Policy Research Working Paper, Series 1894, The World Bank.

MANOR J., (1999), Explaining the last wave of decentralizations, The Political Economy of Democratic Decentralization. World Bank, Washington DC;

NORTH D.C, (1993), Prize Lecture, The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel. Lecture to the memory of Alfred Nobel.

PRUD'HOMME R., (1994), On the Dangers of Decentralization, *Policy Research Working Paper, No. 1252*, Washington, DC: World Bank.

RODRIK, D., SUBRAMANIAN A., TREBBI F., (2002), Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development, *NBER Working Paper No. 9305*

SACHS J., (2003), Institutions Matter but Not for Everything, *IMF Finance and Development*, vol. 40, n.2.

SHLEIFER, A., VISHNY, R.W, (1993), Corruption, *The Quarterly Journal of Economics*, vol. 108, n.3, pp. 599-617.

TANZI V., 2002, Pitfalls of Decentralization, in E. Ahmad and V. Tanzi, (eds.) Managing Fiscal Decentralization, 17–30. Routledge.