# Centralized versus Decentralized Governance of

# Public Service Delivery:

# A Comparative Institutional Analysis

Sung-Bae Kim\*

## ABSTRACT

This study compares the relative efficacy of centralized versus decentralized governance of national road services delivery, both theoretically and empirically. National roads are normally governed by the central government due to their functional importance as major arteries. Of the major functions of national road governance comprising planning, financing, construction and maintenance, the Ministry of Construction and Transportation (MOCT) is directly responsible for the first two. The latter two are provided either by decentralized or centralized governance arrangement. Centralized governance implies that the field offices of the MOCT are responsible for these two functions, whereas under decentralized governance, the MOCT delegates the functions to local government. This study develops a theoretical framework for the governance of national road services delivery based on incomplete contract theory and extends it further by incorporating the unique features of public sectors. Empirically, a case study is implemented to substantiate the implications drawn from theoretical discussions with reference to national road service delivery in South Korea. The outcome of this study, therefore, would be valuable to the Korean government, which is considering reform of national road service delivery.

\* Professor in Department of Public Administration Soongsil University, Seoul, South Korea

## I. Introduction

Reform of public service delivery is an important component of the Korean government's agenda for government innovation. Given the criticism of the present centralized delivery in local areas, the presidential committee on government innovation and decentralization, as an initiator of the reform, is seeking an alternative system. The shortcomings of centralized delivery system identified by the committee include waste of resource, low productivity, difficulties of cooperation, conflict over manpower and budget and unresponsiveness to civil petitions. The recommendation made by the committee is to delegate to local government part of the responsibility for public service delivery.

As the government's intention has been revealed, heated disputes have occurred over the optimal form of governance for public service delivery. Particularly, the disputes center on the relative efficiency of two types of governance. One is centralized governance using the central government's field office and the other is decentralized governance based on delegation to local government. The proponents of each form of governance insist on the superiority of the form they prefer without due attention to the alternative. The one-sided presentation of their positions seems to be caused by the lack of an adequate framework upon which the comparison of the forms of governance could be made.

This study attempts to develop such a theoretical framework and to verify the contentions made in favor of each position. Specifically, we develop a theoretical framework based on incomplete contract theory and extend it further by incorporating some of the unique features of public sector. We then apply the framework to evaluate the validity of existing contentions in a specific case, i.e. the governance of national road service delivery. This case is selected because the governance of national road service delivery is a prime candidate for reform in Korea. In this respect, the results of this study would be valuable to the Korean government which is considering reform of national road service delivery.

In addition, this study is of value in the theoretical aspect as well. Particularly, this study contributes to the expansion of the realm in which incomplete contract theory can be applied (Grossman and Hart 1986; Hart and Moore 1990; Hart 1995). While this

theory has been developed mainly for the analysis of firms, some studies have already utilized the theory to address issues in the public sector. Thus far, these studies have more or less focused on addressing the issue of privatization. Notable examples are Shleifer and Vishny (1994), Schmidt (1996), Hart et al. (1997), and Hart (2003). This study, by analyzing the issue of public service delivery, may further broaden the realm of application of incomplete contract theory.

The remainder of this study proceeds as follows. Section II provides the background of the study. Section III develops the theoretical framework. Section IV applies the model to the evaluation of the contentions raised over the governance of public service delivery. Section V concludes and discusses some policy implications.

#### II. Background

This section concerns background information for the ensuing discussion. It examines the mechanisms currently used by central government for public service delivery in local areas. We also provide detailed information on central government's field offices, which are under close scrutiny as a major target for reform. In addition, we summarize the contentions regarding the relative efficiency of two forms of governance for public service delivery, those based on delegation and those using field office.

## 1. Delivery of Public Services

According to the survey done by MOGAHA (Ministry of Government Administration and Home Affairs) in 2002, the total number of the type of service that government had to deliver in Korea amount to 41,603 as specified by the 3,353 laws (PCGID, 2004). Of these services, central government is responsible for 73% (30,240) and local government is responsible for remaining 27%. While the responsibility for the delivery of services can be classified as above, most of them are delivered in one of several ways, namely direct delivery, delivery by central government's field office, delegation to local government and contracting out to the private sector.<sup>1</sup>

 $<sup>^{1}</sup>$  If we classify these mechanisms based on decision making authority, the first three methods are classified as centralized governance because the central government has the authority to make most

Table 1> shows the relative importance of each of these delivery methods. Of these methods, direct delivery accounts for the largest proportion, 54.4%. Delivery by field offices and affiliated organizations of central government amounts to 12% and 28.8% respectively. Of the remainder, delegation to local government accounts for 4.2% and contracting out to the private sector just 0.6%.

If we look at types of service to which each of these methods is applied, direct delivery is normally applied to the services with the characteristics of public good such as national defense, foreign affairs etc. Services delivered by central government's field office or affiliated organization are those which require a high level of specialization where local government would face difficulties in recruiting qualified personnel. Also included are the services delivered over a specific jurisdiction which does not correspond to the existing administrative boundary. Under like these services, delivery of routine services is normally delegated to local government. Included are such services as forest management, agricultural seed supply, small business assistance etc. Finally, while it is still in the incipient stage, there are cases where contracting out to the private sector is used for delivery. These include the cleaning of buildings and waste disposal.

Type of delivery	Number of services (%)	Governance type
Total	31,551 (100)	
Direct delivery	17,172 (54.4)	
Central government's field office	3,798 (12.0)	Centralized governance
Central government's affiliated organization	9,090 (28.8)	
Delegation to local government	1,311 (4.2)	Decentralized governance
Contracting out to private sector	180 (0.6)	

<Table 1> Delivery of Public Services

Source: Presidential Committee for Government Innovation and Decentralization (2003)

decisions even in the implementation stage. The latter two methods are classified as decentralized governance, because some of decisions in the implementation stage can be made by either local

#### 2. Central Government's Field Office

This section details the major characteristics of the central government's field office. It is the administrative office established in localities to deliver public services for which central government is responsible. According to the law, central government is allowed to establish field offices to deliver some services that local government may not deliver adequately. As shown previously, they include those services requiring special knowledge or skills for delivery, and those needing to be delivered over a district which does not correspond to an existing administrative boundary.

Given such justification, the number and types of field offices in Korea have continued to increase since 1970. From 1985 to 1995 when the expansion of the organization was most conspicuous, the number more than doubled from 3,058 to 7,247. Since then, the number has declined somewhat since full scale local autonomy was established from 1995 with the election of each local government's head. According to the government's statistics, the total number of central government's field offices amount to 6,574 established by 24 ministries in 2003.<sup>2</sup> Of these field offices, those for police and public prosecutor services account for the large portion 53%. The field offices for postal work and railway administration accounted for the second largest proportion of 38%. Field offices for national tax administration account for 0.1%. The remaining 9% of field offices are for general administration. Currently, it is this type of field office for general administrative affairs that are the major target for reform.

As it is often alleged, the existence of field office for general administration is deemed to cause some problems. Of particular importance is the functional overlap in the delivery of general administrative service between the field offices and local government. The overlap appears to be caused simply because it is almost impossible to have a clear demarcation between services which should be delivered by each type of government. Also, there are no appropriate and clear-cut rules or directives clarifying the type of services whose delivery should be delegated to local government.

government or the private sector.  $^2$  In order to have some ideas about the relative importance of the central government's field office, we examined in detail the number of persons and the size of budget for field office operated by the Ministry of Construction and Transportation (MOCT) which is the subject of the case study. The number of persons in field offices amounted to 1,461 which is 42.3% of the total persons in MOCT and the size of the budget was 5,427 billion won, which account for 33% of the total budget for MOCT in 2003 (PCGID, 2004).

## 3. Contentions

As the reform of public service delivery becomes a pending issue, there arise heated debates over the relative efficiency of the two delivery systems under consideration. These are the delivery mechanism using central government's field offices and that based on delegation to local government. Scholars in favor of central government field offices insist that the offices should continue to exist. Their contention is based on the superiority of the field offices in terms of specialized skills and strong incentives it provides. Others insist that given the fact that local autonomy has been established on a large scale, services delivered by the field office must be either transferred or delegated to local government. They claim that field offices may not only result in inefficient service delivery, but also suffer from low accountability.

Of these, there are several contentions whose validity cannot be easily discerned. The claims made by each side seem to have a sound basis and thus appear to be justified. These are the arguments which need to be further scrutinized using an appropriate theoretical framework. First, we need to examine the dispute raised over the quality of service provided. On the one hand, there is the claim that the quality of service must be low under centralized governance. This is because the field offices are uninformed about local conditions as well as the needs of the residents, and thus they cannot produce a high quality of service judged from local resident's point of view. Also, they are free from the control of local politics and thus do not respond adequately to the needs of local residents. Others claim that if the responsibility of service delivery is delegated to local government, the quality of service will be degraded more easily. This is because the quality of service required at a national level and those catered to local conditions may not be the same. Thus, local government tends to focus more on the latter quality at the expense of the former and thereby cause the quality of service to degrade.

Second, we need to attend to the debate on incentive issue. This is the question about under which governance arrangement the agents involved in service delivery make a larger investment in improving their skills and technical knowledge. These investments are instrumental in upgrading the performance of agents involved in the process of service delivery. Some claim that members of field office may make a larger investment in human capital specific to the tasks they perform because they may stay longer in the same position. But other insists that members of local government may invest more in improving their knowledge and skills specific to local conditions, since they are more informed about local situations and under stronger pressure to meet the needs of local residents.

Finally, there is the issue of accountability in the delivery of public services. It is often claimed that under centralized governance, politicians and bureaucrats are more likely to become involved in bribery and patronage. Since field offices are located in remote areas and their performances are monitored only by the central ministries and free from local political control, the offices are claimed to be more susceptible to scandal. Whereas, local government is considered more accountable since it is subject to not only central government's monitoring, but also local political control. But for the same reason, they may be subject to capture by local elites.

## III. Theoretical Framework

This section develops the theoretical framework of this study. Specifically, a framework is developed to lay a groundwork on which we can evaluate the relative efficiency of governance arrangements based on field offices and those based on delegation. While the details of the framework may differ depending upon the nature of public service in question, I develop a framework applicable to general public services. In the last part, the framework is applied to a specific case, i.e., delivery of national road service.

## 1. Key premises

In order to develop the theoretical framework, we need to identify a few premises. The first premise concerns the simple but powerful idea that public service delivery can be separated into two distinctive elements. As shown in Figure 1, they are the provision side and production side, each of which can be organized in a quite different way.

## <Figure 1> Public service delivery system



The provision side, in general, refers to the choices concerning such decisions as the type of services to be provided, the quantity and quality standards of service to be provided, the amount of revenue to be raised and how to raise it etc. We call as provider those who are in charge of provision side works. The production side, as distinguished from provision side, refers to the more technical process of transforming inputs into output to render a service. Those in charge of these works are called as producer. The distinction between provision and production side lays the conceptual foundation for a new understanding of the organization of public service delivery. ACIR (Advisory Commission on Intergovernmental Relations) argues in a similar vein that "there is a growing consensus that government has a responsibility to provide services and facilitate through policies it makes, but services and facilities may be produced by both private and public sector, based on values of cost effectiveness and equity (ACIR, 1987)."

The second premise concerns the idea that the relationship between provider and producer may be represented as an incomplete contract relation. The incompleteness of the relationship is not hard to see once it is recognized that the quality of service the government wants often cannot be fully specified. In fact, it is difficult to identify and specify the quality characteristics of a public service prior to service delivery. This is because some of the information relevant to the delivery may be unobservable by one or more of the parties. Also, it may result from the fact that some information, although observable by the parties, may not be specifiable as part of the conditions of the relationship.<sup>3</sup>

 $<sup>^3</sup>$  In other words, such information is said to be observable but not verifiable. This may be either because the information is too complex to be specified in a legally proper way, or because it may not be observable by the parties charged with enforcement such as courts. For example, citizens may know whether they feel better off as a result of a certain policy, but it may be impossible for the courts to establish this (Hart, 1995).

#### 2. Basic Framework

While it may be possible for analytic purposes to distinguish the provision and production sides, we need to combine them in some way to actually deliver public services. For example, we may integrate them so that the same organization assumes both roles as provider and producer. In other cases, we separate them so that different organizations assume the role as provider and producer respectively. What is important is that the efficiency of public service delivery can be significantly affected by the way the two sides are organized. The following discussion is concerned with the development of theoretical framework upon which we assess the relative efficiency of organizational arrangements.

### 1) Preliminaries

As discussed previously, we use the perspective provided by incomplete contract theory in developing the theoretical framework. To this end, we may specify the production function of public services as follows.

$$Q = f(F, M1, M2, e1, e2, a1, a2)$$

Here Q denotes the level of public service which may be affected by the variables in the function. F indicates the level of physical assets which is normally established by provider, but the right to use these assets is given to producer.<sup>4</sup> M1 denotes the provider and e1 represents the level of effort or investment it makes; M2 denotes the producer and e2 its effort and investment. a1 and a2 indicate the non-human assets possessed by provider and producer respectively. Non-human assets may be hard assets such as machines, equipment or soft assets such as an outside contractor's list, files etc. (Hart, 1995). The function indicates the three assets, F, a1, a2 can be combined with the effort and investment of provider and producer to deliver public services. It is assumed that all the variables have a positive relationship with the level of public service.

Given the production function, we need to define an important concept termed 'residual control rights' over the asset. This refers to the rights to decide all usage of the

<sup>&</sup>lt;sup>4</sup> For example, for those classified as national services, central government as provider establish F, but it can be used by other agents whoever assume the role of producer.

assets in any way not inconsistent with a prior contract, custom or law (Hart, 1995). Given that the contract will not specify all aspects of asset usage in every contingency, the owner of the asset normally possesses residual control rights. The possessor of the residual control rights differs depending upon the relationship between provider and producer. If they are separate, both provider and producer can be a possessor. The provider has the right to decide whether to modify its production process, while the producer can make decisions about the speed of production, and maintenance of its machines etc. On the other hand, if both are integrated, then most of the decisions are in the hands of the provider. This applies to the case where the producer is a subsidiary of provider.

Finally, we need to clarify the behavioral assumption of agents in the delivery of public services. This is because the behavioral pattern of politicians and bureaucrats can influence significantly the optimal governance arrangement. In fact, the optimal governance for service delivery under the assumption of benevolent government may not be the same as that under the assumption of malevolent government. Thus, we develop the theoretical framework assuming benevolent government first and then extend the framework to incorporate the elements of malevolent government such as corruption and patronage.

#### 2) Optimal Governance Arrangement

The relationship between the organizational arrangement of provider and producer and the relative efficiency of service delivery can be established in terms of such aspects as quality of service, effort to make relationship specific investment etc. Since we may use similar reasoning to analyze each issue, we focus here on the level of general effort that the agents have to put into the delivery of public service.

Before I start, it may be useful to represent the relationship among the variables under the two different governance arrangements. In the case of centralized governance, the production function for public service can be represented as follows.

$$Qc = f[F, M1 (e1; a1, a2), M2 (e2)]$$

Here, the Qc indicates the level of service under centralized governance. M1 (e1;

a1,a2) denotes the provider's effort or investment implying that he is possessor of the residual control rights of the assets a1 and a2. M2 (e2) refers to the producer's effort or investment without the residual control right.

Similarly, in the case of decentralized governance, the function can be denoted as follows.

$$Qd = f[F, M1 (e1; a1), M2 (e2; a2)]$$

Here Qd indicates the level of service under decentralized governance. In this case, the provider's effort or investment is denoted by M1 (e1; a1) implying that M1 has residual control rights over only asset a1. The producer's effort is denoted by M2 (e2; a2) so the producer has residual control rights over only asset a2.

Given these functions, we need to identify factors which determine the superiority of governance arrangement in terms of public service delivery. This is straightforward. If f [F, M1 (e1; a1, a2), M2 (e2)] > f [F, M1 (e1; a1), M2 (e2; a2)], then centralized governance is a better arrangement than the decentralized one. And, the reverse also holds true.

The question then may be to disclose the logic and forces underlying the relationship in order to determine whether one arrangement is superior to another. As for M1, we can have M1 (e1;a1,a2)> M1 (e1;a1). This is because M1 with full scale residual control rights has a strong incentive and is more willing to make relationship specific investment. The provider's incentive increases, since, given that it has more residual control rights, it will receive a larger fraction of benefits created by delivering the public service. But in the case of M2, we may have M2 (e2) < M2 (e2: a2). This is because M2 with residual control rights has more incentive to make effort and relationship specific investment. In M2 (e2), the producer's incentive decreases, since, given that it has fewer residual control rights, it will receive a smaller fraction of benefits created by delivering the public service. Thus, if we have M1 (e1;a1,a2) - M1 (e1;a1) > M2 (e2;a2) - M2(e2), then centralized governance is better than decentralized governance. If the reverse relation holds true, decentralized governance is a better arrangement. The exact relationship can be substantiated in the specific case of public service delivery.

Thus far, we have examined the basic relationship between organizational arrangement and the quality of service without paying attention to the characteristics of the variables in the production function. But the relationship can be altered depending on the detailed nature of the variables. First, the relationship may be different depending on the level of physical asset F. Generally, the level of F varies depending upon the type of public service provided. Some services such as prison management are associated with a high level of physical assets. In the case of office cleaning, however, the level of capital investment required is almost negligible and the service is labor intensive. An important point to note is that the level of capital investment can influence the optimal governance may produce better services where the magnitude of the assets needed to provide the service is greater (Domberger & Jensen, 1997). This is because physical asset F tends to have a special relationship with non-human assets a1 and a2, thereby raising the marginal return from the investment on these assets.

Second, we need to heed the nature of the non-human assets. If assets a1 and a2 are complementary, it is optimal to have centralized governance. In the case they are complementary, transferring control of a2 from M2 to M1 increases M1's marginal return from investment, but it has no effect on M2's marginal return. The reason is that a2 is useless without a1 and so giving up a2 does not change M2's return. Thus, if the assets are complementary, centralized governance is better than decentralized governance. A similar logic applies in the case where a1 and a2 are independent. If the assets are independent, decentralized governance is preferable to centralized governance. To see this, start with a decentralized governance arrangement and consider transferring control of a2 from M2 to M1. This has no effect on M1's marginal return from investment, since a1 is no more useful with a2 than without. But transferring control, M1 may have a negative effect on M2's marginal investment return, since without a2, M2 may be able to achieve very little. Thus, the effect of the transfer of control is to keep e1 constant, but reduce e2, which reduces the level of service.

Finally, we need to pay attention to the nature of human capital. If M1's human capital is essential, then we may have better service with centralized governance. The reason is that if M1's human capital is essential, then transferring assets from M1 to M2 has no effect on M2's investment incentives, since M2's reward does not depend on the

assets he has in the absence of M1's human capital. Thus there is no loss from control transfer. However, there may be benefit, since if M1 has all the assets, this is likely to increase his incentive to invest.

#### 2. Some Extensions

The theoretical framework discussed thus far has been developed using the insights drawn from incomplete contract theory of the private firm. Public service, however, has some distinctive features which need to be incorporated into the theoretical framework. The features considered here are those emphasized by Wilson (1989) including the multiplicity of task performed and complexity of agency relationship in government bureaucracy.

## 1) Multitask Case

Multitask implies that the producer has to perform several tasks in delivery of public service, which are at least partly competing for the producers attentions and effort. The producer's priorities concerning these tasks do not coincide with those of the provider, perhaps because they require a different quality of effort, or because new tasks have less value to the producer in terms of its original mission. If the tasks performed by agents have a multiple nature, the relative efficiency of organizational arrangement needs to be evaluated differently. Holmstrom and Milgrom (1991) have developed a model of multi-task agencies that help us understand some of the features of the relationship between provider and producer in the delivery of public services.

The key insight of their analysis is that interaction among the different tasks affects the power of the incentive scheme. More specifically, if the result of one task is very poorly observable, then the incentive scheme for a competing task must have lower power in order to avoid excessive diversion of effort away from this task to more observable ones. This is because exerting more effort on one task increases the marginal cost of the task which is a substitute. Higher marginal incentives in one task will drive the agent's effort away from the tasks which are substitute.

It is also likely that tasks contributing to multiple outcomes are measured with different errors. If each outcome could be rewarded in isolation, then the optimal incentive scheme would set higher incentives on the more easily measurable outcome, as they provide a more accurate indicator of the effort exerted by the agent. However, in a context where there are multiple dimensions of output, this would make the agent concentrate on the tasks which are more accurately measured. To avoid this misallocation of effort by the agent, the principal has to weaken the incentive on the more accurately measured tasks.

#### 2) Multiple Principals

Another extension has to do with the existence of multiple principals, all of whom have some power to influence the actions of the agent. Bernheim and Whinston (1986) provide the seminal model on moral-hazard problems in multi-principal settings. Their ideas have been further developed by Holstrom and Milgrom (1988) who derive the optimal linear contract in a context with two principals and Dixit (1996) who extends their analysis to a multi-principal setting.

The main insights of these studies are that in these settings, there will be inefficiencies in the relationship between principal and agent. Since each principal would like to induce the agent to put more effort into activities that he cares more about. Typically, the distortions are in the direction of making incentives facing the agent less powerful. If these tasks are complements (or there is a single task which all the principles care about) then there is a basic free riding problem which will lead to a lower incentive payment to the agent. If these tasks are substitutes then each principle would like to pay the agents to do more of the task he likes and less of the task that he does not like. This means each principal dilutes the incentives offered by other principals, making the agents incentives less powerful.

#### IV. Case Study : Delivery of National Road Services

In this case study, I apply the above theoretical framework to evaluate the relative efficiency of governance arrangements for national road service delivery. Particularly, we will compare the relative efficiency of the traditional system based on field offices with the newly proposed one based on delegation to local government. Then we will be in a position to evaluate the validity of the contentions raised against each of these delivery systems.

## 1. Korean context

Some information on the specificity of the Korean context is provided to facilitate the following discussions. To begin with, it is noted that the delivery of national road services is made in two distinctive ways. First, while the provision decision is made by the Ministry of Construction and Transportation (MOCT), the services are actually produced by the field office of the ministry. The other delivery arrangement, which is newly proposed by the presidential committee, is to delegate service production to local government, while the provision responsibility is still given to the MOCT. The former is considered as centralized governance and the latter as decentralized governance. Under the former arrangement, the residual control rights are given to central government, while in the latter case to local government. As for the role of each party, the provider is responsible for establishing national road policy, planning for road management and construction, and allocation of road resources. The role of the producer includes operation of machinery, equipment and various facilities, management of road maintenance and repairs, permission to use of road sideway, and designation and change of road areas.

The organizational characteristics of producers in each system can also be distinguished. Under the centralized arrangement, 24 field offices, located across the nation, are responsible for the production of national road services. This implies that each organization has to manage approximately 650km of national roads. Under the decentralized arrangement, production responsibility is delegated to either provincial government or municipal government. If delegated to provincial government, 9 provincial governments produce national road maintenance services. If delegated to municipal governments produce the service. Thus, each government is responsible for the management of 1,730km and 68km of national roads respectively.

Finally, we need to pay attention to the structure of agency relationship among the participants involved in the delivery of national road service. Figure 1 shows the relationship under centralized governance. Seen from the principal agent's perspective, the MOCT as an agent is under a principal agent relationship with politicians. The MOCT is also under principal agent relationship with field offices, but as a principal. While the extent of the relationship may vary, most agents are under a principal agent

relationship with local residents. The agency relationship under decentralized governance becomes more complicated than those under centralized governance. Figure 2 shows the agency relationship under decentralized governance. As under centralized governance, the MOCT has a principal agent relationship with the national legislative body. The local government as service producer is under multiple principal agent relationships with the MOCT, local legislative body, and local residents. Finally, local residents as the principal are under a principal agent relationship with the national legislative body, the MOCT, local government, and local legislative body.



#### 2. Discussion

The relative efficiency of the two governance arrangements can be evaluated with respect to many aspects. As mentioned previously, however, we may select a few issues of major importance arising from the existence of the dual delivery arrangements. Particularly, this study focuses on the issues concerning the quality of services and the incentive structure for agents involved in the delivery of national road service. We also consider the issue of corruption which is often cited as a major problem.

## 1) Quality of Services

The first issue to be addressed is the quality of national road service. We select this issue because of the contention that under decentralized governance the quality of service can easily be degraded. The core of this contention is that due to the nature of local politics, the decisions made by the head of a local government may often be detrimental to the quality of national road service. For example, we often find too much development permitted by him in the areas around national roads and the resultant functional deficiency of the roads as major artery. Moreover, since the roads are managed separately by many local governments, the quality of service may be low, if coordination among the governments is not secured properly.

Before we evaluate this contention, we need to define the attributes comprising road service quality. Although the quality of road service comprises many attributes, we focus on the two major attributes of accessibility and mobility. Mobility here implies the ability of individuals using the road to move between different regions, while accessibility refers to how easy it is to reach national roads. It is often the case that mobility and accessibility are in a trade-off relationship. For example, upgrading accessibility may require many connecting roads, but mobility deteriorates with the number of connecting roads. The trade-off between mobility and accessibility becomes the heart of the controversy over the quality of national road service.

As contended, it seems true that decentralized governance may deliver a lower quality national road service than centralized governance. This is because the national road service is associated with a high level of physical asset, and non-human assets a1 and a2 are normally complementary, it is under centralized governance that the level of effort made by both provider and producer should be higher and thus the overall quality of road service can be higher. The provider as the possessor of the residual control rights tend to make more effort and perform better under centralized governance. The producer, as a subsidiary of the provider, can also have an incentive structure similar to the provider. It is also under centralized governance that both provider and producer can make more relationship specific investment and raise the level of human capital to a higher level.

The superiority of centralized governance can also be determined by the agency relationship in national road service delivery. As previously shown, we may recall that the participants in the delivery of national road service lie in a multiple principal agent relationship. In the situation where there are many principals, the incentive of the participants becomes weaker than otherwise. The problem of weak incentive can be particularly serious under decentralized governance, where there are many principals including central government, local residents and local legislative body, etc. as shown in Figure 2. These principals may often deliver conflicting signals. For example, while it is likely that central government try to secure mobility to its maximum, local residents demand better accessibility. The upshot could be weak incentive for all participants in the delivery of national road service.

Low quality of service may also result from the multiple attributes of road service delivery especially under decentralized governance. Recall the theoretical discussion on the incentive structure for agents who perform multiple tasks. If the quality of one attribute is poorly observable, the incentive for the competing attributes must be weak. Otherwise, there may be excessive diversion of effort away from servicing the attribute to a more observable one. This argument can apply exactly in the case of national road service delivery. As discussed previously, the attributes of national road services comprise mobility and accessibility. Since the benefit of mobility may accrue in much broader areas, the quality of mobility may not be easily observable. The benefit of accessibility, however, may be easily felt by the residents at the point of access. In addition, local residents may strongly desire better accessibility instead of mobility. In fact, mobility may often harm the local economy, because some economic activities may relocate to other areas due to improved mobility. Thus, local government as producer may focus on improving accessibility, and thereby lowering the overall quality of national road service delivered.

One final caution is in order. The argument above needs to be qualified, depending upon whether the production responsibility is delegated to provincial government or municipal government. If the authority is given to municipal government, there will be some diversion of effort to improving accessibility at the cost of mobility and thereby reducing the overall quality of national road service delivered. If the authority is given to the provincial government, such diversion may not be a serious problem. This is because the demand for better accessibility at a particular access point cannot be critical factor in provincial level politics. Therefore, the overall quality of national road service may be sustained.

## 2) Relationship Specific Investment

The second issue to be addressed is the level of relationship specific investment made by provider and producer. This investment refers to that which creates value if the agents' relationship extends over time, but does not if the agents split up (Hart 1995). This investment may involve two dimensions in the context of national road service delivery. One is the investment made at the organizational level. The provider's investment may include establishing plan for replacing old road sign system or improving road pavement, etc. The producer's investments may comprise establishing a strip in the middle of roads or guardrail at the fringe of roads. Another is the investment made by the individuals working in provision and production units. Investment to acquire special skills or knowledge to deliver better road service can be good examples.

As for the relationship specific investment, it is certain that the level should be higher under centralized governance. Under this governance arrangement, both provider and producer have strong incentive to make relationship-specific investment. The provider, as the possessor of residual control rights, can have higher marginal return and thus he invests more. This is because, as discussed previously, not only does the delivery of national road service require a high level of physical assets, but also non-human assets of provider and producers are complementary because of the technical nature of national road service delivery.

The producer's incentive should also be high under centralized governance, although it is normally claimed that the producer without residual control rights may have a weak incentive in making relationship-specific investment. This is because unlike the case of private firms, the field offices are subsidiary of the MOCT, and thus the members of the offices have the incentive structure similar to those in the MOCT. They may be mindful of their long term career as well as promotion and level of payment. There is no reason to believe that the producer's incentive to make relationship-specific investment may be weak under centralized governance.

However, the structure of incentive under decentralized governance reveal quite the opposite. To begin with, the incentive to make relationship specific investment by the MOCT can be weaker than those under centralized governance. This is because the MOCT without residual control rights may have a much smaller return from their

investment than before. Under decentralized governance, the MOCT has to overcome larger transaction costs in the delivery of national road service because the residual control rights are given to local government. Local governments as service producer may also have a weak incentive to make relationship specific investment. This is because local government is also responsible for the maintenance of local roads. Thus its investments have to be distributed over national roads as well as local roads. This implies that its investment should be less specific to the delivery of national road services. For example, the technology and material used for the maintenance of national roads may be different from those for local roads, since the national road is normally burdened by a heavy volume of traffic and high speed limit.

In addition, the incentive structure for the individual workers in production units is also weak under decentralized governance. Since local government as producer normally performs general administrative work, the individual workers in the organization do not have a strong incentive to invest to improve the skills specifically needed for the delivery of national road service because they may have to change their position after a specified period. In fact, this is the major point set forth by those who insist on the superiority of centralized governance for national road service delivery.

# 3) Corruption

The final issue to be addressed concerns the behavior of politicians and bureaucrats. Here we relax the assumption that the bureaucrats and politicians act on behalf of society and allow for them to be self-interested. Given this behavioral assumption, it is not difficult to see that corruption by politicians and bureaucrats can occur frequently. They may use their control rights either to extract money or campaign contributions for himself from the contractor or to pursue objectives other than the public interest, such as catering to interest groups to gain support in the election.

In Korea, it is well know that most serious corruption of politicians and bureaucrats can be found in construction related affairs. Indeed, construction and maintenance of national and local roads are the areas most stricken with serious corruption scandals. Not only national legislators, local legislators, the MOCT as provider, but also field offices and local governments as producers have been implicated in many scandals. Particularly, the field offices tend to be implicated in corruption because of its special characteristics. They are located in remote areas and monitoring by the MOCT is the only control mechanism. They are also free from local political control, because of their status as central government's agencies. For these reasons, these offices are frequently implicated in many scandals related to contracting and subcontracting of construction and maintenance work.

Local politicians and government officials are not free from corruption either. Because of the lack of an effective mechanism of oversight, corruption of local government in the delivery of public services is a serious problem. According to the data published recently by a Korean NGO, construction related corruption has mostly been committed by local politicians and bureaucrats. Of the 180 cases of construction related corruption exposed, 76 cases (42%) were committed by local politicians and bureaucrats (Citizen's Coalition of Economic Justice, 2006).

Given such magnitude of corruption, it is important to examine whether we can find any discernable relationship between the level of corruption and governance arrangement. In fact, there are contentions that under centralized governance politicians and bureaucrats may be more easily involved in corruption. It is also argued that devolution of power to elected local government, better informed about local conditions, may reduce corruption, thereby improving public service delivery.

In order to evaluate these arguments, I will first focus on the corruption under centralized governance. From the theoretical discussion above, we are certain that politicians and bureaucrats may be more prone to corruption under centralized governance, since the return from such behavior to the politician is greater. The typical behavior of politicians may be to use his power to extract money or campaign contributions in return for preferential treatment towards a specific construction company. The larger return can result because private construction companies, by making the contract with provider, will be in a better position to make a contract with producers as well, if the assets a1 and a2 are complementary. This means that the size of bribe the construction company offers will be larger under centralized governance. Whereas under decentralized governance the incentive to become involved in corruption of politicians and bureaucrats would be weaker, because the return from corruption could be much smaller. This is because most contracts for maintenance work are made separately by local government under decentralized governance.

Finally, it is noted that if corruption is a serious issues, then we may reduce the severity of corruption by adopting decentralized governance of national road service delivery. In fact, the decentralized governance of service delivery may lower the incentive to bribe on the part of construction companies and thus reduce the incentives of politicians and bureaucrats as well. The strong resistance to the introduction of decentralized governance by such interest groups as large construction companies and association of engineers may be considered as an indirect indication of such a possibility.

#### V. Conclusion and Policy implications

Thus far, we have examined the relative efficiency of two governance arrangements for the delivery of public service. We developed a theoretical framework based on incomplete contract theory and applied the framework to the case study of the national road service delivery. In so doing, we also examined the validity of the contentions raised against the two governance arrangements.

We can summarize the major findings from the case study as follows. To begin with, centralized governance appears to be more efficient than decentralized governance in terms of the quality of service provided with some qualifications. Even under decentralized governance, the quality of service may be guaranteed if the provincial government rather than municipal government assumes the role of producer. In addition, it is under centralized governance, that the provider tends to make more relationship specific investment, while the incentive of the producer to make the investment may not be reduced much. Finally, it is noted that it is under centralized governance, the problem of corruption by politicians and bureaucrats become more serious, because both can enjoy a large amount of return.

If we apply these findings to the evaluation of the validity of the existing contentions, some interesting observation can be made. Contrary to the claims made against decentralized governance, it seems that this form of governance can be a good alternative if we delegate the producer's role to the appropriate level of government units. In fact, if we delegate the role to the provincial government, we may overcome the limitations of both the centralized governance, and the decentralized governance in

which the role is given to municipal government. Moreover, both the problems of corruption and the degradation in the quality of service can also be partly resolved under this type of decentralized governance. But this governance arrangement may not be as efficient as the centralized governance in terms of providing incentives to make relationship specific investment.

One final comment is that while the analysis has provided some new insights regarding relative efficiency between centralized governance and decentralized governance of national road service delivery, the insights should not be the sole criteria on which the policy choice should be made. This is because the efficiency of each governance arrangement may also be affected by other factors to which the study has not paid proper attention. It is with a more detailed study of these factors, that we can make a definite policy choice. We defer such analysis to a future study.

## REFERENCE

ACIR(Advisory Commission on Intergovernmental Relations) (1987) *The Organization of Local Public Economics*, Washington D.C: ACIR.

Bardhan, Pranab and Dilip Mookherjee (2000) "Capture and Governance at Local and National Levels," *The American Economic Review, Papers and Proceedings* 90(2): 135-139.

Belsey, Timothy and Maitreesh Ghatak (2003) "Incentives, Choice and Accountability in the Provision of Public Services," *Oxford Review of Economic Policy* 19(2): 235-249.

Belsey, Timothy and S. Coate (2003) "Centralized Versus Decentralized Provision of Local Public Goods: A Political Economy Analysis," *Journal of Public Economics* 87(12): 2611-2637.

Bernheim, B, Douglas and Michael Whinston (1986) "Common Agency," *Econometrica* 54(4): 911-930.

Burgess, Simon and Marisa Ratto (2003) "The Role of Incentives in the Public Sector: Issues and Evidence," *Oxford Review of Economic Policy* 19(2): 285-300.

Citizens Coalition for Economic Justice (2006) Special Report on Government Corruption, Seoul: Citizens Coalition for Economic Justice.

Cremer, J., A. Estache and P. Seabright (1995) "The Decentralization of Public Services: Lessons from the Theory of the Firm," in A. Estache (ed.) *Decentralizing Infrastructure: Advantage and Limitations*, World Bank Discussion Paper 290, Washington D.C.: World Bank.

Dixit, A.K. (1996) *The Making of Economic Policy: A Transaction-Cost Politics Perspective,* Boston, MA: MIT Press.

Dixit, Avinash (2002) "Incentives and Organizations in the Public Sector: An Interpretive Review," *Journal of Human Resources* 37(4): 696-727.

Dixit, Avinash and John Londregan (1995) "Redistributive Politics and Economic Efficiency," *American Political Science Review* 89(4): 856-866.

Domberger, Simon and Paul Jensen (1997) "Contracting out by the Public Sector: Theory, Evidence, Prospects," *Oxford Review of Economic Policy* 13(4): 67-78.

Grossman, S. and Oliver Hart (1986) "The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration," *Journal of Political Economy* 94(4): 691-719.

Grout, Paul A. and Stevens Margaret (2003) "The Assessment: Financing and Managing Public Services," *Oxford Review of Economic Policy* 19(2): 215-234.

Hart, Oliver (1995) Firms, Contract and Financial Structure, Oxford: Clarendon Press.

Hart, Oliver (2003) "Incomplete Contracts and Public Ownership: Remarks, and An Application to Public-Private Partnerships," *The Economic Journal* 113 (March) : C69-C76.

Hart, Oliver and J. Moore (1990) "Property Rights and the Nature of the Firm," *Journal of Political Economy* 98(6): 1119-1158.

Hart, Oliver, Shleifer, A. and Vishy, R.W. (1997) "The Proper Scope of Government: Theory and an Application to Prison," *Quarterly Journal of Economics* 112(4): 1126-61.

Holstrom, Bengt and Paul Migrom (1988) "Common Agency and Exclusive Dealing," Working Paper, Yale University, School of Management.

Holmstrom, Bengt and Paul Milgrom (1991) "Multi-Task Principal-Agent Analyses: Incentive Contracts, Asset Ownership and Job Design," *Journal of Law, Economics and Organization* 7, Special Issue 24-51.

Jack, William (2004) "The Organization of Public Service Provision," *Journal of Public Economic Theory* 6(3): 409-425.

Jin, Jae-Gu (1999) " Types of Functional Overlap and Criteria for Functional Redistribution : Between Field Office of Central Government and Local government," *Journal of Local Government Studies* 11(2): 103-124.

Kim, Ik-Sik Kim (2002) "The Meaning and Functions of Special Local Administrative Agency," *Local Administration* 51(589) : 16-23.

Kim, Sung-Bae (2006) "Methodological Extension of Public Policy Research through Comparative Institutional Analysis," *Korean Policy Studies Review* 15(3): 101-129.

Kim, Sung-Bae (2006) "Optimal Governance Model of Public Service Delivery: with Reference to the Function Redistribution of Central Government's Field Office," *Journal of Local Government Studies* 18(2): 27-48.

Kolderie, Ted (1986). "The Two Concepts of Privatization in Service Delivery," *Public Administration Review*, 40, 240-46.

Korean Institute of Public Administration (2002). Plan for the Functional Redistribution between Provincial Government and Central Government's Field Office, Seoul: Korean Institute of Public Administration.

Milgrom, Paul and John Roberts. (1992) *Economics, Organization and Management,* Englewood Cliffs, N.J.: Prentice Hall.

North, Douglas (1990) "A Transaction Cost Theory of Politics," *Journal of Theoretical Politics* 2: 355-367.

Oakerson, R. J. (1999) *Governing Local Public Economics: Creating the Civic Metropolis,* Oakland, CA: Institute for Contemporary Studies.

Presidential Committee on Government Innovation and Decentralization (2004) Special Report on the Reform of Public Service Delivery, Seoul: Presidential Committee on Government Innovation and Decentralization.

Presidential Committee on Government Innovation and Decentralization (2005) Reform Plan for the Field Office of Ministry of Construction and Transportation, Seoul: Presidential Committee on Government Innovation and Decentralization.

Robinson, Richard and Stiedl, David (2001) "Decentralization of Road Administration: Case Studies in Africa and Asia," *Public Administration and Development* 21: 53-64.

Seabright, Paul (1996) "Accountability and Decentralization in Government: An Incomplete Contract Model," *European Economic Review* 40: 61-89.

Schmidt, Klaus M. (1996) "The Costs and Benefits of Privatization: An Incomplete Contracts Approach," *Journal of Law, Economics and Organization* 12(1): 1-24.

Shleifer, Andrei and R.W. Vishny (1994) "Politicians and Firms," *Quarterly Journal of Economics* 109: 995-1025.

Walsh, K. (1995) Public Service and Market Mechanisms: Competition, Contracting and the new Public Management, New York: St. Martin's Press.

Williamson, O.E. (1985) *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting*, New York: The Free Press.

----- (1996) The mechanisms of Governance, New York: Oxford University Press.

----- (1999) "Public and Private Bureaucracies: A Transaction Cost Economic Perspective," *Journal of Law, Economics and Organization* 15(1): 306-342.

Wilson, James Q. (1989) *Bureaucracy: What Government Agencies do and Why they do it*, New York: Basic Books.