

Determinants of Fiscal Decentralization Policy in the Republic of Korea

PARK, JHUNG SOO

Research Fellow, Korean Tax Institute

Abstract

The aim of this research is to explore the assignment of fiscal responsibility among levels of government and to evaluate the relative importance of socio-economic development and political-administrative conditions as determinants that explain the variations of fiscal decentralization policy of government in Korea. The empirical work was based on theoretical work in the area. Time-series data are used to include political and administrative variables which had not been included in previous empirical studies of this area.

Regression equations were estimated by Ordinary Least Squares, Cochrane-Orcutt, and Maximum Likelihood techniques, whichever allowed for autocorrelation among the explanatory variables. The empirical results of the determinants study support much of the theoretical work in the area of fiscal decentralization. Socio-economic development, political democracy instability, and administrative factors primarily explain the variations in fiscal decentralization.

Findings in this study suggest that if the goal of intergovernmental fiscal policy is to encourage fiscal decentralization or composite decentralization, then it should emphasize the political and administrative factors as well as the socio-economic development factor.

I. Introduction

If academic analysts, practitioners, and citizens could agree on anything about the public sector, it would probably be to acknowledge that no one agrees about the best way to organize and manage the machinery of government. It is hardly surprising that the fiscal decentralization of government in developing countries has been a topic of debate ever since serious discussion on development began in the 1950s (Conyers, 1984; 188).

Central-local relations demonstrate full potential for both destructive conflict and constructive partnership, with finance always critical to the prospects of each (Davey; 1983). The appeal of decentralization is now so great that it competes with democracy as the concept that no political theory, ideology or movement can afford to eschew. It is a value embraced by the left, whether revolutionary, utopian reformist; by liberals; and by the radical right (Furniss; 1974). It has become so commonplace that developing countries as well as industrialized countries deplore the over-centralized modern government system.

Usually, questions are raised that concern the design and choice of the level of government that is most appropriate for the delivery of public goods and services. Such questions represent an obvious opportunity for a transaction cost analysis. As the term suggests, transaction cost analysis adopts a microanalytic approach to the study of economic organization. This study uses microanalytic transaction cost analysis to examine a multi-tier system of government (Williamson, 1985; 1-2). The focus is on transactions and the economizing effects that might be prevalent as a result of decentralization activities in Korea.

Korea has experienced rapid change in its intergovernmental system, not only in the administrative perspective, but also in the political sense. Local autonomy, in the sense of local choice, was restored in 1991. There had been no real sense of local autonomy from 1961 to 1991. The central government had planned, programmed, implemented, and evaluated public policy, and local governments had been considered regional branches of the central government. This type of intergovernmental system provided a favorable policy environment for bringing per capita GNP over \$ 6,000, but it also caused the Korean government to grow beyond appropriate limits quantitatively as well as qualitatively. Government activities exist almost everywhere. Policy makers were forced to act quietly to place limits on the growth of the central government. Fiscal decentralization was the approach taken. However, decentralization has not been implemented uniformly. This uneven policy implementation in Korea provides a rare research opportunity to study decentralization efforts in an industrializing nation.

This study is organized into three parts. The first part reviews past theoretical and empirical work concerning determinants of fiscal decentralization. The second part sets out the model to test these hypotheses, and the third part presents the empirical results.

II. Theoretical Review

There are several major theories that focus attention on government decentralization. Perhaps most prevalent are the conventional assignment theories of transaction cost analysis. The conventional assignment theory is based on two arguments. First,

lower level governments have an advantage over higher levels in their ability to evaluate local needs, but this argument notes that interjurisdictional mobility puts them at a relative disadvantage in their ability to raise revenue and redistribute income. Second, a central government must treat each of its component regions identically, and if tastes vary across regions, a uniform tax and expenditure policy will not be optimal.

The transaction cost analysis re-interpreted intergovernmental fiscal relations by extending the model developed from conventional theory to address these concerns. Yet, it arrives at the same general conclusions. In summary, the transaction cost approach posits that the costs of running an economy's public sector vary systematically with government structure. That is, citizens design their public sectors in a way that economizes these costs. Aside from the unavoidable production costs, they must contend with the costs of ascertaining the local conditions of public good production and provision; acquiring information on the technology of government policy making; identifying resource misallocations, due both to spillover effects and the private interests of government officials; monitoring the behavior of public officials; coercion; and the costs of administration.

Centralization reduces some of these costs but increases others. As transaction analysis has revealed, the cost of uninternalized externalities will decrease through centralization. The cost imposed by increasing risk of exploitation by a monopoly or imperfectly competitive (the costs of opportunistic behavior by government officials, including outright fraud) will, however, increase through centralization.

The conventional assignment literature emphasizes the trade-off between the equity gains made possible by centralized finance systems and the need to assign some expenditure decision making. Leviathan literature adds one more consideration: the need to constrain opportunistic behavior of the government officials.

In conventional theory, the intergovernmental fiscal system has been assumed to be exogenously given, and the research question has been concentrated on the division of functions under aspects of allocation, distribution, and stabilization; now the question is reversed. The intergovernmental fiscal system is no longer assumed to be given. The question is now focused on how political, administrative, and economic variables influence fiscal relations. In other words, what determines the demand for centralization or decentralization of the governmental service and policy complex in a country?

In contrast, in this study, the basic model implies that fiscal decentralization in Korea is associated not only with its economic and social factors, but also with its political and administrative factor. The intent of this study is to discern the main determinants of fiscal decentralization in Korea. Previous research offers guidance.

A careful search of the literature in this area uncovered only a dozen published determinant studies of fiscal decentralization. Half of these studies are related spe-

cially to the U.S., while the others are cross-national studies. The results of these studies are not in complete agreement. Generally, per capita income, population size, population density, urbanization ratio, and inequality of income distribution variables have been found to be statistically significant determinants of fiscal decentralization. These variables constitute the composite socio-economic factor(SOEC) in the conceptual model utilized in this research. <Table 1> summarizes the research findings of selected studies explaining fiscal decentralization.

III. Conceptual Models

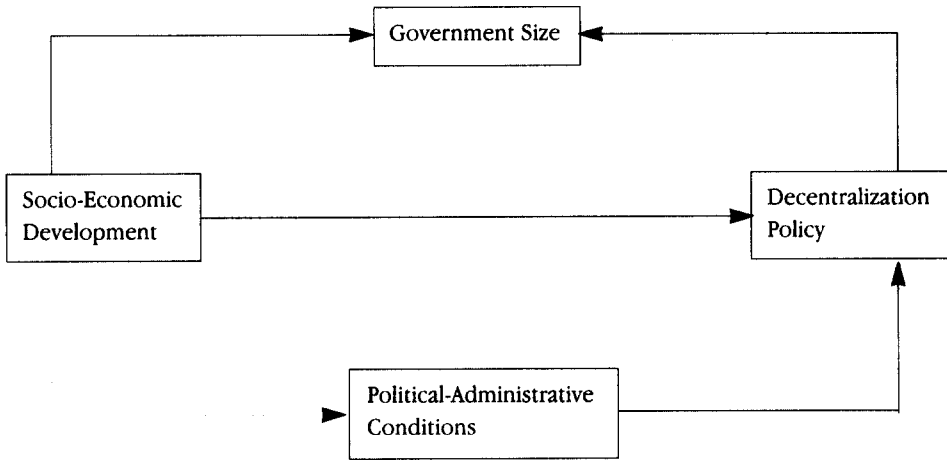
There are two alternative perspectives on the determinants of public policy; in this study, we will examine the government structure policy of decentralization. The first model is called a socio-economic development hypothesis. It proposes that socio-economic development shapes both the political-administrative system and intergovernmental structure policy, and that the relationships between the political variables and government structure policy are spurious. It is measured in this model that socio-economic development can directly make government structure affordable enough to determine the political-administrative conditions, and through them, influences government structure policy indirectly. Several cross-sectional of the U.S. and cross-national analyses have tested this hypothesis (Pryor, 1968; Oates, 1972; Pommerehne, 1977; and Wasylenko, 1987). A graphical presentation of this hypothesis looks like Figure 1.

An alternative model is the competition-participation hypothesis (Dye and Robey, 1980; 4). It proposes that the characteristics of the state political systems are crucial independent determinants of intergovernmental structure policy. From this perspective, political systems and conditions are as influential as are socio-economic conditions. For instance, V.O. Key(1956) argues that the absence of competition and participation make it unnecessary for policy makers to decentralize. On the other hand, Thomas Borcherding(1977) points out that only about half the increase in real government spending centralization can be explained by changes in the standard economic variables and highlights an important factor largely neglected by economists and other researchers, which is the role of administration. A graphical presentation of this hypothesis excludes the arrow between socio-economic development and political-administrative conditions.

None of the studies of fiscal decentralization reviewed in the literature review section explicitly tests the economic development and competition-participation hypotheses of the determinants of decentralization policy. These hypotheses will be tested here by using a sufficient period of time series data of Korea. The influence of socio-economic development on political-administrative conditions, however, is beyond the scope of this study.

<Table 1> Findings in Selected Determinant Studies

Author	Time Point	Dependent Variable	Significant Independent Variable
Pryor (1968)	1962	Centralization ratio for public expenditure	Natural log per capita income(.05) Natural log population size(.05)
Litvack & Oates (1970)	1962	State share of state/local spending	Natural log population size Concentration ratio
Oates (1970)	1968	Central government revenue share	Natural log of population(.01) Per capita income(.01) Federal structure dummy(.01) Social security share(.01)
Giertz (1976)	1969	Composite index of decentralization	Population, density, area, median family income, urban range, gini coefficient, apportionment index, conservatism index(.05)
Pommerehne (1977)	1968	Central government share in overall govt expenditures	Population Per capita GNP Inequality of income distribution
Kee (1977)	1969	Local share in total govt current expenditures	Intergovt transfer payments, urbanization ratio, per capita GNP, federal structure dummy
Mullen (1980)	1969	State share in state/local spending	Natural log population(.05) Median family income(.05)
Greene (1985)	1976	Local share in state/local spending	Population size(.10)
Bahl & Nath (1986)	1973	Local share in total govt spending	Income, urbanization, developed country dummy, population, federal structure dummy
Wasylenko (1987)	1980	State/local share in total govt spending	Per capita GDP(.05) Federal structure dummy(.05) Openness of the economy(.05)
Wallis & Oates (1988)	1902-1982	State share in state/local spending	Population size(.05) Urbanization(.10) Per capita income(.05)
Patsouratis (1990)	1960-1986	Local share in total govt revenues	Per capita income, population size, time-trend(.10)



Note: The competition-participation hypothesis excludes the arrow between socio-economic development and political-administrative conditions.

Figure 1. Graphic Presentation of Conceptual Model

In the descriptive model with simple form, determinants of decentralization can be represented as an equation (equation 1):

$$DEC_i = f(SOEC, PO, AD) \quad (\text{equation 1})$$

$i = 1$ and 2

where DEC1 denotes degree of fiscal decentralization, DEC2 composite decentralization index, SOEC socio-economic factor, PO political factor, and AD denotes administrative factor.

Traditionally, the hypotheses in the core empirical literature of determinant studies are expressed in terms of statements about the existence of significant relationships between the specific measure of a dependent variable and the specific set of explanatory variables. In this study, it is more appropriate to state a hypothesis in terms of multivariate relationships between fiscal decentralization and the sets of explanatory variables. Multiple subhypotheses of bivariate relationships can be specified from this hypothesis, which denote the possible direction of influence. This argument can be hypothesized as:

Fiscal Decentralization is a joint function of socio-economic development, inequality of income distribution, political factors, and administrative factors.

IV. Methodology

Decentralization policy-making is an ongoing process in Korea. The dynamic na-

ture of the process makes a time-series research design more appropriate. However, when one uses longitudinal time-series data, care must be taken when interpreting test results because they have some limitations as a treatment of the same independent variables for every analysis year (Balestra, P. and Neriove, M.; 1966, 596-612). The goal is to have trend analysis and forecasting for the future relate to fiscal policy responsibility.

This study uses confirmatory factor analysis¹⁾ and multiple regression analysis techniques for identifying the determinants of the assignment of the fiscal responsibility policy. The unit of observation for the study of determinants of fiscal decentralization is the whole nation. The observation time period for this study is third-one years, from 1960 to 1990.

V. Measurements of Theoretical Concepts

1. Indicators of Decentralization

Rondinelli, Nellis and Cheema (1984; 10-29) discuss four leading types of decentralization: deconcentration, delegation, devolution and privatization. The present study addresses the devolutional dimension which recommends strengthening the financial responsibility of local government units.

The object, of course, is to measure the amount of fiscal discretion which local government exercises. The general measures in the literature are either the ratio of local government expenditure to total government expenditure or the ratio of local tax revenue to total government tax revenues.

Several scholars suggest different fiscal indicators, such as own source revenue except intergovernmental transfer payment (Smith, 1979), own source revenue except conditional grants (Rose and Page, 1982), and local government share of government total revenue or expenditure (Ashford, 1979; Lijphart, 1985; Bahl, 1986). Smith asserts that, based on the traditional view, as central grants increase, central control also increases, pure local government own source revenues except central grants can only represent practical degree of decentralization. Rose and Page argue that there is little relationship between the magnitude of central grants and the degree of decentralization, however, only the type of central grant matters. So they claim that not central grant total, but conditional or restricted grants should be expected. Furthermore, Ashford, Lijphart, and Bahl assert that even unconditional central grants do not always weaken central control. So, they claim that local share of total tax revenue or total expenditure is the better fiscal indicator.

This study focuses on the local share of total expenditure in Korea. Therefore, it uses the respective share in direct expenditure, that is, in disbursements to final recipients of government payments, so that intergovernmental transfer payments are

attributed to the recipient level of government.

Nevertheless, several scholars (Bahl, 1986; Wasylenko, 1987; Bird, 1980, 1986) argue that the fiscal indicator is not enough to measure true decentralization and this one-dimensional measure of decentralization is flawed and only a partial measurement. Stephens (1974; 46) devised a composite index of state decentralization, using three components that reflect the relative distribution of power between state and local governments: (1) financial responsibility, or which level pays for public goods and services; (2) determination of the level which delivers functional activities; and (3) distribution of public personnel between levels. In Smith's (1979; 214-222) study, the first measure of decentralization relates to governmental functions, a sharing of responsibilities between central and local governments. A second measure relates to taxation, their powers of revenue raising from their own sources rather than central subventions. Levels of field administration, the amount of delegation, methods of creating area governments levels of local expenditure, geographic areas, financial dependence, personnel distribution, and size are other components of the composite decentralization measure.

The fiscal decentralization measure is thus enlarged to construct a composite decentralization index which includes personnel, structural, functional bases, as well as a fiscal power base. In the composite decentralization model, the index is constructed by confirmatory factor analysis. For construction of this composite index, which is the factor score, four indicators are included. Personnel power base (local administrative capacity ratio), functional power base (the level of administrative devolution), structural or organizational power base (density of local government units), as well as fiscal power base, are the components.

2. Indicators of the Explanatory Variables

A. Socio-Economic factor

Socio-economic development is thought to have a direct relationship with the level of public expenditure responsibility given to subnational governments. Development might stimulate the demand for services provided by local governments and/or for more local service delivery. Six indicators will be considered in the present study. They are: 1) per capita GNP; 2) openness of the economy; 3) size of population; 4) population density; 5) the level of urbanization; and 6) the aged people composition.

B. Political Factor

Giertz (1976; 204) included in the determinant analysis two political variables, which are the index of conservatism and the legislative apportionment index. The

present study will include two political variables. Those are the index of ruling party apportionment and the political democracy instability index. Index of Ruling Party Apportionment (RPA) will be measured by the ruling party share of the members of National Assembly.

Sung M. Pae(1986;77) developed a Political Democracy Index in order to test the economic theory of democracy in Korea for the period from 1948 to 1981. He developed four sets of data related to democratic policy. Those are (1) number of struggles of opposition politicians and Assemblymen against the government for civil and political freedom and rights; (2) number of struggles of those other than politicians against the government for basic freedom; (3) number of struggles of those other than politicians against the government for basic rights; and (4) number of extraordinary of martial laws declared annually; and (5) emergency measures that disturbed the normal operation of democratic procedural principles.

Lee(1989; 40-45) adopted these political rights and freedom indices and refined the statistical meaningfulness by running correlation analysis among the indices. By eliminating those less related indices, he improved the level of explanatory power. He labeled these fifteen indices as political democracy instability index, which he used as the proxy of political democracy index.

The fifteen indices are refined in this study by eliminating those less related factors, from 1960 to 1981 and continuing to use the same strategy to collect data from 1982 to 1990. Through this refinement process, a composite index of political democracy instability is constructed ²⁾

C. Administrative Factor

This study will use two variables for the administrative. These are the index of administrative decentralization efforts and the governmental transfer payments. In the administrative decentralization efforts index, the composite index is constructed from local administrative capacity(LAC), density of local government units (DLG), and the level of administrative devolution (DEVOL) by confirmatory factor analysis. Local administrative capacity, density of local government units, and the level of administrative devolution indicators are the same measure as the components of the composite decentralization index(DEC2).

The transfers from higher to lower level governments can be justified on the following grounds: 1) correcting an imbalance between central and subnational governments in revenue authority and expenditure responsibility (vertical equalization); 2) redressing inter-regional disparities in fiscal capacity and/or expenditure needs (horizontal equalization); and 3) inducing expansions in the output of goods with external benefits (Bahl, 1986;3). It is usually argued that the first and the second of these objectives are best captured by general grants, and the third by a system of conditional grants which is one kind of specific grants in Korea.

<Table 2> Summary of Latent Factors and Indicators

		Observed Indicators	Latent Factors
Y ₁	DEC ₁	Fiscal share of local government	
Y ₂	DEC ₂	Total decentralization level	
x ₁	INCOME	Per capita GNP	Socio-economic Development
x ₂	OPEN	Total export and import/GNP	
x ₃	POP	Population size	
x ₄	DENS	Population density	
x ₅	URBAN	city & eup(over 20,000) residents	
x ₆	AGE	% aged population(over 65)	
x ₇	RPA	% ruling party apportionment	Ruling Party Apportionment
x ₈	COLBAR	Prohibition collective bargaining	Political democracy instability
x ₉	ASSEMB	Prohibition organizing assembly	
x ₁₀	ORDERS	Executive orders which deprived citizens of basic rights	
x ₁₁	LAC	Personnel share of local govt	Administrative Decentralization Efforts
x ₁₂	DLG	Local government density	
x ₁₃	DEVOL	Administrative devolution freq.	
x ₁₄	GENER	General grants magnitude	
x ₁₅	SPEGR	Specific grants magnitude	

Note: Final explanatory factors and variables are ζ_1 , ζ_2 , ζ_3 , and x_7 .

<Table 2> presents a summary of reduced dependent and independent variables and the factors to be used in the next step of analyses as results of the examination of bivariate relationships and relationships within sets of variables.

VI. Determinants of Fiscal Decentralization

1. Model Specification

Following the reasoning outlined in the conceptual model section and the main tradition of the literature, this analysis investigates the relationship between socio-economic development, political democracy instability, ruling party apportionment level, the administrative decentralization index, and the share of local government expenditure. The composite indices are constructed from factor analyses for socio-economic development, political democracy instability, and administrative decentral-

ization effort. The relationship is specified in terms of the elasticity of local government share with respect to the explanatory variables, and is estimated from a logarithmic regression of the form:

$$\ln(\text{DEC}i) = a + b1 \ln(\text{SOECDEV}) + b2 \ln(\text{ADMIN}) + b3 \ln(\text{POLINS}) + b4 \ln(\text{RPA}) + e \quad (\text{equation } 2)$$

where $i = 1$ or 2

DEC1 is fiscal decentralization level;

DEC2 is composite decentralization level;

ln stands for the natural logarithm of the variable;

e is the usual stochastic term;

a denotes the regression constant;

and b is the elasticity of local government share with respect to the explanatory variables.

The main point to be explored is whether the elasticity is significantly positive or negative. If it is either, the implication is that the share of local government rises or falls with increasing individual explanatory variables.

2. Analysis

⟨Tables 3 and 4⟩ present the estimated coefficients of structural equations computed by Ordinary Least Squares and Estimated General Least Squares procedures. A comparison of the three sets of results in ⟨Tables 3 and 4⟩ shows that the estimated parameters obtained with the three procedures are approximately same with the slightly higher R^2 value obtained by OLS method. Our primary concerns in the tables are the magnitude, direction, and significance levels of the coefficient of the independent factors and variables.

The most influential variable is the socio-economic development composite index in terms of per capita income, openness of the economy, population size, population density, urbanization ratio, and age composition to explain the dependent variable, fiscal share of local governments. It is obvious from the table that socio-economic development is highly associated with degree of local fiscal autonomy. The next most significant explanatory variable is administrative decentralization efforts. Also, political democracy instability shows strong negative influence on the fiscal decentralization level.

In the equation (6-4), the coefficient of determination (explanatory power), R^2 , is .705 and equation (6-6), .597. When we enlarge the model to multiple regression, the explanatory power is increased as .894 and .873 individually. This suggests that 70.5 percent of the variance in local governments fiscal share of expenditure is accounted for, or determined by socio-economic development, and 89.4 percent by socio-eco-

<Table 3> Results of Regression Analysis for DEC1 during the period from 1960 to 1990

ORDINARY LEAST SQUARES METHOD

$$\ln DEC_1 = 21.006 + 10.495 * \ln SOECDEV \quad (6-2)$$

R² = .797
 Adjusted R² = .784
 Durbin Watson d = 1.025

F_(1.29) = 109.73
 (.0000)

$$\ln DEC_1 = 17.190 + 5.149 * \ln SOECDEV + 9.612 * \ln ADMIN - 1.832 * \ln POLINS + .515 * \ln RPA \quad (6-3)$$

t = 3.332 t = 3.704 t = 1.518 t = .124
 (.01) (.01) (.10)

R² = .893
 Adjusted R² = .877
 Durbin Watson d = 1.703

F_(4.26) = (54.256
 (.0000)

FIRST-ORDER SERIAL CORRELATION OF THE ERROR: Cochrane-Orcutt Iterative Technique

$$\ln DEC_1 = 18.997 + 13.325 * \ln SOECDEV \quad (6-4)$$

t = 8.176
 (.0000)

R² = .705
 Adjusted R² = .694
 Durbin Watson d = 1.9333

F_(1.28) = 66.843
 (.0000)

$$\ln DEC_1 = 15.058 + 7.045 * \ln SOECDEV + 8.021 * \ln ADMIN - 2.135 * \ln POLINS + 1.020 * \ln RPA \quad (6-5)$$

t = 3.826 t = 2.965 t = 1.856 t = .250
 (.01) (.01) (.05)

R² = .894
 Adjusted R² = .877
 Durbin Watson d = 2.097

F_(4.25) = 52.628
 (.0000)

MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE

$$\ln DEC_1 = 21.562 + 10.314 * \ln SOECDEV \quad (6-6)$$

t = 6.504
 (.0000)

R² = .597
 Adjusted R² = .583
 Durbin Watson d = 1.681

F_(1.29) = 39.149
 (.0000)

$$\ln DEC_1 = 18.860 + 4.965 * \ln SOECDEV + 9.777 * \ln ADMIN - 1.837 * \ln POLINS + .107 * \ln RPA \quad (6-7)$$

t = 2.994 t = 3.542 t = 1.526 t = .025
 (.01) (.01) (.10)

R² = .873
 Adjusted R² = .853
 Durbin Watson d = 1.840

F_(4.26) = 44.583
 (.0000)

<Table 4> Results of Regression Analysis for DEC2 during the period from 1960 to 1990**ORDINARY LEAST SQUARES METHOD**

$$\ln DEC_2 = .160 + .769 * \ln SOECDEV \quad (6-8)$$

t = 13.950
(.0000)

R² = .870
Adjusted R² = .866
Durbin Watson d = .873

F_(1,29) = 194.612
(.0000)

$$\ln DEC_2 = .554 + .519 * \ln SOECDEV + .450 * \ln GRANT - .045 * \ln POLINS - .125 * \ln RPA \quad (6-9)$$

t = 7.321 t = 3.706 t = -.680 t = -.565
(.000) (.01) (.10)

R² = .934
Adjusted R² = .924
Durbin Watson d = 1.679

F_(4,26) = 92.136
(.0000)

FIRST-ORDER SERIAL CORRELATION OF THE ERROR: Cochrane-Orcutt Iterative Technique

$$\ln DEC_2 = .017 + .955 * \ln SOECDEV \quad (6-10)$$

t = 13.077
(.0000)

R² = .859
Adjusted R = .854
Durbin Watson d = 2.176

F_(1,28) = 171.012
(.0000)

$$\ln DEC_2 = .061 + .652 * \ln SOECDEV + .367 * \ln AEMIN - .069 * \ln POLINS - .009 * \ln RPA \quad (6-11)$$

t = 10.106 t = 3.747 t = -1.326 t = -.049
(.0000) (.01) (.10)

R² = .959
Adjusted R² = .953
Durbin Watson d = 2.586

F_(4,25) = 146.750
(.0000)

MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE

$$\ln DEC_2 = .223 + .712 * \ln SOECDEV \quad (6-12)$$

t = 6.708
(.0000)

R² = .586
Adjusted R² = .572
Durbin Watson d = 1.921

F_(1,29) = 39.584
(.0000)

$$\ln DEC_2 = .561 + .516 * \ln SOECDEV + .451 * \ln ADMIN - .043 * \ln POLINS - .126 * \ln RPA \quad (6-13)$$

t = 7.176 t = 3.667 t = -.651 t = .567
(.000) (.01)

R² = .932
Adjusted R² = .921
Durbin Watson d = 1.702

F_(4,26) = 88.720
(.0000)

Note: In parentheses, significance level of coefficients. *ln* stands for the natural logarithm of the variable.

conomic development, administrative decentralization efforts, political democracy instability, and ruling party apportionment level in combination, in the Cochrance-Orcutt technique.

The autocorrelation problem of the equation (6-8) and (6-9) can be solved by transforming to EGLS technique in equation (6-10) through (6-13). In the expanded model of composite decentralization level, the results are more or less similar to those of the fiscal decentralization level. This shows the dominant explanatory power of the socio-economic development variable. It also illustrates the positive influence of the grants variable. In equation (6-10) and (6-12), explanatory power is 85.9 and 58.6 respectively. When we expand the model to multiple regression, the explanatory power is increased to 95.9 and 93.2 respectively.

3. Discussion and summary

The empirical analyses are conducted to identify the determinants of fiscal decentralization level (DEC1) and composite decentralization level (DEC2) in Korea. As described earlier, the analyses are conducted by a regression model to test relationships, especially curvilinear relationships in the statistical interpretation, between dependent variable and independent variables. Usually, an econometric model appears to be properly used for a three or four variable set. In this study, we have selected four explanatory variables for the model. Each variable, except ruling party apportionment index (RPA) is constructed by factor analysis to look at latent variables of the same dimension of measurements.

The equations being estimated here are not based on a fully specified and formally complete model which explains decentralization. Instead, they represent attempts to bring together diverse theoretical works to examine their explanatory power. <Table 5> summarizes these results.

As <Tables 3 and 4> show, the socio-economic development factor has dominant explanatory power for every equation and it confirms the previous research in a similar vein. The administrative decentralization efforts factor also has positive and significant influence on fiscal decentralization in Korea. Political democracy instability shows strong negative influence on the fiscal decentralization level and the relationship is significant at the .10 level. On the other hand, the ruling party apportionment factor does not have significant influence on fiscal decentralization policy. An especially notable negative relationship between the political democracy instability and the fiscal decentralization supports the subhypothesis that political democracy instability encourages fiscal centralization. This relationship is significantly different from zero in the expected direction in every estimation.

Generally, results from analyses tend to confirm most of the subhypotheses contained in theoretical works, in that the relevant variables suggested by the theory

<Table 5> Summary of Results of Regression Analysis for DEC1 and DEC2

	DEC1			DCE2		
	OLS	EGLS		OLS	EGLS	
		COCH	ML		COCH	ML
SOECDEV	+	+	+	+	+	+
POLINS	<->	<->	<->	•	<->	•
RPA	•	•	•	•	•	•
ADMIN	+	+	+			
GRANT				+	+	+

Note: +, indicates positive influence on DEC at 1 percent significance level.

(-), negative influence on DEC at 5 percent significance level.

<->, negative influence on DEC at 10 percent significance level.

•, indicate no significance in the equation.

account for a very large percentage of the variation in decentralization. These variables explain over ninety percent of the variation in fiscal and composite decentralization for 1960 to 1990 in Korea.

Findings in this study suggest that if the goal of intergovernmental fiscal policy is to encourage fiscal decentralization or composite decentralization, then it should emphasize political and administrative factors, such as human rights and political freedom, personnel, functional, structural decentralization efforts and intergovernmental transfer payments, as well as socio-economic development. Depending on the economic rationale for division of activities among levels of government, it may be valuable to consider alternatives to improve the equality of income distribution, since inequality of income distribution itself influences inversely the level of fiscal decentralization. For this purpose, central government is supposed to have direct responsibility for all income-support programs and greatly increased central financing, presumably via grants, of other public programs linked to poverty, programs which redistribute income in kind, such as health and hospital services, social services to children and families, and special educational services for disadvantaged children.

* The original draft of this paper was presented at the 54th Annual Conference of American Society for Public Administration on July 18th, 1993.

Notes

1) A distinction is currently being made between exploratory and confirmatory (hypothesis-

testing) factor analysis (Mulaik, 1971;9). The former type obtains when the researcher would not venture any forecasts on the nature and structure of factors that will be extracted from his matrix. The latter obtains when he sets forth an explicit hypothesis and such nature and structure, and treats factor analysis as a test that will either confirm or disconfirm his expectations.

- 2) Data for these indices were collected from the *New York Times Index*. The selection of the *New York Times Index* is justified because (1) no single major daily newspaper in Korea has developed and maintained the annual index volumes; (2) due to a series of martial laws, emergency measures, and other kinds of government censorship, major daily newspapers in Korea have not been allowed to report many important political events including the violation of basic freedom and human rights; and (3) major Korean daily newspapers are seen by many Koreans as either pro-government or anti-government newspapers.

References

- Ashford, D. E., "Territorial Politics and Equality: Decentralization in the Modern State," *Political Studies*, Vol. 27, March 1979.
- Bahl, R. W., "The Design of Intergovernmental Transfer in Industrialized Countries," *Public Budgeting and Finance*, Vol. 6, Winter 1986.
- Balestra, P. and Nerlove, M., "Pooling Cross-Section and Time Series Data in the Estimation of a Dynamic Model: "The Demand for Natural Gas," *Economica*, Vol. 34, 1966.
- Bird, R. M. (ed.), *Fiscal Dimensions of Canadian Federalism*, (Toronto, Canadian Tax Foundation, 1980).
- _____, *Federal Finance in Comparative Perspective*, (Toronto, Canadian Tax Foundation, 1980).
- Borcherding, T. E., "The Source of Growth of Public Expenditures in the United States, 1902-1970," in Borcherding, T. E. (ed.), *Budgets and Bureaucrats; The Source of Government Growth*, (Durham, N.C.: Duke University Press, 1977).
- Conyers, D., "Decentralization and Development: A Review of the Literature," *Public Administration and Development*, Vol. 4, 1984.
- Davey, K. J., *Financing Regional Government; International Practices and Their Relevance to the Third World*, (New York: John Wiley & Sons, 1983).
- Dye, T. R. and Robey, J. S., "Politics versus Economics: Development of the Literature on Policy Determination," in Dye, T.R. and Gray, V. (eds), *The Determinants of Public Policy*, (Lexington, M.A.; Lexington Books, 1980).
- Furniss, N., "The Practical Significance of Decentralization," *Journal of Politics*, Vol. 37, 1974.
- Giertz, J. F., "Decentralization at the State and Local Levels: An Empirical Analysis," *National Tax Journal*, Vol. 29, June 1976.
- _____, "State-Local Centralization and Income: A Theoretical Framework and Further Empirical Results," *Public Finance*, Vol. 38, 1983.
- Greene, K. V., "Fiscal Decentralization: Evidence on the Role of Income and Other Determinants," *Public Finance*, Vol. 40, 1985.
- Key, V.O., *American State Politics: An Introduction*, (New York: Alfred A. Knopf, 1956).
- Lee, H., "Determinants of Welfare Policy and Basic Human Needs in Korea: A Time Series

- Analysis (1962-1987)," unpublished PhD dissertation, University of Pittsburgh, 1989.
- Lijphart, A., *Democracies: Patterns of Majoritarian and Consensus Government in Twenty One Countries*, (New Haven: Yale University Press, 1984).
- Mulaik, S. A., *The Foundation of Factor Analysis*, (New York: McGraw-Hill, 1971).
- Oates, W. E., *Fiscal Federalism*, (New York: Harcourt Brace Jovanovich, 1972).
- Pae, S. M., "Political Stability of South Korea: A Quantitative Study," *Korean Observer*, Vol. 17, 1986.
- Park, J., "Can Decentralization Policy Constrain the Leviathan?," unpublished PhD dissertation, University of Pittsburgh, 1992.
- Pommerehne, W. W., "Quantitative Aspects of Federalism: A Study of Six Countries," in Oates, W.E. (ed), *The Political Economy of Fiscal Federalism*, (Lexington, M.A.: D.C. Heath and Co., 1977).
- Pryor, F. L., *Public Expenditure in Communist and Capitalist Nations*, (Homewood, I. L.: George Allen & Urwin, 1968).
- Rondinelli, D. A., Nellis, J. R. and Cheema, G. S., *Decentralization in Developing Countries: A Review of Recent Experience*, (Washington D.D.: World Bank, 1984).
- Smith, B. C., "The Measurement of Decentralization," *International Review of Administrative Sciences*, Vol. 45, 1979.
- Stephens, G. R., "State Centralization and the Erosion of Local Autonomy," *The Journal of Politics*, Vol. 36, 1974.
- Stiglitz, J. E., *Economics of the Public Sector*, 2nd ed. (New York: W. W. Norton, 1988).
- Thurow, L., "Aid to State and Local Governments," *National Tax Journal*, Vol. 23, 1970.
- Wasylenko, M., "Fiscal Decentralization and Economic Development," *Public Budgeting and Finance*, Vol. 7, Winter 1987.
- Williamson, O. E., *The Economic Institutes of Capitalism*, (New York: The Free Press, 1985).